Review of Environmental Factors

Burgmann's Lane Bridge

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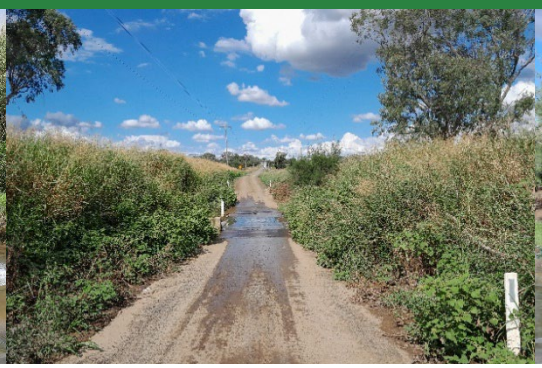


GeoLINK
environment | engineering | planning | design

GeoLINK Consulting Pty Ltd

PO Box 119
Lennox Head NSW 2478
T 02 6687 7666

PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 02 6772 0454

PO Box 229
Lismore NSW 2480
T 02 6621 6677

info@geolink.net.au

Prepared for: Tamworth Regional Council

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Executive Summary

Proponent and Determining Authority	Tamworth Regional Council
Background	Tamworth Regional Council propose to replace two single lane causeways on Burgmanns Lane, Kingswood within the Tamworth Regional Council (TRC) Local Government Area. The existing structures would be removed and replaced with a box culvert and concrete spanning bridge.
Location	The existing causeways are located on Burgmanns Lane, approximately 6.3 km south of Tamworth (refer to **Illustration 1.1**). The existing causeway crosses Goonoo Goonoo Creek (a 7th order stream). The site is situated in the Tamworth Regional Local Government Area.
Site Features	The area of proposed works encompasses the existing causeways and Burgmanns Lane. Burgmanns Lane is a local access road which connects the rural localities of Calala and Kingswood to the east of the site and Tamworth to the west of the site. The site has been previously disturbed as part of the construction and routine maintenance of Burgmanns Lane and the Goonoo Goonoo causeways. It is situated within a modified rural landscape which has been historically cleared for agricultural, road infrastructure and rural residential purposes.
Proposed Activity	The Activity comprises replacing the existing causeways with a box culvert and concrete spanning bridge and including: ■ Site establishment including installation of environmental controls, traffic controls, and site compound. ■ Cordoning off ecologically sensitive areas. ■ Bridge works: – Demolishing of existing causeway and disposal of materials. – Construction of piling pad and installation of bored piles. – Pouring of concrete abutments over the piled foundations. – Installation and tie down of precast plank units onto abutments. – Pouring of concrete deck. ■ Box culvert works: – Demolishing of existing causeway and disposal of materials. – Pouring of concrete base and apron slabs. – Installation of crown units. – Pouring of concrete wingwalls and headwalls. ■ Backfill of culvert/ bridge areas and reconstruction of approaches. ■ Installation of scour protection and finalisation of creek waterway works. ■ Installation of signage and guardrails. ■ Demobilisation and rehabilitation of site.
Statutory and Planning Framework	All relevant statutory planning instruments have been examined in relation to the proposed causeway replacement works. Development consent is not required for the proposal by virtue of Section 2.109 of the State Environmental Planning Policy (Transport and Infrastructure). However, the proposal becomes an 'Activity' for the purposes of Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* and is subject to an environmental impact assessment (this Review of Environmental Factors).

Environment Assessment and Conclusion

A comprehensive environmental assessment of the proposed Activity has been undertaken. Some minor impacts would occur as a result of the Activity; however, no significant or long-term adverse impacts are expected. To help ensure that the extent of impacts is limited and that unavoidable impacts are managed and minimised, mitigation measures and safeguards have been recommended and would be implement and monitored.

The Activity is considered justified taking into account the potential and residual environmental impacts, including the associated mitigation measures and safeguards. The Activity is in accordance with ecologically sustainable development principles and consistent with the objectives of the *Environmental Planning and Assessment Act 1979*.

As the potential environmental impacts of the Activity are not likely to be significant, it is not necessary for an Environmental Impact Statement to be prepared under Division 5.1, Subdivision 3 of the *Environmental Planning and Assessment Act 1979* or approval to be sought from the Minister for Planning under Division 5.2 of the *Environmental Planning and Assessment Act 1979*. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement is not required. The Activity is also not expected to affect Commonwealth land or have a significant impact on any matters of national environmental significance. Accordingly, the proposed Activity does not require referral to the Australian Government Department of Climate Change, Energy, the Environment and Water.

1. Introduction

1.1 Background and Activity Identification

Tamworth Regional Council (TRC) propose to replace two causeways on Burgmanns Lane, Kingswood, within the Tamworth Regional Local Government Area (LGA). The location of the proposed works is presented in **Illustration 1.1**. The existing structures would be demolished and replaced with a box culvert on the western causeway and a concrete spanning bridge on the eastern causeway. Detour routes via New England Highway, Calala Lane and Whitehouse Lane are proposed to maintain connectivity during the construction phase of works.

All construction and operational activities associated with construction of the culvert is referred to herein as 'the Activity'.

1.2 Purpose of this Report

This Review of Environmental Factors (REF) has been prepared by GeoLINK on behalf of TRC. For the purposes of these works, TRC is the proponent and the determining authority under Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to describe the Activity, to document the likely impacts of the Activity on the environment, and to detail safeguards/ mitigation measures to be implemented.

The description of the Activity and associated environmental impacts have been undertaken in context of Section 171 of the Environmental Planning and Assessment (EP&A) Regulation 2021, having regard for the *Guidelines for Division 5.1 Assessments* (DPE 2022), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of Section 5.5 of the EP&A Act, which requires TRC to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity.

The findings of the REF would be considered when assessing:

- Whether the proposed Activity is likely to have a significant impact on the environment and, therefore, the necessity for an environmental impact statement (EIS) to be prepared under Division 5.1, Subdivision 3 of the EP&A Act or approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the BC Act and/ or the FM Act, in relation to Section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report.
- The potential for the Activity to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision by the Commonwealth Minister on whether assessment and approval is required under the EPBC Act.

0 1 km

Site Locality - Illustration 1.1

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Review of Environmental Factors - Burgmanns Lane
4552-1030

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: SMW
Source of base data: ESRI World Imagery
Date: 18/05/2023

2. Description of the Activity

2.1 Site Location and Context

The site of the Activity is located on Burgmanns Lane, approximately 6.3 km south of Tamworth (refer to **Illustration 1.1**). The existing causeways traverse a meandering and unnamed tributary of Goonoo Goonoo Creek. Site photographs are provided at **Plate 2.1** and **Plate 2.2**.

The Activity lies within the Burgmanns Lane reserve managed by TRC (refer to **Illustration 2.1**). The site is not mapped as Crown Land.

Plate 2.1 Goonoo Goonoo Creek - upstream

Plate 2.2 Goonoo Goonoo Creek - downstream

LEGEND

- Extent of works
- Cadastre
- Stockpile area
- Watercourse
- Sensitive receiver

0 60 Metres

Site Analysis - Illustration 2.1

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: QG
Source of base data: ESRI World Imagery
Date: 18/05/2023

2.2 Site Analysis

2.2.1 Topography

The site sits at an elevation of approximately 392 m and is situated within an alluvial plain of low relief.

2.2.2 Soils

The site is mapped as being within the Goonoo Goonoo Soil Landscape (Banks, 2001). Soil types included in this landscape are:

- Very deep to giant, imperfectly drained Brown Sodosols;
- Deep to giant, imperfectly drained Black Vertosols;
- Very deep to giant, poorly drained Grey Vertosols;
- Shallow, moderately well-drained Calcareous Rudosols; and
- Deep to giant, imperfectly drained Brown Vertosols.

2.2.3 Vegetation

The site has been previously disturbed as part of the Burgmanns Lane and Goonoo Goonoo causeway construction and routine maintenance activities. It is located within a highly modified rural landscape which has been historically cleared for agricultural, road infrastructure and rural residential purposes. Vegetation within the Activity area is comprised of River Red Gum (*Eucalyptus camaldulensis*) and River Sheoak (*Casuarina cunninghamiana*), with an absent shrub layer and groundcover dominated by exotic species.

2.2.4 Waterways

The existing western causeway traverses an unnamed first order ephemeral tributary of Goonoo Goonoo Creek. The tributary converges with Goonoo Creek approximately 90 m north of the site.

The existing eastern causeway traverses Goonoo Goonoo Creek. The headwaters of Goonoo Goonoo Creek are located approximately 47.4 km south-south-east of the site. Goonoo Goonoo Creek converges with the Peel River approximately 5.8 km north of the site. Goonoo Goonoo Creek is mapped as key fish habitat.

The Activity area is mapped as flood liable land within the Tamworth Regional Local Environmental Plan 2010 (TRLEP 2010)

2.2.5 Existing Land Uses

The site comprises the existing causeways and Burgmanns Lane; a local access road which connects the rural localities of Calala and Kingswood to the east of the site and Tamworth to the west of the site. The site is surrounded by rural agricultural and residential land and is zoned RU4 Primary Production Small Lots pursuant to the TRLEP 2010.

2.3 The Proposed Activity

2.3.1 Overview

The Activity includes replacing the existing western and eastern causeways with a box culvert and a concrete spanning bridge, respectively. To maintain connectivity, a detour is proposed as there is no provision for a temporary side-track.

The existing western causeway is a one lane vented concrete causeway, with an overall length of approximately 5 m. This causeway would be demolished and removed from site. A box culvert would be installed at this location. This would also include concrete aprons and head walls, with scour protection extending past the culvert outlet.

The existing eastern causeway is a one lane non-vented concrete causeway, with an overall length of approximately 7 m. This causeway would be demolished and removed from site and replaced with a concrete spanning bridge. Construction of the bridge would include installation of a piling pad and bored piles within Goonoo Goonoo Creek. Scour protection would be installed around the bored piles and at the bridge abutments either side of the creek.

As the design is still being developed, for the purposes of assessing the impact of the Activity, an area of 30 m along the road reserve approaching the waterway crossings in both directions and 10 m to either side of the waterway crossings into the waterway has been included as the impact area.

The final design would consider fish passage requirements in accordance with the NSW Fisheries guidelines (Fairfull and Witheridge 2003). Fish passage would also be maintained through staged construction across the waterway to minimise disturbance of stream flows at any given time.

The culvert and bridge construction would also include the construction of two ancillary stockpile areas as shown in **Illustration 2.1** and discussed in **Section 2.4.5**.

2.3.2 Traffic Control and Detour

This portion of Burgmanns Lane would be closed to traffic for the duration of construction and a detour would be in place. A Traffic Guidance Scheme (TGS) would be required to establish the detour and manage the road closure, with clearly visible detour signage required. The detour and traffic assessment is discussed further in **Section 5.3**.

2.3.3 Tree Removal

The Activity requires the removal of one River Sheoak for access and the installation of the culvert and bridge. Discussion of biodiversity impacts can be found in **5.1**.

2.3.4 Demolition and Removal

Demolition of the existing causeways would require the removal of the entire causeway structures and excavation of material to the underside of the culvert and bridge base slab. Erosion and sediment controls would be in place to minimise any potential impacts during this phase of construction. Any excess material would be recycled or disposed of at a licensed waste recovery facility.

2.3.5 Virgin Excavated Natural Material

Virgin Excavated Natural Material (VENM) would be generated from the Activity where soil, sediment and rock are excavated. Wherever possible, this material would be reused within works associated with the Activity. Any surplus VENM would be disposed of at a licensed waste recovery facility.

2.3.6 Environmental Controls

Erosion and sediment controls would be designed and installed prior to excavation activities. Similarly, instream controls are required to prevent the dispersal of eroded sediment arising from the Activity. Additionally, controls would be implemented to prevent the erosion of stockpiled material. The controls would be maintained during the construction activities and would not be removed until all sites are suitably stabilised. All chemical storage and refuelling of plant equipment would be undertaken in bunded areas.

2.3.7 Site Clean-up

At the completion of the works, all exposed soil areas would be stabilised with groundcover and all excess materials and waste would be removed from the site. All temporary facilities would be decommissioned at the end of the relevant component of the works.

2.4 Construction Methodology

2.4.1 Construction Works

Generally, the construction of the culvert and bridge would involve the following:

- Site establishment including installation of environmental controls, traffic controls, and site compound.
- Cordoning off ecologically sensitive areas.
- Bridge works:
  - Demolishing of existing causeway and disposal of materials.
  - Construction of piling pad and installation of bored piles.
  - Pouring of concrete abutments over the piled foundations.
  - Installation and tie down of precast plank units onto abutments.
  - Pouring of concrete deck.
- Box culvert works:
  - Demolishing of existing causeway and disposal of materials.
  - Pouring of concrete base and apron slabs.
  - Installation of crown units.
  - Pouring of concrete wingwalls and headwalls.
- Backfill of culvert/ bridge areas and reconstruction of approaches.
- Installation of scour protection and finalisation of creek waterway works.
- Installation of signage and guardrails.
- Demobilisation and rehabilitation of site.

2.4.2 Plant and Equipment

Plant and equipment required for the works may include:

- 30T excavator.
- Bogey truck.
- Low loader transport truck.
- OSOM plank truck with dolly.
- 100T mobile crane.
- Concrete pump.
- Concrete agitator truck.

2.4.3 Working Hours

Construction activities would be undertaken in accordance with standard construction work hours:

- Monday to Friday 7 am to 6 pm.
- Saturday 8 am to 1 pm.
- No work on Sundays or public holidays.

2.4.4 Construction Timeframe

Construction is estimated to commence in mid-2024, and is expected to take approximately 10 months, weather permitting.

2.4.5 Ancillary Facilities

Temporary ancillary facilities would be established within the road reserve. Plant and materials would be stored on site for the duration of the works. Small areas for a site compound, material laydown and stockpiles would be established within the road reserve. (Refer to **Illustration 2.1**).

2.4.6 Services Works

No public utility relocations are required part of the works. Overhead powerlines (66 kV and 11kV) run parallel to Burgmanns Lane on the northern and southern edge, of the Activity area, respectively.

2.5 Options Considered

Do Nothing

To ‘do nothing’ to the existing crossing would be considered inappropriate. The existing structures are impassable during high-frequency, low-rainfall events, and prevent fish passage.

Box Culvert

A reinforced box culvert within Goonoo Goonoo Creek would be considered inappropriate due to the significant risk associated with the accumulation of debris upstream of the culvert. Additionally, a culvert would restrict fish passage in mapped key fish habitat.

Floodplain Concrete Bridge

A concrete bridge spanning the full length of the flood plain would strengthen the flood immunity of Burgmanns Lane during 1-5% AEP events. The resulting bridge would span 540 m and cost approximately $23 million. This option would be considered cost prohibitive.

Box Culvert and Concrete Spanning Bridge (Preferred Option)

A reinforced box culvert traversing the ephemeral tributary, in conjunction with a 24 m concrete spanning bridge traversing Goonoo Goonoo Creek, would strengthen the flood immunity of Burgmanns Lane during 0.5-1 EY events. This option is cost effective and will improve fish passage and is the preferred option.

3. Statutory Planning Framework

3.1 Environmental Planning and Assessment Act 1979

The Activity does not require development consent, however it requires environmental assessment and approval pursuant to Part 5, Division 5.1 and Section 5.5 of the EP&A Act whereby determining authorities, when assessing activities under Part 5, must examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. To ensure the Activity adequately addresses the requirements of Section 5.5, an assessment of the Activity's consistency with relevant EPIs including State Environmental Planning Policies (SEPPs) and LEPs has been completed.

3.2 State Environmental Planning Policies

3.2.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The SEPP (Transport and Infrastructure) 2021 aims to facilitate the effective delivery of infrastructure across the State and allows certain development by or on behalf of public authorities to be undertaken without consent.

Section 2.109 of the SEPP (Transport and Infrastructure) 2021 permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As the proposal is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf TRC (a public authority), it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The Activity is not located on land reserved under the *National Parks and Wildlife Act 1974*. The Activity is not development identified as State or regional development under Chapter 2 of SEPP (Planning Systems) 2021.

Part 2 of the SEPP (Transport and Infrastructure) 2021 contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation as required by the SEPP (Transport and Infrastructure) 2021 is discussed in **Section 4.2** of this REF.

3.2.2 State Environmental Planning Policy (Biodiversity & Conservation) 2021

SEPP (Biodiversity and Conservation) 2021 came into force on 1 March 2022 and incorporated the repealed provisions of SEPP (Koala Habitat Protection) 2020, SEPP (Koala Habitat Protection) 2021, and the SEPP (Vegetation in Non-Rural Areas) 2017, amongst others.

Chapter 3 of the SEPP (Biodiversity & Conservation) 2021 applies to land zoned RU1 in 83 LGAs in NSW, including the Tamworth Regional LGA. The aims of Chapter 3 are to:

- Help reverse the current trend of koala population decline by ensuring Koala habitat is properly considered during the development assessment process.
- Provide a process for councils to strategically manage Koala habitat through the development of Koala plans of management.

Chapter 3 of SEPP (Biodiversity & Conservation) 2021 only applies to Part 4 development applications under the EP&A Act. As the proposal is an Activity under Part 5 of the EP&A Act, the Policy does not technically apply. It is Council's responsibility however, to consider environmental issues relating to their works to the fullest extent possible, including impacts on Koalas. An assessment of the impacts of the Activity on biodiversity is provided at **Appendix A**.

3.2.3 State Environmental Planning Policy (Resilience and Hazards) 2021

On 1 March 2022, the provisions of SEPP No. 55 – Remediation of Land were repealed and incorporated into SEPP (Resilience and Hazards) 2021. Chapter 4 of the SEPP (Resilience and Hazards) 2021 deals with Remediation of Land.

A search of the NSW Environmental Protection Authority (EPA) contaminated land database and cattle dip site locator was undertaken for the TRC area. No records were found in proximity to the site (refer to **Appendix B**).

The site is not declared to be 'significantly contaminated land' under Part 3 of the *Contaminated Land Management Act 1997* and is not subject to a 'management order' within the meaning of the *Contaminated Land Management Act 1997.* The land is not the subject of an approved voluntary management proposal or an 'ongoing maintenance order'.

There is no proposed change of use, and the site is unlikely to be contaminated from past activities. There is no known contamination to note, and the Activity is unlikely to disturb contaminated land.

Overall, the site is considered suitable for the Activity.

3.3 Local Environmental Plans

The Activity is located within the Tamworth Regional LGA. Planning controls within this LGA are set out in the TRLEP 2010. The site is zoned RU4 Primary Production Small Lots.

The objectives of RU4 Zone are:

- To enable sustainable primary industry and other compatible land uses.
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

The Activity would upgrade waterway crossing infrastructure on a local road which connects rural localities. The proposed Activity is consistent with the zone objectives and is precluded from requiring consent as it is permitted without consent pursuant to Section 2.109 of the SEPP (Transport and Infrastructure) 2021.

3.4 NSW Legislation

Table 3.1 below lists other NSW legislation relevant to the assessment of the Activity and comments on their implications for the Activity.

Table 3.1 NSW Legislation

Legislation	Section(s)	Comment
Environmental Planning and	Section 1.7	Section 1.7 of the EP&A Act relates to the application of Part 7 of the BC Act and Part 7A of the FM Act.

Legislation	Section(s)	Comment
Assessment Act 1979 (as amended)		Biodiversity has been assessed in **Section 5.1**. The Activity is unlikely to have a significant impact on biodiversity or threatened species or communities.
	Section 5.5	The determining authority in its consideration of an activity shall examine and consider, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. This assessment provides TRC with the information required in regard to the environment to assess the Activity.
Environmental Planning and Assessment Regulation 2021	Section 171	Section 171(2) factors, as per the *Guidelines for Division 5.1 Assessments* issued under Section 170, have been considered in **Section 5** and **7.1**. It is not expected that the Activity would result in a significant impact.
Fisheries Management Act 1994	Section 200	A permit is required when carrying out dredging and reclamation work on water land under Part 7 of the FM Act.
	Sections 219-220	A permit is required to block the movement of fish. As the site is mapped as key fish habitat, a permit under Part 7 of the FM Act is required.
	Section 205	The Activity is not within a marine environment and no marine vegetation would be affected.
	Sections 220ZZ, 221ZV	The Activity would potentially impact a stream within the "Aquatic Ecological Community in the Natural Drainage System of the Lowland Catchment of the Darling River", which is listed as an Endangered Ecological Community under Part 3 of Schedule 4.
Protection of the Environment Operations Act 1997		No Protection of the Environment Policies are relevant to the Activity. No licenses would be required pursuant to the *Protection of the Environment Operations Act 1997*. TRC and/ or contractors working on behalf of TRC are required to notify EPA when a 'pollution incident' occurs that is likely to impact upon the environment.
	Section 115	It is an offence to negligently dispose of waste in a manner that harms the environment. Waste would be managed in accordance with the *Waste Avoidance and Resource Recovery Act 2001.* The Activity would aim to reduce the environmental impact of dumping waste and include mechanisms to recover resources and reduce the production of waste where possible.
	Section 120	It is an offence to pollute any waters of the State. This REF includes safeguard and mitigation measures to minimise the risk of the Activity resulting in pollution of waters.
National Parks and Wildlife Act 1974	Sections 87(1), 90	The provisions of the Act are unlikely to be triggered by the Activity. Works would cease if any potential artefact or place of significance is encountered during the Activity; and TRC and Tamworth Local Aboriginal Land Council (TLALC) would be notified immediately.
Biodiversity Conservation Act 2016	Schedules 1, 2 and 3	Threatened species and communities have been assessed in accordance with the BC Act. No significant impact is expected. Refer to **Section 5.1**.

Legislation	Section(s)	Comment
Biosecurity Act 2015		The Department of Primary Industries (DPI) biosecurity risk weed declarations for the North West, including the Tamworth Regional LGA, lists numerous weed species. African Boxthorn (*Lycium ferocissimum*) was recorded adjacent to the site and is a weed of national significance listed in the National Weeds Strategy and managed under the Biosecurity Act 2015.
Heritage Act 1977		Searches of the State Heritage Register, State Heritage Inventory and TRLEP 2010 heritage listings were undertaken. The searches did not locate any heritage items within or proximate to the site. No adverse impacts to heritage are expected. Refer to **Section 5.2**.
Roads Act 1993	Section 138	Section 138 of the *Roads Act 1993* requires approval from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road. Council is both the proponent and relevant roads authority in this instance.
Water Management Act 2000	Section 91 (2) & 91 (E). Section 41 of the Water Management (General) Regulation 2018.	Works within water lands or those comprising of extraction or management of water may be subject to approval if they constitute a 'controlled activity'. However, public authorities are exempt from a controlled activity approval. Extraction of water is not proposed. If it were, an access licence may be required under s56.

3.5 Commonwealth Legislation (Environment Protection and Biodiversity Conservation Act 1999)

Under the Commonwealth EPBC Act, any action that has, or is likely to have, a significant impact on matters of national environmental significance or other aspects of the environment, such as on Commonwealth land, may progress only with approval of the Commonwealth Minister for the DCCEEW under Part 9 of the EPBC Act. There are no matters of national environmental significance or Commonwealth land that would be significantly affected by the proposed Activity and therefore no Commonwealth referral or approval is necessary for the Activity (refer to **Section 7.2**).

3.6 Native Title (Native Title Act 1993)

A search of the National Native Title Register confirmed there is one registration for Native Title Claim by the Gomeroi People (Tribunal File No: NC2011/006/ Federal Court file no. NSD37/2019) that includes the Activity area (refer to **Appendix C**).

Council would need to confirm whether the land tenure would require Native Title consultation to fulfil any obligations under the *Native Title Act 1993*.

3.7 Confirmation of Statutory Position

An assessment of the relevant statutory provisions and planning instruments has concluded that the proposed Activity can be carried out as development without consent under the SEPP (Transport and Infrastructure) 2021 and can be assessed and determined under Part 5, Division 5.1 of the EP&A Act.

4. Consultation

4.1 Community Consultation

Letters would be issued to adjacent landowners notifying of the works. Signage would be used to advise motorists of the proposed road closure. A memo would be issued by Council to all transport stakeholders (i.e., buses, taxies, transport/logistics, emergency services, etc.).

4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 – Consultation

The SEPP (Transport and Infrastructure) 2021 aims to facilitate the effective delivery of infrastructure across the State. Part 2 of the SEPP (Transport and Infrastructure) 2021 contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development.

Pursuant to Section 2.17 (1)(c) (exceptions) of the SEPP (Transport and Infrastructure) 2021, Sections 2.10–2.12 and 2.14 do not apply with respect to the development to the extent that (as relevant), they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out. Given the Activity is being carried out by or on behalf of TRC, and Council is the determining authority, these Sections do not apply.

Section 2.13 contains provisions requiring consultation with the State Emergency Service (SES) for development with impacts on flood liable land, including development without consent under Division 17 (roads and traffic). As the land is mapped as flood liable land under the Probable Maximum Flood TRLEP 2010, written notice of the intention to carry out the Activity is required to be given to the SES.

No consultation with other public authorities is triggered under Section 2.15 of the SEPP (Transport and Infrastructure) 2021.

Section 2.16 (Consideration of Planning for Bush Fire Protection) of the SEPP (Transport and Infrastructure) 2021 is not applicable to the Activity.

No consultation is required with other agencies or public authorities under Part 2 Division 1 of SEPP (Transport and Infrastructure) 2021.

4.3 Aboriginal Community

The proposed Activity is to take place within an area which has been disturbed and modified. No significant risk or impact to Aboriginal heritage is expected. Consultation with the Aboriginal community is not required under point 5 (p.3) of the document *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (refer to **Section 5.7** for further details).

5. Environmental Assessment

5.1 Biodiversity

A Biodiversity Assessment Report carried out by GeoLINK in 2023 is provided in **Appendix A**.

5.1.1 Existing Environment

BioNet Atlas Search

BioNet search results identified records of three threatened flora species, 24 threatened fauna species, and habitat for ten Threatened Ecological Communities (TECs) (four of which are listed under the EPBC Act) within the search area.

EPBC Protected Matters Report

The Protected Matters Search Tool (PMST) identified 41 threatened species, ten migratory species and four TECs listed under the EPBC Act that may have habitat within a 10 km radius of the site.

Areas of Outstanding Biodiversity Value

A search of the BC Act indicates that no Areas of Outstanding Biodiversity Value occur at or in proximity to the site.

Key Fish Habitat/ Fisheries NSW Spatial Data

The waterway 'Goonoo Goonoo Creek' which traverses the site, is mapped as Key Fish Habitat and potential Eel Tailed Catfish habitat in the Fisheries NSW Spatial Data Portal. The Eel Tailed Catfish is listed as both a threatened species and threatened population under the FM Act. A review of threatened species, threatened populations, and endangered ecological communities (EECs) listed under the FM Act found that the site is associated with the EEC: *Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River*. The Activity area is not associated with any other FM Act listed threatened entities.

Vegetation

Vegetation within the Activity area is comprised of River Red Gum (*Eucalyptus camaldulensis*) and River Sheoak (*Casuarina cunninghamiana*), with an absent shrub layer and groundcover dominated by exotic species. This vegetation is described as poor condition Plant Community Type (PCT) 84 - *River Oak - Rough-barked Apple - Red Gum - Box Riparian Tall Woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion*.

Threatened Flora

No threatened flora species listed under the BC Act or EPBC Act were recorded at the site. No other threatened flora species identified by the database searches were considered potential occurrences in the study area.

Threatened Ecological Communities

No BC Act or EPBC Act listed TECs occur at the site.

Priority Weeds

African Boxthorn (*Lycium ferocissimum*) was recorded adjacent to the site and is a weed of national significance listed in the National Weeds Strategy and managed under the *Biosecurity Act 2015*. The following biosecurity duties must be applied to any African Boxthorn found on site:

- *Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*
- *Must not be imported into the state, sold, bartered, exchanged, or offered for sale.*
- *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.*

Threatened Flora

No threatened flora species listed under the BC Act or EPBC Act were recorded at the site. No other threatened flora species identified by the database searches were considered potential occurrences in the Activity area.

Threatened Fauna

No threatened fauna species were confirmed at the site during the site inspection. No evidence of Koala usage was detected during opportunistic scat searches below mature trees. The threatened species potential occurrence assessment identified that the study area provides potential habitat for the following locally recorded threatened species:

- Australasian Bittern – Foraging habitat.
- Black Falcon – Foraging habitat.
- Diamond Firetail – Foraging habitat
- Little Eagle – Foraging habitat.
- Little Lorikeet – Foraging and habitat.
- Regent Honeyeater – Foraging habitat
- Turquoise Parrot – Foraging and habitat.
- Grey-headed Flying-fox – Foraging habitat.
- Koala – Foraging habitat.
- Spotted-tailed Quoll – Foraging habitat.

The site itself provides only a small area of potential habitat for the above listed threatened species within the broader Activity area.

Artificial Microbat Roost Habitat

The existing concrete causeways do not provide any potential habitat for microbat roosting.

5.1.2 Potential Impacts

Potential direct biodiversity impacts from the Activity include:

- No direct removal of PCT 84 within the site, with the exception of one River Sheoak within site.
- Removal of up to 1.04 ha of exotic vegetation.
- Direct mortality or injury to fauna during vegetation clearing.

- Aquatic habitat modification of Goonoo Goonoo Creek.

Potential indirect biodiversity impacts from the Activity include:

- Aquatic habitat degradation due to erosion and sedimentation, potential water quality and waste impact.
- Terrestrial habitat degradation adjacent to the site from edge effects, soil compaction, accidental damage to surrounding vegetation during clearing, erosion and sedimentation, potential water quality and waste impacts.
- Introduction or spread of weeds.
- Introduction or spread of disease pathogens transported by plant, equipment, or materials. This includes:
  - Phytophthora (*Phytophthora cinnamomi*) a soil-borne plant pathogen.
  - Myrtle Rust (*Puccinia psidii*) a fungal disease which infects plants in the Myrtaceae family.
- Anthropogenic disturbances during construction associated with noise and human presence during construction.

These impacts are relatively low in a local context and would be managed with a relatively high confidence such that biodiversity impacts may be minimised with the implementation of biodiversity mitigation measures.

The Activity would impact on potential habitat for the following threatened entities:

- Australasian Bittern.
- Black Falcon.
- Little Eagle.
- Little Lorikeet.
- Regent Honeyeater
- Turquoise Parrot.
- Spotted-tailed Quoll.
- Koala.
- Grey-headed Flying-fox.

Test of significance assessments were undertaken for these entities and concluded that the Activity was unlikely to result in a significant impact on any of these BC Act listed threatened species or their habitat. The Activity is considered unlikely to have a significant impact on any threatened species, endangered populations or ecological communities listed under the BC Act, EPBC Act or FM Act.

5.1.3 Conclusion

The Activity is unlikely to significantly affect threatened species, populations or ecological communities, or their habitats, within the meaning of the BC Act or FM Act. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance as listed under the EPBC Act; and therefore, referral to the Commonwealth Environment Minister is not required.

The Activity may result in some biodiversity impacts; however, these would not result in a significant impact on any threatened species or communities and these impacts can be effectively managed through the implementation of the mitigation measures presented in **Section 5.1.4**.

5.1.4 Mitigation Measures

The following mitigation measures will be implemented to minimise potential biodiversity related impacts from the Activity:

1. The works footprint will be clearly delineated where it adjoins native vegetation (PCT 84) and habitat trees to prevent unnecessary disturbance or accidental clearing.
2. Vegetation removal will be kept to the minimum extent required to undertake the works. Hollow-bearing trees will be retained as a priority.
3. All vegetation being removed will be inspected for fauna prior to clearing. If fauna are present, works would stop until the animal voluntarily vacates the site; or a spotter-catcher or ecologist would be contacted to undertake fauna capture and relocation. If threatened species are present (e.g., Koala), works would stop, and an ecologist contacted to determine the most appropriate course of action.
4. Should removal of habitat trees be required, a suitably licenced and experienced ecologist/ spotter-catcher will be present during trimming or felling of habitat features to guide the tree clearing process and undertake fauna rescue and relocation if required.
5. If unexpected threatened species are detected, stop works immediately and notify the TRC Project Manager who will then contact an ecologist to determine the most appropriate course of action.
6. Contact an animal rescue agency/ wildlife care group or vet in the event that native fauna are injured. WIRES Central Northern: 1300 094 737.
7. The River Oak to be removed will be directionally felled away from adjacent intact vegetation to avoid unnecessary damage.
8. Plant, equipment, and personnel will be free of soil and potential weed propagules prior to being brought to the site or leaving the site, in accordance with the Saving Our Species Hygiene Guidelines (DPE, 2020).
9. Disturbance to watercourses will be minimised as much as practicable and works will be scheduled to coincide with periods of low or no flow.
10. Design and construction of the bridge and culvert will be undertaken in accordance with *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003).

5.2 Water Quality and Hydrology

5.2.1 Existing Environment

Description of the existing waterways is detailed in **Section 2.2.4**.

5.2.2 Potential Impacts

Water Quality

The Activity could present risks to Goonoo Goonoo Creek and downstream waterways if not managed effectively. Construction activities that could present a risk to sensitive environments in the broader landscape include:

- Construction works within the waterway, such as removal of the existing causeways, construction of the culvert, bored piles, and installation of scour protection.
- Erosion and sediment disturbance that could disperse from the site and impact local drainage lines and waterways.
- Pollution of local water quality (both ground and surface water) from pollutants from machinery and construction materials and spills.

- A variety of dispersible liquid materials would be used which pose a potential pollutant threat to local water quality. These liquids include, but are not limited to, diesel, unleaded petrol, machinery oils and lubricants. The nature of these liquids and their ability to disperse away from the work site means that they could have a negative impact on ground or surface water on or adjacent to the site, especially during rain.
- Periods of high rainfall or flood could exacerbate potential water quality impacts if works are in progress during such an event.

Whilst the works could pose these risks, such risks can be suitably avoided, minimised, and managed by implementing appropriate mitigation measures. With appropriate mitigation measures in place during construction, the Activity is considered unlikely to present significant risk to nearby water environments in the surrounding area. Following completion of construction, the Activity area is considered to have improved water quality given road users would be travelling over the bridge and culvert rather than causeways, thus minimising the risk of pollutants entering the waterway.

Hydrology

The Activity is not expected to displace flood water or adversely affect flood levels/ patterns. Goonoo Goonoo Creek, described in detail in **Section** 2.2.4, is mapped as key fish habitat, therefore, fish passage may be impacted as a result of the Activity. Mitigation measures have been included to minimise the risk.

With appropriate design and construction, hydrological risks, and impacts post construction (e.g., restriction of flow or up or downstream scouring) would be avoided.

5.2.3 Mitigation Measures

The following mitigation measures will be implemented to minimise the risk of adverse impacts relating to water quality:

11. Written notice of the intention to carry out the Activity will be given to the SES prior to the commencement of works.
12. The final bridge and culvert design will ensure fish passage is maintained during construction and operation in accordance with *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003).
13. Where possible, avoid works during forecast high rainfall events and plan works to occur during periods of no or low flow.
14. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment.
15. All refuelling of plant and equipment will be done offsite, and no fuels, chemicals or other liquids will be stored onsite.
16. Cleaning or washing of equipment is not to occur on site.
17. All equipment will be maintained in good working order and operated according to manufacturer's specification.
18. All waste and/ or wastewater will be removed from site.
19. Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/ slicks) within construction site and adjacent area is to be undertaken on a regular basis to identify any potential spills or deficient erosion and sediment controls during construction.
20. TRC and EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with Section 148 of the PoEO Act (via EPA Environment Line on 131 555).
21. Staged construction will be undertaken in accordance with *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003).

22. If required, a concrete washout area and facilities will be located more than 40 m from the creek and wash down water is to be contained within a designated impervious bund. Excess concrete is to be removed from site.
23. A clean water channel or pipe will be used to divert upstream flows to downstream of the Activity area and will be maintained at all times. The channel or pipe will be designed in accordance with the *Managing Urban Stormwater, Soils and Construction Guidelines* (Landcom, 2004).

5.3 Traffic and Access

5.3.1 Existing Environment

The proposed Activity includes replacing two causeways on Burgmanns Lane. This section of the road is a rural road (unsealed).

5.3.2 Potential Impacts

This portion of Burgmanns Lane would be closed to traffic for the duration of construction and a detour would be in place. A TGS would be required to establish the detour and manage the road closure, with clearly visible detour signage required.

Disturbance to local traffic during the construction phase would be short-term and moderate with a detour in place as follows:

- Southbound traffic may be detoured via Ascot-Calala Road, Whitehouse Lane and New England Highway.
- Northbound traffic may be detoured via Burgess Lane, Calala Lane and New England Highway.

The Ascot-Calala Road, Whitehouse Lane and New England Highway detour route option is shown in **Figure 5.1**. Typically, the route between the junction of Burgmanns Lane and New England Highway and the junction of Burgmanns Lane and Burgess Lane, using Burgmanns Lane, takes approximately three minutes according to Google Maps, covering approximately 3 km. This Ascot-Calala Road, Whitehouse Lane and New England Highway detour route option results in approximately an additional six-minute travel time and an additional 6.4 km distance.

Figure 5.1 Planned Ascot-Calala Road, Whitehouse Lane and New England Highway detour route option.

The Burgess Lane, Calala Lane and New England Highway detour route option is shown in **Figure 5.2**. This detour route option results in approximately an additional seven-minute travel time and an additional 5.4 km distance.

Figure 5.2 Burgess Lane, Calala Lane and New England Highway detour route option.

The proposed detours have the potential to impact the community, including residents and business/ freight transport by way of traffic and travel disruption. The length of detour is not substantial, and the traffic count on this road is low. Furthermore, this is considered a worst-case scenario and with detour times varying depending on the purpose of trip, origin and destination. With adequate consultation and notice, this detour is considered manageable.

Appropriate community and emergency service notification is required prior to works/ the detour commencing.

No operational phase traffic impacts are expected. The Activity would have a long-term positive impact for local traffic by maintaining road infrastructure.

5.3.3 Mitigation Measures

The following mitigation measures will be implemented to minimise the risk of adverse impacts to traffic and access:

24. A TGS is required to be implemented for the works in accordance with the requirements of the relevant edition of Transport for NSW Traffic Control at Worksites Manual and AS1742.
25. Regard to public safety will be maintained at all times.
26. Appropriate advanced notification and signage advising of the road closures and detour will be undertaken to inform the community/ road users.
27. Prior notification is to be provided to emergency services providers, advising of the temporary road closure/ detour and any significant delays in the operation of the roads affected.
28. Local schools and school bus operators are to be consulted prior to commencing works with regard to the proposed detour route and nature of impacts.

5.4 Soils, Erosion and Sedimentation

5.4.1 Existing Environment

Description of the existing soils and landscape is detailed in **Section 2.2.2**.

A search of the NSW EPA contaminated land database found no records of contaminated land on or near the site (see **9.Appendix B**). A search of the DPI Dip Sites confirmed no known dips occur on or near the site.

5.4.2 Potential Impacts

Land Contamination

The Activity would impact a previously modified area that has historically been disturbed for the installation of the existing causeways and road. There is no proposed change in land use, nor evidence to suggest that contamination is likely to be present. Standard construction measures and safeguards would be implemented to ensure that any unexpected potential exposure of contaminated material would be dealt with effectively and in accordance with EPA and/ or TRC policy and guidelines.

Soil and Erosion Control

There is the potential for the Activity to impact soils and water resources during the construction phase. The key risks would be from erosion and sedimentation, and ground disturbance. The local topography is undulating, with gentle gradients towards Goonoo Goonoo Creek, which flows through the site to the north.

There is risk of erosion and sedimentation as a result of the works. Safeguards are required to manage erosion and sedimentation risks associated with the construction phase of the works. An erosion and sediment control plan would be prepared for the Activity and implemented before the works commence.

5.4.3 Mitigation Measures

The following mitigation measures will be implemented to minimise the risk of adverse impacts relating to soils, erosion, and sedimentation:

29. Any exposure or disturbance of potentially/ suspected contaminated soil or material would be managed in accordance with relevant EPA and Council policy and guidelines. Any required disposal of such waste would be at a licensed facility.
30. Prepare a detailed and site-specific Erosion and Sediment Control Plan in accordance with the *Managing Urban Stormwater, Soils and Construction Guidelines* (Landcom, 2004) and implement relevant controls on site before works commence.
31. Implement and maintain appropriate control measures to prevent sediment build-up, ponding of stormwater or discharge of stormwater from the site to adjacent properties.
32. Fish passage is to be maintained at all times with design and construction undertaken in accordance with the DPI Fisheries guidelines.
33. Surplus material and excess spoil must be stockpiled, tested, classified (in accordance with Schedule 1 of the *Protection of Environment Operations Act 1997* (POEO Act)) and disposed of in accordance with the waste classification requirements.
34. Only clean equipment and vehicles will be used, with equipment being cleaned down before being brought to the site.

5.5 Noise and Vibration

5.5.1 Existing Environment

The site is located within a rural locality and is subject to existing noise associated with agricultural activities and passing traffic. The nearest sensitive receiver (dwelling) is located approximately 240 m west-north-west of the site on Lot 72 DP866139 (refer to **Illustration 2.1**).

5.5.2 Potential Impacts

Noise from the Activity would be typical of that associated with road construction work and would result from the use of plant and machinery, work vehicles, earthworks, and infrastructure installation.

Under the EPA's *Draft Construction Noise Guideline* (EPA 2020):

- The noise management level for works during the recommended standard hours is background + 10 dB. Above this noise level, the proponent needs to implement all feasible and reasonable work practices, as defined in the Guideline, to minimise noise impacts.
- For works outside the recommended standard hours, the noise management level is background + 5 dB.
- The highly noise-affected level of LAeq 75 dB(A) represents the point above which there may be strong community reaction to noise and indicates a need to consider other feasible and reasonable ways to reduce noise, such as restricting the times of very noisy works to provide respite to affected residences.

A distance-based assessment of noise has been undertaken using the Transport for NSW *Construction and Maintenance Noise Estimator Tool* (TfNSW 2022). The assessment found that

moderately intrusive noise levels (20 to 30 dB(A) above Rating Background Level) may affect sensitive receivers within a distance of 390 m (i.e., Lot 72 DP866139 and Lot 8 DP537934) from the site during the construction phase. Notification in the form of a letterbox drop or equivalent is recommended. Given the distance to sensitive receivers, noise would be audible however no significant noise impacts are expected.

Adverse vibration impacts resulting from the Activity are not expected based on the recommended minimum working distances for vibration intensive plant (TfNSW 2022) and separation from the nearest sensitive receiver/structure.

Works would be undertaken during standard construction hours. Appropriate noise and vibration management measures would be documented in a Construction Environmental Management Plan (CEMP) and implemented to minimise the impact and ensure receivers are informed of the works.

No long-term adverse noise and vibration impacts are expected to result from the Activity.

5.5.3 Mitigation Measures

The following mitigation measures will be implemented in order to avoid and minimise any potential adverse impacts relating to noise and vibration:

35. The sensitive receiver at Lot 72 DP866139 will be given advance notice (minimum 5 days) of the works and potential disruptions including details of the work activities, time periods over which these will occur, impacts and mitigation measures.
36. Construction activities will be undertaken in accordance with EPA recommended standard construction hours:

    - Monday to Friday 7:00 am to 6:00 pm.
    - Saturday 8:00 am to 1:00 pm.
    - No work on Sundays or public holidays.

37. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g., continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.
38. The most appropriately sized tool for the respective job will be used, keeping in mind that the smaller the tool, the less potential noise generated.
39. All vehicles and equipment will be turned off and not left idling when not required for work uses.
40. All plant equipment will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.

5.6 Non-Aboriginal Heritage

5.6.1 Existing Environment

Searches of the Australian Heritage database, Heritage NSW State Heritage Inventory database and Schedule 5 of TRLEP 2010 were undertaken. The searches did not locate any statutory listed heritage items within or proximate to the site.

The Activity is within a previously disturbed footprint of the causeways. The risk of unexpected non-Aboriginal heritage items occurring on site is low due to the disturbed nature of the site.

5.6.2 Potential Impacts

The Activity would not impact any known non-Aboriginal heritage sites or items. The main potential non-Aboriginal heritage impact is associated with unexpected finds.

5.6.3 Mitigation Measures

The following mitigation measures will be implemented in order to avoid and minimise any potential adverse impacts on non-Aboriginal heritage:

41. Should non-Aboriginal heritage items be uncovered during works, all works in the vicinity of the find will cease and TRC and NSW Heritage will be contacted. Works will not re-commence until appropriate clearance has been received.
42. If any items defined as relics under the NSW Heritage Act 1977 are uncovered during the works, all works will cease in the vicinity of the find and TRC Project Manager will be contacted immediately. Works will not re-commence until appropriate clearance has been received.

5.7 Aboriginal Heritage

An Aboriginal Cultural Heritage (Due Diligence) Assessment carried out by Tim Hill Heritage Management and Planning is provided in **Appendix D**.

5.7.1 Existing Environment

A search of the Aboriginal Heritage Information Management System (AHIMS) database identified no known Aboriginal sites within the immediate vicinity of the Activity.

5.7.2 Potential Impacts

Table 5.1 Generic Due Diligence Process

Generic Due Diligence Process	Proposed Activity
Will the activity disturb the ground surface or any culturally modified trees?	The ground surface would be disturbed as part of the Activity. However, the Activity is located within landforms which have been subject to substantial historical ground disturbance, including the removal and relocation of topsoils and the introduction of aggregate and road base material to form the road pavement upgrade works. The culvert crossing would be constructed on the existing disturbed road alignment. No culturally modified trees would be disturbed.
Are there any: 1. Relevant confirmed site records or other associated landscape features information on AHIMS? and/or 2. Any other sources of information of which a person is already aware? and/or 3. Landscape features that are likely to indicate	1. A search of the AHIMS database confirmed that no Aboriginal archaeological sites are recorded on AHIMS in the immediate vicinity of the Activity. 2. TLALC was not familiar with any ceremonial or dreaming sites associated with Goonoo Goonoo Creek. Given the disturbance history of the site, there is nothing to suggest that Aboriginal objects are likely to exist within the works footprint. 3. While the works are located near a watercourse, the works are not located within a sand dune system, ridge top, ridge line or headland. The site is not within 200 m of a cliff face or within 20 m of a cave, rock shelter or cave mouth. Additionally, based on

Generic Due Diligence Process	Proposed Activity
presence of Aboriginal objects?	the degree of ground disturbance within the road reserves it is not considered likely, or highly likely, that Aboriginal archaeological sites would be present or subject to harm from the Activity.

5.7.3 Mitigation Measures

The following mitigation measures will be implemented in order to avoid and minimise any potential adverse impacts on Aboriginal heritage:

43. If it is suspected that Aboriginal objects have been uncovered as a result of construction within the Study Area:

    a. Work in the surrounding area is to stop immediately and records are made of the finds via project incident reporting procedures;
    b. A temporary fence is to be erected around the site and appropriate controls put in place to ensure that no additional ground disturbance happens in the vicinity of the find;
    c. An appropriately qualified archaeological consultant and a representative of the Tamworth LALC are to be engaged to identify the material and provide an initial assessment of the significance of the object and the likely nature and extent of any associated archaeological sites;
    d. If the material is found to be of Aboriginal origin, the find must be reported on the AHIMS database;
    e. In the event that the Aboriginal objects are considered to have been damaged or disturbed, the incident must be reported through the NSW Enviro Hotline; and
    f. Works may only recommence after advice from Heritage NSW on the requirement for an AHIP or where design, engineer or construction measures are identified to mitigate further damage to the Aboriginal site.

44. Aboriginal sites officers from Tamworth LALC are to be engaged as ‘spotters’ during the initial site preparation works which include the removal of grass and topsoils, including the establishment of site offices and ancillary work areas.
45. In the event that human remains are located within the Activity area, all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Tamworth) is to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community (Tamworth LALC) and Heritage NSW (Parramatta) should be notified and consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all parties, provided it is in accordance with all parties’ statutory obligations.

5.8 Visual

5.8.1 Existing Environment

The existing environment within the vicinity of the Activity is disturbed agricultural land with forested areas occurring predominantly along riparian zones. The quality of the visual environment associated with the works area is moderate with value at a local scale.

5.8.2 Potential Impacts

There would be temporary local visual impacts during construction as a result of the presence of machinery, plant and equipment and general construction activities. This is considered temporary and short-term in nature.

Following construction, the visual amenity of the Activity area would have changed. Some of the existing vegetation within the site would be removed. However, most of the existing vegetation to be removed is identified as exotic. As such, this is a positive short-term and long-term change for the Activity area.

The visual quality of the environment is considered to undergo a minimal change following completion of the Activity and would remain moderate with value at a local scale.

5.8.3 Mitigation Measures

The following measures will be implemented to prevent and/ or minimise adverse impacts relating to visual amenity:

46. Upon completion of the works, any works areas will be restored to an acceptable visual state.
47. All sites will be maintained, kept free of rubbish and cleaned up at the end of each workday.

5.9 Air Quality

5.9.1 Existing Environment

The Activity is located in a rural and waterway environment. Potential airborne particles within the locality are largely restricted to minor dust generated by vehicle movements and agricultural activities in the broader landscape.

5.9.2 Potential Impacts

The Activity may temporarily affect air quality through exhaust emissions from machinery and associated transportation. There may also be dust generated during earthworks and the removal of sediments. However, this is considered to be a minor impact. Given the temporary duration of the works and nature of the Activity, the level of potential impact is manageable through the implementation of standard mitigation measures.

The Activity would contribute to greenhouse gas emissions to a minor extent via the emissions from construction vehicles, as well as the consumption of materials requiring carbon emissions. Given the scale of the works, the influence on greenhouse gas emissions would be negligible. However, it is appropriate to implement measures that can reduce or minimise such effects.

5.9.3 Mitigation Measures

The following mitigation measures will be implemented to minimise adverse impacts relating to air quality:

48. Vegetation or other materials will not be burnt on site.
49. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation.
50. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.

51. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle.
52. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.

5.10 Socio-economic

5.10.1 Existing Environment

The site is located on Burgmanns Lane which is a local access road connecting the rural localities of Calala and Kingswood to the east of the site and Tamworth to the west of the site. The road provides a route for important agricultural industries within the Calala and Kingswood rural areas. Consequently, the road and associated infrastructure is of high socio-economic values for these communities.

5.10.2 Potential Impacts

The proposed Activity would be located within the existing road reserve and would not require any permanent realignment of the road.

The works would take approximately 10 months to complete and would require a road closure and a detour whilst work is being undertaken. To maintain connectivity between Tamworth and the impacted localities during the construction phase, two alternative detours via Burgess Lane, Calala Lane and New England Highway, and via Ascot-Calala Road, Whitehouse Lane and New England Highway, would be proposed (refer to **Section 5.3**), which would result in approximately seven additional minutes of travel time for local users, depending on the route taken, origin and destination.

The works and detour would occur in a rural isolated area and would not directly affect businesses and commercial operations, however indirect impacts would result from traffic disruption and detours. The detour has the potential to impact the community, including residents, buses, and business/ freight transport in terms of inconvenience, additional travel time and cost. The length of detour is 8.4 km, however the traffic count on this road is low, and the proposed construction is relatively short in duration. With adequate consultation and notice, this detour is considered manageable.

Following completion of works, normal operation of this road would resume and there would be no operational impacts to transport. The replacement culvert would benefit the local community by replacing the existing frequently flooded causeways with a structurally sound, long-life box culvert and spanning bridge.

Further assessment is proposed in **Section 5.3** about traffic impacts and mitigation measures.

Construction staff are required to use appropriate personal protective equipment (PPE) and follow construction management protocols to prevent injury and incidents within the works area.

As discussed in **Section 2.4.6**, overhead powerlines are in the vicinity of the Activity, however, no electrical services would be impacted. Mitigation measures have been included for the safety of those working close to power lines.

As discussed in **Section 4.1**, all adjacent landowners and transportation stakeholders would be notified of the road closure.

Given the nature of the Activity and the site context no other adverse long-term socio-economic impacts are anticipated. Overall, the Activity would have a positive socio-economic impact by maintaining critical road infrastructure used by the local community.

5.10.3 Mitigation Measures

The following mitigation measures will be implemented in minimise adverse socio-economic impacts:

53. Contractors/ workers will be mindful of the needs of the local community.
54. Any potentially impacted parties or landholders, including bus providers, will be consulted prior to construction and implementation of the detour.
55. Any changes to public or private roads (including private driveways) as a result of the works will be reinstated to an acceptable standard upon completion of the works.
56. In accordance with the *Work Health and Safety Act 2011*, workers will be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area will also be required to wear protective clothing. Works personnel will be provided with or expected to have protective equipment and appropriate construction training.
57. In accordance with the *NSW Code of Practice – Work near Overhead Power Lines*, all plant and equipment is to be operated with consideration of the relevant approach distances for the design envelope of the plant/ equipment, with reference to a 66 kV overhead power line.

5.11 Waste

5.11.1 Potential Impacts

Waste generated from the construction of the Activity may include, but is not limited to:

- Causeway demolition materials.
- Packaging materials.
- General site rubbish.
- Oils and grease from machinery.
- Spoil material from excavation.

Waste has the potential to disperse into the surrounding environment and cause potential harm to stock and terrestrial and aquatic flora and fauna. Waste products may also transport contaminants that may degrade local water quality (e.g., fuels, lead-based paint, and oils). This risk can be reduced and managed through the implementation of safeguards.

5.11.2 Mitigation Measures

The following mitigation measures will be implemented to minimise adverse impacts in relation to waste generated by the Activity:

58. Avoid unnecessary resource consumption as a priority.
59. Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery).
60. Disposal is undertaken as a last resort (in accordance with the *Waste Avoidance & Resource Recovery Act 2001*).
61. Working areas will be maintained, kept free of rubbish, and cleaned up at the end of each day.
62. Waste material will not be left on-site once the works have been completed.
63. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate.
64. Waste will be disposed of at a licensed waste or recycling facility as appropriate.

5.12 Climate Change

Anthropogenic climate change associated with global warming is the result of human activities creating greenhouse gas emissions which in turn affects the environment. Anthropogenic climate change and the need to reduce emissions is a key issue of global, national, and local importance.

5.12.3 Potential Impacts

The Activity would contribute to carbon emissions and anthropogenic climate change to a minor extent via the production of greenhouse gas emissions by construction equipment and traffic as well as the consumption of materials requiring carbon emissions and the removal of vegetation that may otherwise act as a carbon sink. Given the scale of the works however, the influence on emissions and climate change would be negligible. However, it is appropriate to implement measures that can reduce or minimise cumulative emissions and related effects.

5.12.4 Mitigation Measures

Mitigation measures to minimise impacts in relation to climate change include:

65. Vehicles and equipment will be switched off when not required for direct construction activities.
66. Waste will be minimised and is otherwise to be recycled or disposed of appropriately.
67. Vegetation removal will be minimised as far as practical.

5.13 Cumulative Impacts

Under Section 171 of the EP&A Regulation 2021, any cumulative environmental effect with other existing or likely future activities must be taken into account when assessing the impact of an activity for the purposes of Part 5 of the EP&A Act.

The Activity is expected to add to a number of cumulative impacts including resource consumption, vegetation clearing and generation of greenhouse gas emissions (e.g., through operation of vehicles and equipment, use of resources). However, the relevant mitigation measures stated throughout **Section 5** and the methodology for completion of the Activity aim to minimise the extent to which it contributes to cumulative adverse environmental impacts. There are no other known significant developments or works that would coincide with the proposed Activity and have the potential to result in adverse cumulative amenity and environmental impacts. No significant cumulative impacts are expected.

5.14 Ecologically Sustainable Development

The objectives of the EP&A Act require that the principles of Ecologically Sustainable Development (ESD) are considered and evaluated in the environmental assessment process and in the determination of a development application. Whilst a development application is not required for this project, consideration of these principles is useful.

5.14.1 Precautionary Principle

The EP&A Regulations 2021 defines the precautionary principle as the following:

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

To satisfy the precautionary principle, this REF has conducted a thorough analysis of potential environmental, economic and social concerns. This assessment has identified and examined potential impacts and developed appropriate mitigation measures and safeguards to help avoid and/or minimise impacts and safeguard the environment. Considering this assessment's findings, the Activity is unlikely to impose significant and/ or long-term adverse impacts on the environment, economy, or community. The mitigation measures and safeguards outlined in this REF would be implemented to ensure sound environmental outcomes in all aspects of the Activity.

5.14.2 Inter-generational Equity

The EP&A Regulations 2021 defines the inter-generational equity as the following:

That the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The Activity would not significantly affect the viability of threatened species, or any TECs or other environmental resources including water, soil and air. Therefore, local environmental values would not be substantially adversely affected by the Activity and would be maintained for future generations. The Activity would have positive socio-economic effects in relation to maintenance of access and existing road infrastructure.

5.14.3 Conservation of Biological Diversity and Ecological Integrity

The EP&A Regulations 2021 defines the conservation of biological diversity and ecological integrity as the following:

That conservation of biological diversity and ecological integrity should be a fundamental consideration.

The impacts to ecological integrity and conservation of biological diversity at the site have been assessed as part of this REF. No threatened species, endangered populations or TECs are likely to be significantly affected by the Activity. No populations of native species are likely to be made locally rare or unviable as a result of the Activity. Consequently, the ecological integrity and biological diversity would be maintained locally.

5.14.4 Improved Valuation, Pricing, and Incentive Mechanisms

The EP&A Regulations 2021 defines improved valuation, pricing, and incentive mechanisms as the following:

That environmental factors should be included in the valuation of assets and services.

It is difficult, however, to assign a monetary value to the environment of a locality or to environmental resources not considered for commercial use. The proponent has taken an approach to manage the potential environmental impacts of the Activity by identifying appropriate measures and safeguards to avoid or mitigate adverse environmental effects. This would ensure that the integrity of the environment is not degraded, is managed and where possible enhanced.

6. Summary of Mitigation Measures

6.1 Summary of Mitigation Measures

The following table provides a summary of the mitigation measures detailed in this report that would be implemented for the Activity. The identified measures would be incorporated by the Contractor into a detailed CEMP prior to commencement of works, which also outlines how risks would be minimised and the construction processes would be undertaken and managed. The objective of the CEMP is to outline parameters for site management practices during construction. All construction staff and site personnel would be inducted and made aware of their obligations working on the project, their environmental responsibilities, and the safeguard measures to avoid and minimise potential impacts. Induction and toolbox talks would commence early in the program and continue as new personnel/ contractors are engaged.

Table 6.1 Summary of Mitigation Measures

Environmental Attribute	Mitigation Measures/ Safeguards
Biodiversity	1. The works footprint will be clearly delineated where it adjoins native vegetation (PCT 84) and habitat trees to prevent unnecessary disturbance or accidental clearing. 2. Vegetation removal will be kept to the minimum extent required to undertake the works. Hollow-bearing trees will be retained as a priority. 3. All vegetation being removed will be inspected for fauna prior to clearing. If fauna are present, works would stop until the animal voluntarily vacates the site; or a spotter-catcher or ecologist would be contacted to undertake fauna capture and relocation. If threatened species are present (e.g., Koala), works would stop, and an ecologist contacted to determine the most appropriate course of action. 4. Should removal of habitat trees be required, a suitably licenced and experienced ecologist/ spotter-catcher will be present during trimming or felling of habitat features to guide the tree clearing process and undertake fauna rescue and relocation if required. 5. If unexpected threatened species are detected, stop works immediately and notify the TRC Project Manager who will then contact an ecologist to determine the most appropriate course of action. 6. Contact an animal rescue agency/ wildlife care group or vet in the event that native fauna are injured. WIRES Central Northern: 1300 094 737. 7. The River Oak to be removed will be directionally felled away from adjacent intact vegetation to avoid unnecessary damage. 8. Plant, equipment, and personnel will be free of soil and potential weed propagules prior to being brought to the site or leaving the site, in accordance with the Saving Our Species Hygiene Guidelines (DPE, 2020). 9. Disturbance to watercourses will be minimised as much as practicable and works will be scheduled to coincide with periods of low or no flow. 10. Design and construction of the bridge and culvert will be undertaken in accordance with Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003).
Water Quality and Hydrology	11. Written notice of the intention to carry out the Activity will be given to the SES prior to the commencement of works. 12. The final bridge and culvert design will ensure fish passage is maintained during construction and operation in accordance with Why

Environmental Attribute	Mitigation Measures/ Safeguards
	do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003). 13. Where possible, avoid works during forecast high rainfall events and plan works to occur during periods of no or low flow. 14. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment. 15. All refuelling of plant and equipment will be done offsite and no fuels, chemicals or other liquids will be stored onsite. 16. Cleaning or washing of equipment is not to occur on site. 17. All equipment will be maintained in good working order and operated according to manufacturer's specification. 18. All waste and/ or wastewater will be removed from site. 19. Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/ slicks) within construction site and adjacent area is to be undertaken on a regular basis to identify any potential spills or deficient erosion and sediment controls during construction. 20. TRC and EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with Section 148 of the PoEO Act (via EPA Environment Line on 131 555). 21. Staged construction will be undertaken in accordance with Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003). 22. If required, a concrete washout area and facilities will be located more than 40 m from the creek and wash down water is to be contained within a designated impervious bund. Excess concrete is to be removed from site. 23. A clean water channel or pipe will be used to divert upstream flows to downstream of the Activity area and will be maintained at all times. The channel or pipe will be designed in accordance with the Managing Urban Stormwater, Soils and Construction Guidelines (Landcom, 2004).
Traffic and Access	24. A TGS is required to be implemented for the works in accordance with the requirements of the relevant edition of Transport for NSW Traffic Control at Worksites Manual and AS1742. 25. Regard to public safety will be maintained at all times. 26. Appropriate advanced notification and signage advising of the road closures and detour will be undertaken to inform the community/ road users. 27. Prior notification is to be provided to emergency services providers, advising of the temporary road closure/ detour and any significant delays in the operation of the roads affected. 28. Local schools and school bus operators are to be consulted prior to commencing works with regard to the proposed detour route and nature of impacts.
Soils, Erosion and Sedimentation	29. Any exposure or disturbance of potentially/ suspected contaminated soil or material would be managed in accordance with relevant EPA and Council policy and guidelines. Any required disposal of such waste would be at a licensed facility. 30. Prepare a detailed and site-specific Erosion and Sediment Control Plan in accordance with the Managing Urban Stormwater, Soils and Construction Guidelines (Landcom, 2004) and implement relevant controls on site before works commence.

Environmental Attribute	Mitigation Measures/ Safeguards
	31. Implement and maintain appropriate control measures to prevent sediment build-up, ponding of stormwater or discharge of stormwater from the site to adjacent properties. 32. Fish passage is to be maintained at all times with design and construction undertaken in accordance with the DPI Fisheries guidelines. 33. Surplus material and excess spoil must be stockpiled, tested, classified (in accordance with Schedule 1 of the Protection of Environment Operations Act 1997 (POEO Act)) and disposed of in accordance with the waste classification requirements. 34. Only clean equipment and vehicles will be used, with equipment being cleaned down before being brought to the site.
Noise and Vibration	35. The sensitive receiver at Lot 72 DP866139 will be given advance notice (minimum 5 days) of the works and potential disruptions including details of the work activities, time periods over which these will occur, impacts and mitigation measures. 36. Construction activities will be undertaken in accordance with EPA recommended standard construction hours: - Monday to Friday 7:00 am to 6:00 pm. - Saturday 8:00 am to 1:00 pm. - No work on Sundays or public holidays. 37. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g., continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required. 38. The most appropriately sized tool for the respective job will be used, keeping in mind that the smaller the tool, the less potential noise generated. 39. All vehicles and equipment will be turned off and not left idling when not required for work uses. 40. All plant equipment will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.
Non-Aboriginal Heritage	41. Should non-Aboriginal heritage items be uncovered during works, all works in the vicinity of the find will cease and TRC and NSW Heritage will be contacted. Works will not re-commence until appropriate clearance has been received. 42. If any items defined as relics under the NSW Heritage Act 1977 are uncovered during the works, all works will cease in the vicinity of the find and TRC Project Manager will be contacted immediately. Works will not re-commence until appropriate clearance has been received.
Aboriginal Heritage	43. If it is suspected that Aboriginal objects have been uncovered as a result of construction within the Study Area: a. Work in the surrounding area is to stop immediately and records are made of the finds via project incident reporting procedures. b. A temporary fence is to be erected around the site and appropriate controls put in place to ensure that no additional ground disturbance happens in the vicinity of the find. c. An appropriately qualified archaeological consultant and a representative of the Tamworth LALC are to be engaged to identify the material and provide an initial assessment of the significance of the object and the likely nature and extent of any associated archaeological sites.

Environmental Attribute	Mitigation Measures/ Safeguards
	d. If the material is found to be of Aboriginal origin, the find must be reported on the AHIMS database; e. In the event that the Aboriginal objects are considered to have been damaged or disturbed, the incident must be reported through the NSW Enviro Hotline; and f. Works may only recommence after advice from Heritage NSW on the requirement for an AHIP or where design, engineer or construction measures are identified to mitigate further damage to the Aboriginal site. 44. Aboriginal sites officers from Tamworth LALC are to be engaged as 'spotters' during the initial site preparation works which include the removal of grass and topsoils, including the establishment of site offices and ancillary work areas. 45. In the event that human remains are located within the Activity area, all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Tamworth) is to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community (Tamworth LALC) and Heritage NSW (Parramatta) should be notified and consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all parties, provided it is in accordance with all parties' statutory obligations.
Visual	46. Upon completion of the works, any works areas will be restored to an acceptable visual state. 47. All sites will be maintained, kept free of rubbish, and cleaned up at the end of each workday.
Air Quality	48. Vegetation or other materials will not be burnt on site. 49. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation. 50. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. 51. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle. 52. Vehicles, machinery, and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the Protection of the Environment Operations Act 1997 and associated regulation.
Socio-economic	53. Contractors/ workers will be mindful of the needs of the local community. 54. Any potentially impacted parties or landholders, including bus providers, will be consulted prior to construction and implementation of the detour. 55. Any changes to public or private roads (including private driveways) because of the works will be reinstated to an acceptable standard upon completion of the works. 56. In accordance with the Work Health and Safety Act 2011, workers will be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area will also be required to wear protective clothing. Works personnel will be provided with or expected to have protective equipment and appropriate construction training.

Environmental Attribute	Mitigation Measures/ Safeguards
	57. In accordance with the NSW Code of Practice – Work near Overhead Power Lines, all plant and equipment is to be operated with consideration of the relevant approach distances for the design envelope of the plant/ equipment, with reference to a 66 kV overhead power line.
Waste	58. Avoid unnecessary resource consumption as a priority. 59. Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling, and energy recovery). 60. Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001). 61. Working areas will be maintained, kept free of rubbish, and cleaned up at the end of each day. 62. Waste material will not be left on-site once the works have been completed. 63. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate. 64. Waste will be disposed of at a licensed waste or recycling facility as appropriate.
Climate Change	65. Vehicles and equipment will be switched off when not required for direct construction activities. 66. Waste will be minimised and is otherwise to be recycled or disposed of appropriately. 67. Vegetation removal will be minimised as far as practical.

6.2 Licensing and Approvals

Goonoo Goonoo Creek is mapped as key fish habitat. As such, a permit under Part 7 of the FM Act is required.

7. Summary of Consideration of Environmental Factors

7.1 Section 171 Checklist

As part of its obligation under Section 5.5 of the EP&A Act, the determining authority is required to take into account, to the fullest extent possible, all matters likely to affect the environment. The determining authority is required by Section 171 of the Environmental Planning and Assessment Regulation 2021 and the *Guidelines for Division 5.1 Assessments* issued under Section 170, to give consideration to a number of factors that are listed below. **Table 7.1** provides a summary of the key issues relevant to each factor and the key mitigation measures proposed.

Table 7.1 Section 171 Checklist (NSW Legislation)

	Factor	Impact
a	**The Environmental Impact on a Community**	
	The community would not be affected by declines in the local environment as a result of the Activity. Mitigation measures have been designed to reduce environmental impacts on the community to negligible levels.	Minor
b	**The Transformation of a Locality**	
	The Activity would result in a minor change to the locality.	Minor
c	**The Environmental Impact on the Ecosystems of the Locality**	
	No vegetation of significance would be removed to allow for the Activity. The impact of that vegetation removal is discussed in this REF. Extensive mitigation measures have been designed to reduce environmental impacts.	Minor
d	**Reduction of the Aesthetic, Recreational, Scientific or Other Environmental Quality or Value of a Locality**	
	It is expected that the temporary reduction in aesthetic quality during construction of the locality would be minor. No reduction in the quality of the environment would occur due to the mitigation measures detailed in this REF. No overall significant changes to the locality would occur.	Nil
e	**The Effects on a Locality, Place or Building Having Aesthetic, Anthropological, Archaeological, Architectural, Cultural, Historical, Scientific or Social Significance or Other Special Value for Present or Future Generations**	
	The Activity would not impact existing land uses. There would be no significant impacts to heritage, visual amenity or social significance and as such impacts are therefore considered to be negligible.	Nil
f	**The Impact on the Habitat of Protected Fauna (Within the Meaning of the *Biodiversity Conservation Act 2016***)	
	With effective implementation of the mitigation measures provided in this REF, the Activity is not considered likely to have a significant negative impact on the habitat of any other protected fauna.	Nil

	Factor	Impact
g	**The Endangering of any Species of Animal, Plant or Other Form of Life Whether Living on Land, in Water or in the Air**	
	With effective implementation of the mitigation measures provided in this REF, the Activity is not considered likely to significantly endanger any species of animal, plant or other form of life.	Nil
h	**Long-Term Effects on the Environment**	
	No negative long-term impacts would occur in the locality given the implementation of the proposed mitigation measures in this REF.	Nil
i	**Degradation of the Quality of the Environment**	
	Degradation of the quality of the environment is not expected. With the mitigation measures in this REF, any impacts are unlikely to be substantial.	Nil
j	**Risk to the Safety of the Environment**	
	No negative long-term impacts would occur in the locality given the implementation of the mitigation measures in this REF.	Nil
k	**Reduction in the Range of Beneficial Uses of the Environment**	
	The Activity would not result in any reduction in the range of beneficial uses of the environment.	Nil
l	**Pollution of the Environment**	
	The Activity has minor potential to affect water quality during the works. The mitigation measures would minimise the duration and impact. Given the proposed mitigation measures detailed in this REF and all waste being disposed within an appropriate/ approved waste disposal facility, pollution to the environment would be minimised.	Minor
m	**Environmental Problems Associated with the Disposal of Waste**	
	Any wastes would be disposed of in a manner which would not damage or disturb any native flora or fauna or the physical environment. The disposal of such waste would be within a waste management facility in accordance with EPA approved methods of waste disposal. Mitigation measures detailed in this REF would protect the environment from problems associated with waste disposal.	Nil
n	**Increased Demands on Resources (Natural or Otherwise) that are likely to Become in Short Supply**	
	The Activity does not create any demand for resources that are in short supply nor is it likely to result in an increased demand on any natural resources that are likely to become in short supply.	Nil
o	**The Cumulative Environmental Effect with Other Existing or Likely Future Activities**	
	The Activity would have minor cumulative impacts (e.g., resource consumption; greenhouse gas emissions; vegetation loss) but is unlikely to significantly contribute to any cumulative impacts.	Nil
p	**The impact on coastal processes and coastal hazards, including those under projected climate change conditions**	
	The Activity could contribute to cumulative impacts to a negligible extent (e.g., greenhouse gas emissions, consumption of resources) contributing to climate change and associated impacts, however there would be no direct impact on coastal process or hazards.	Minor

	Factor	Impact
q	**Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1**	
	Not applicable	Nil
r	**Other relevant environmental factors**	
	Nil	Nil

7.2 EPBC Act 1999 (Commonwealth Legislation)

The EPBC Act protects/ regulates matters of national environmental significance (MNES), including:

- World Heritage.
- National heritage places.
- Wetlands of international importance.
- Nationally threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'. A database search was completed on 5 April 2023 encompassing a 10 km radius search area from the centre of the proposed Activity (refer to **Appendix A**). Search results following the site assessment are considered in **Table 7.2.**

Table 7.2 EPBC Act Considerations

Matter	Impact
Any impact on a World Heritage property?	
No World Heritage properties occur at or proximal to the site.	Nil
Any impact on a National Heritage place?	
No National Heritage places occur at or proximal to the site.	Nil
Any impact on a wetland of international importance?	
No wetlands of international importance (Ramsar Sites) occur at or near the site.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for four TECs, 41 threatened species and ten migratory species were listed within the 10 km search area. No Commonwealth listed threatened flora, fauna or TECs are likely to be significantly affected by the Activity (refer to biodiversity assessment at **Section 5.1**) and mitigation measures have been provided to minimise any potential impacts.	Nil to negligible
Any impact on a Nationally Important Wetland?	
No nationally important wetlands occur at or near the site. Nationally Important Wetlands are not likely to be affected by the Activity.	Nil
Any impact on Migratory species?	
Based on the minor nature of the works, no listed migratory species are likely to be significantly affected by the Activity (refer to **Section 5.1**).	Nil

Matter	Impact
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur at or near the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Great Barrier Reef Marine Park is distant from the site.	Nil
Does the Proposal involve a nuclear action (including uranium mining)?	
The Activity does not involve a nuclear action.	Nil
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The Activity does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	
The Activity is not expected to impact upon such land.	Nil

The assessment of the impact of the Activity on MNES and the environment of Commonwealth land has found that there is unlikely to be significant impact on relevant MNES. Accordingly, the Activity does not require referral to the DCCEEW.

8. Conclusion and Certification

The Activity is the replacement of two causeways, traversing an unnamed tributary and meander of Goonoo Goonoo Creek in Kingswood, with a reinforced concrete box culvert and a concrete spanning bridge.

The Activity is permitted without development consent and subject to assessment under Part 5 of the EP&A Act. This REF has examined and considered to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed Activity. The Activity would result in some impacts; however, these are not likely to be significant and can be effectively managed/ameliorated through the implementation of the safeguards and mitigation measures recommended in this REF.

The Activity described will not affect areas of outstanding biodiversity value or Wilderness Areas. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the BC Act or FM Act and therefore a Species Impact Statement (or Biodiversity Development Assessment Report (BDAR) if the Proponent elected) is not required. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance in relation to the EPBC Act.

I certify to the best of my knowledge that:

- This REF provides a true and fair review of the Activity in relation to its potential effects on the environment, and
- The assessment satisfies the requirements of Sections 5.5 to 5.7 of the EP&A Act, Section 171 of the EP&A Regulation 2021, and other relevant legislation and guidelines, and
- The assessment has been adequately completed, and
- Subject to the inclusion of the safeguards/measures included in this REF, it is reasonable to conclude that the project will not likely have a significant impact on the environment during both the construction and operation phases, and
- Given the impacts of the Activity are not likely to be significant, an Environmental Impact Statement is not required under Section 5.7 of the EP&A Act, and
- A Species Impact Statement or BDAR is not required, and
- The Activity does not warrant/require referral to the DCCEEW under the EPBC Act, and
- The Activity is not State Significant Infrastructure and does not require approval under Division 5.2 of the EP&A Act.

REF Prepared by	
Signature:	
Name:	Shannon Waddy and Michelle Campione-van Zetten
Position:	Environmental Scientist and Environmental Planner
REF Reviewed by	
Signature:	
Name:	Simon Williams
Position:	Director/ Principal Environmental Planner

9. Determining Authority Sign Off

Determining Officer (Public Authority) who Approves this REF

I certify to the best of my knowledge and on behalf of Tamworth Regional Council that:

☒ Based on the completed REF and my knowledge of the project, the assessment has been adequately completed, the project has predictable impacts which would not be significant, the conclusion as to the likely environmental impact of the project is reasonable, and the project can proceed subject to the relevant measures and conditions in this REF, any approval, license or permit.

☐ The project requires additional environmental assessment.

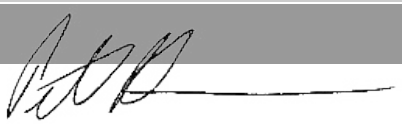
Reasons:

Enter Reasons.

☐ The project should not proceed in its current form.

Reasons:

NOTE: A site visit may be required depending on the level of confidence and risk to the environment.

Reviewed by:			
Signature		**Date:**	14/05/2025
Name	Mark Gardiner		
Position	Manager, Project Planning & Delivery		
Determining Authority Name	Peter Resch, Director Regional Services		
Determined By:			

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Appendix A

Ecological Assessment

Biodiversity Assessment Report

Burgmanns Lane

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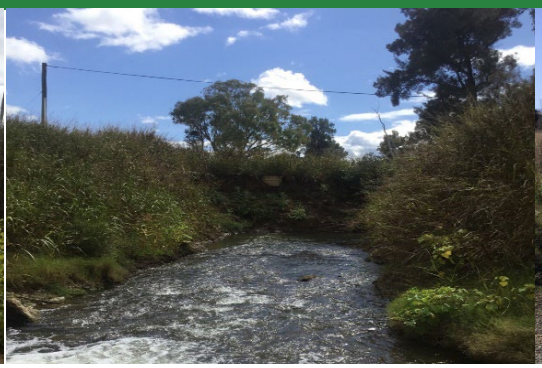
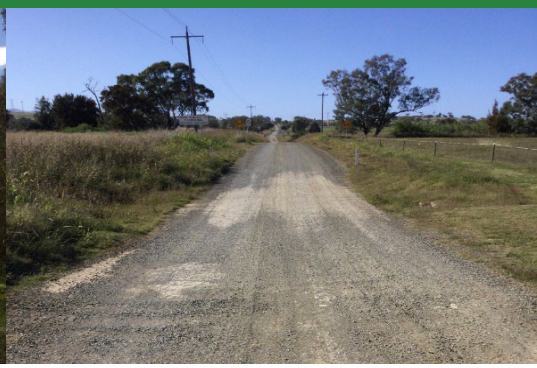

GeoLINK
environment | engineering | planning | design

GeoLINK Consulting Pty Ltd

PO Box 119
Lennox Head NSW 2478
T 02 6687 7666

PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 02 6772 0454

PO Box 229
Lismore NSW 2480
T 02 6621 6677

info@geolink.net.au

Prepared for: Tamworth Regional Council

Certification

	Name	Signature	Date
Prepared by	Quinn Green		19/05/2023
Reviewed by	Veronica Silver		25/05/2023

UPR	Description	Issued By	Date Issued
4552-1027	Version 1	Quinn Green	29/05/2023
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Executive Summary

This Biodiversity Assessment Report (BAR) has been prepared for Tamworth Regional Council for a proposed replacement of two concrete causeways on Burgmanns Lane over Goonoo Goonoo Creek, Kingswood, approximately 8 km south of Tamworth. The Activity involves:

- Demolishing the existing central causeway and replacing it with a concrete spanning bridge.
- Demolishing the existing western causeway and replacing it with a concrete box culvert.

Biodiversity features of the site are as follows:

- Areas of riparian vegetation on the site most closely align with Plant Community Type (PCT) 84 – *River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion* as described in the BioNet Vegetation Classification System.
- No *Biodiversity Conservation Act 2016* (BC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed TECs occur at the site.
- One large, fissured tree and one hollow-bearing tree were recorded adjacent to the central culvert.
- No threated flora or fauna were observed at the site although several species were assessed as potential occurrences.
- Goonoo Goonoo Creek is mapped as Key Fish Habitat and potential habitat for the *Fisheries Management Act 1994* (FM Act) listed threatened species and listed threatened population, Eel Tailed Catfish (*Tandanus tandanus*) on the Fisheries NSW Spatial Data Portal. The waterway is also associated with the FM Act listed Endangered Ecological Community (EEC): *Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River*. A seven-part test under the FM Act has determined the site is of low habitat value for Eel Tailed Catfish and above listed EEC.
- The study area provides potential habitat for the following threatened fauna species:
  - Birds: Australasian Bittern, Black Falcon, Diamond Firetail, Little Eagle, Little Lorikeet, Regent Honey Eater, Turquoise Parrot.
  - Mammals: Grey-headed Flying-fox, Koala, Spotted-tailed Quoll.

Impacts of the Activity would include:

- Potential fauna injury and mortality during clearing.
- Removal of one River Sheoak (*Casuarina cunninghamiana* subsp. *cunninghamiana*).
- Degradation of adjacent and downstream habitat due to the construction phase impacts such as edge effects, and erosion and sedimentation impact.
- Potential introduction or spread of weeds and pathogens.
- Direct and indirect impacts to aquatic habitat associated with Goonoo Goonoo Creek.

A range of mitigation measures have been proposed to minimise potential impacts to biodiversity associated with the Activity.

Review of statutory instruments relevant to the Activity were completed as follows:

- BC Act: The Activity is unlikely to significantly affect any threatened species, TECs, or their habitat.
- FM Act: The Activity is unlikely to significantly affect any threatened species, threatened populations or endangered ecological communities, or their habitat.
- EPBC Act: The Activity is unlikely to significantly affect threatened species or communities, or migratory species listed under the EPBC Act.

1. Introduction

1.1 Introduction

This Biodiversity Assessment Report (BAR) has been prepared for Tamworth Regional Council (TRC) for a proposed replacement of two concrete causeways on Burgmanns Lane over Goonoo Goonoo Creek, Kingswood, as part of the Timber Bridge Replacement Program (refer to **Illustration 1.1** and **Illustration 1.2**). The project involves:

- Demolishing the existing central causeway and replacing it with a concrete spanning bridge.
- Demolishing the existing western causeway and replacing it with a concrete box culvert.

The project is currently in the planning and design phase, with specialist studies (including this report) being undertaken to inform the detailed design options.

All construction and operational activities associated with the Burgmanns Lane replacement works is referred to herein as 'the Activity'.

This BAR has been prepared to:

- Identify the biodiversity values of the site, particularly habitat for threatened species, populations or communities listed under the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Identify native vegetation and habitat that may be impacted by the Activity.
- Assess the impacts of the Activity against the relevant statutory requirements.

1.2 The Site

The site is located within the road reserve of Burgmanns Lane, Kingswood, approximately 8 km south of Tamworth (refer to **Illustration 1.1**) within a rural setting. The existing central concrete causeway is located over Goonoo Goonoo Creek, with the western causeway located approximately 126 m west of the central causeway. Works would extend to the far edges of the roadside and up to 10 m both north and south of the creek. Refer to **Illustration 1.2** for a detailed extent of the site.

The site broadly occurs within the Peel subregion of the Nandewar as per the Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (DCCEEW, 2023).

1.3 Legislative Context

This BAR has been prepared to inform an assessment under Part 5 of the *Environment Planning and Assessment Act 1979* (EP&A Act) for the Activity and assess biodiversity impacts.

The works are permissible under State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)). Section 2.109 (development permitted without consent - general) of SEPP (Transport and Infrastructure) permits development on any land for the purpose of road or road infrastructure facilities activities to be carried out by or on behalf of a public authority without consent:

Road infrastructure facilities are defined in Section 2.108 of SEPP (Transport and Infrastructure) as:

(a) tunnels, ventilation shafts, emergency accessways, vehicle or pedestrian bridges, causeways, road-ferries, retaining walls, toll plazas, toll booths, security systems, bus lanes, transit lanes, transitways, transitway stations, rest areas and road related areas (within the meaning of the Road Transport Act 2013), and

(b) associated public transport facilities for roads used to convey passengers by means of regular bus services, and

(c) bus layovers that are integrated or associated with roads (whether or not the roads are used to convey passengers by means of regular bus services), and

(d) bus depots, and

(e) bus stops and bus shelters, and

(f) traffic control facilities (within the meaning of Part 6 of the Transport Administration Act 1988), TfNSW road safety training facilities and safety works, and

(g) premises used for the purposes of testing and inspecting heavy vehicles (within the meaning of the Road Transport Act 2013) under the TfNSW Heavy Vehicle Authorised Inspection Scheme.

As the proposal involves works associated with a vehicle bridge to be undertaken by a public authority, the works are permitted without consent under Section 2.109 (development permitted without consent - general) of SEPP (Transport and Infrastructure).

Section 7.2 of the BC Act and Part 7A of FM Act require that the significance of the impact on threatened species and ecological communities is assessed using a Test of Significance. Where a significant impact is likely to occur, a species impact statement must be prepared in accordance with the Director-General's requirements, or a Biodiversity Development Assessment Report must be prepared by an accredited assessor in accordance with the Biodiversity Assessment Method (BAM).

1.4 The Activity

The Activity is for the replacement of two concrete causeways. The Activity would involve the demolition of the existing causeways and construction of a new concrete spanning bridge and concrete box culvert to improve the flood resilience of the road.

The Activity would remove or modify up to 1.04 ha of exotic vegetation and one River Sheoak consistent with PCT 84 (*River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion*) to facilitate the works. The Activity would generally comprise the following components:

- Site establishment including installation of environmental controls, traffic controls, and site compound.
- Isolate ecologically sensitive areas with para-webbing or flagging tape.
- Construction of a concrete spanning bridge:
  - Demolish existing causeway and dispose of materials.
  - Construct piling pad and install bored piles.
  - Pour abutments over the piled foundations.
  - Lift precast plank units onto abutments and tie down.
  - Pour concrete deck.
- Reconstruction of concrete box culvert:
  - Demolish existing causeway and dispose of materials.

  - Pour base and apron slabs.
  - Install box culvert crown units.
  - Pour wingwalls and headwalls.

- Backfill bridge and reinforced concrete box culvert and reconstruct approaches.
- Install scour protection and finalise creek waterway works.
- Install signage and guardrail.
- Demobilise and rehabilitate site.

0 1 km

Site Locality - Illustration 1.1

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Review of Environmental Factors - Burgmanns Lane
4552-1031

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: SMW
Source of base data: ESRI World Imagery
Date: 18/05/2023

LEGEND

- Extent of works
- Cadastre
- Stockpile area
- Watercourse
- Sensitive receiver

0 60 Metres

Site Analysis - Illustration 2.1

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: QG
Source of base data: ESRI World Imagery
Date: 18/05/2023

2. Methodology

2.1 Desktop Review

The following desktop review was completed prior to field assessment:

- A search of the BioNet Wildlife Atlas (20 km x 20 km grid centred on the site); completed 13 April 2023.
- A search of the Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) within a 10 km radius of the site; completed 13 April 2023.
- Review of Department of Primary Industries (DPI) Fisheries habitat mapping and fisheries spatial data portal for threatened freshwater species listed in the FM Act.
- Review of declared weeds listed under the *Biosecurity Act 2015* for the Tamworth Regional LGA.
- Review of landscape features (e.g. World Heritage Sites, Ramsar Wetlands, Areas of Outstanding Biodiversity Value, geology, etc.).

The desktop assessment results were used to inform the field survey methodology.

2.2 Field Assessment

The field assessment was completed by GeoLINK Ecologists Quinn Green and Ben Millan on 14 April 2023 using the following methodology:

- Vegetation assessment and mapping including identifying vegetation communities to BioNet plant community types (PCTs).
- Targeted surveys for threatened flora (as identified in BioNet searches).
- Identification of threatened ecological communities (TECs).
- Opportunistic survey of all fauna based on visual or aural observations.
- Identification and survey (by GPS) of any hollow-bearing trees.
- Survey of bridges for microbat habitat.
- Opportunistic searches for Koala scats beneath mature trees.

2.2.1 Survey Limitations

Despite a thorough search, some cryptic flora species that are difficult to locate may have been overlooked in the survey. If there was any doubt as to whether smaller more cryptic threatened flora species may be present, these species were assumed present and a test of significance for potential impacts of the Activity undertaken.

While highly mobile fauna species may be difficult to detect during site assessments, the survey techniques utilised provide suitable sampling for a range of fauna with an emphasis on targeting threatened species most likely to occur within the study area. Based on local fauna records, vegetation and habitats occurring in the study area, predictions of threatened fauna usage can be made with a relatively high level of confidence.

3. Desktop Analysis

3.1 Desktop Search Results

3.1.1 BioNet Search

BioNet search results identified records of three threatened flora species, 24 threatened fauna species, and habitat for ten TECs (four of which are listed under the EPBC Act) within the search area (refer to **Appendix A**).

3.1.2 EPBC Act Protected Matters Report

The Protected Matters Search Tool (PMST) identified 41 threatened species, ten migratory species and four TECs listed under the EPBC Act that may have habitat within a 10 km radius of the site (refer to **Appendix A**). Relevant species are included in the potential occurrence assessments in **Appendix B**.

3.1.3 Areas of Outstanding Biodiversity Value

No areas of outstanding biodiversity value, as listed under the BC Act, have been declared in the Tamworth Regional local government area (LGA).

3.1.4 Key Fish Habitat

The waterway 'Goonoo Goonoo Creek' which traverses the site is mapped as Key Fish Habitat and potential Eel Tailed Catfish habitat in the Fisheries NSW Spatial Data Portal. The Eel Tailed Catfish is listed as both a threatened species and threatened population under the FM Act. A review of threatened species, threatened populations, and endangered ecological communities (EECs) listed under the FM Act found that the site is associated with the EEC: *Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River*. The study area is not associated with any other FM Act listed threatened entities.

4. Site Assessment

4.1 Vegetation

Plant Community Types (PCTs) occurring adjacent to the central culvert are described in **Section 4.1.1** and shown in **Illustration 4.1**.

4.1.1 Poor Condition PCT 84 – River Oak - Rough-barked Apple - Red Gum - Box Riparian Tall Woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion

The canopy in this community is dominated by River Red Gum (*Eucalyptus camaldulensis*) and River Sheoak (*Casuarina cunninghamiana* subsp. *cunninghamiana*) (refer to **Plate 4.1**). The shrub layer is absent in this community. The groundcover is dominated by exotic vegetation consisting of Blackberry Nightshade (*Solanum nigrum)**, Wild Mustard (*Brassica rapa L.*)*, Awnless Barnyard Grass(*Echinochloa colona*), Wild Oats (*Avena fatua*)*, Noogoora Burr (*Xanthium occidentale*)*, Flaxleaf Fleabane (*Conyza bonariensis*)*, Paspalum (*Paspalum dilatatum*)*, Purpletop (*Verbena incompta*)* and Johnson Grass (*Sorghum halepense*)*, with smaller areas of native grasses including Common Reed (*Phragmites australis*) and Couch (*Cynodon dactylon*).

*denotes exotic species.

This community is in poor condition, with high level of groundcover disturbance from past clearing, grazing, weed incursions, road construction and edge effects.

Plate 4.1 Poor condition PCT 84

4.1.2 Exotic Dominated Road Verge

Vegetation along the verge of Burgmanns Lane is dominated by exotic species such as Blackberry Nightshade*, Wild Mustard *, Awnless Barnyard Grass, Wild Oats*, Noogoora Burr*, Flaxleaf Fleabane*, Paspalum*, Purpletop* and Johnson Grass*.

This vegetation community does not conform to any recognised PCT.

*denotes exotic species.

Plate 4.2 Exotic dominated road verge.

4.1.3 Threatened Ecological Communities

No BC Act or EPBC Act listed TECs occur at the site.

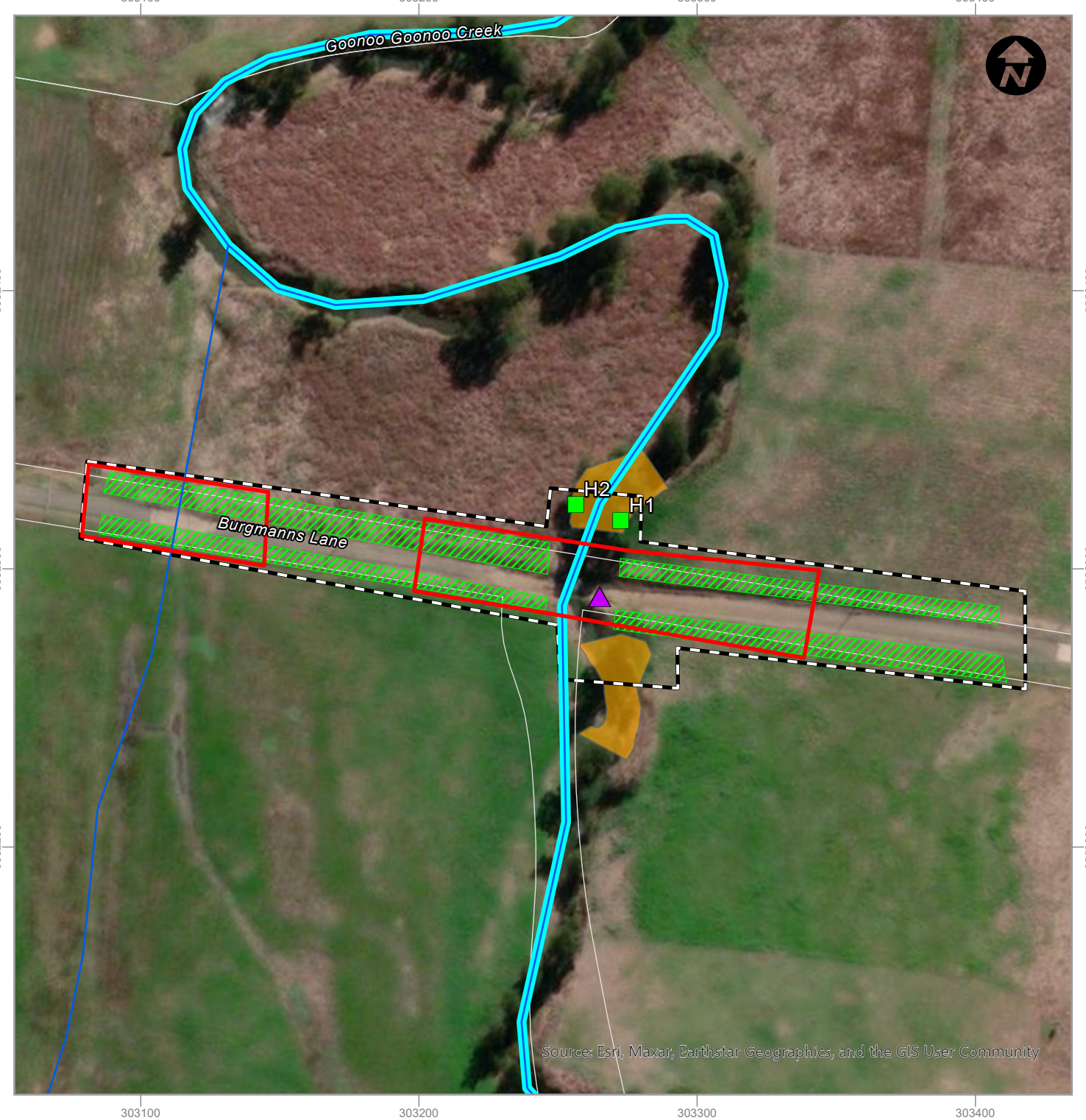
4.1.4 Threatened Flora

No threatened flora species listed under the BC Act or EPBC Act were recorded at the site. No other threatened flora species identified by the database searches (refer to **Section 3.1**) were considered potential occurrences in the study area (refer to **Appendix B**).

4.1.5 Weeds

African Boxthorn (*Lycium ferocissimum*) was recorded adjacent to the site and is a weed of national significance listed in the National Weeds Strategy and managed under the *Biosecurity Act 2015*. The following biosecurity duties must be applied to any African Boxthorn found on site:

- *Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*
- *Must not be imported into the state, sold, bartered, exchanged, or offered for sale.*
- *Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.*



LEGEND

- Impact area
- Assessment area
- Cadastre
- Poor condition PCT 84 - River Oak - Rough-barked Apple - Red Gum - Box Riparian Tall Woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion
- Weedy road verge
- Watercourse
- Key fish habitat waterway
- Habitat tree
- River Sheoak *(Casuarina Cunninghamiana)*

0 40 Metres

Biodiversity Constraints - Illustration 4.1

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: QG
Source of base data: ESRI World Imagery
Date: 12/05/2023

4.2 Fauna Habitat

The site has been subject to historical clearing and disturbance and the areas of riparian vegetation adjacent to the site are in poor condition and provide low habitat value. Native trees and grasses provide potential foraging, roosting and nesting resources for locally occurring native fauna including birds, mammals, reptiles, and microchiropteran bats.

4.2.1 Habitat Trees

Two hollow-bearing trees (HBTs) were recorded adjacent to the site (refer to **Table 4.1** and **Illustration 4.1**). These trees contain a small hollow and large fissure which provide potential resources for hollow-obligate species such as nesting birds, arboreal mammals, and microbats. One birds nest was also recorded within habitat tree H1. No possum drays or other habitat features were recorded within or adjacent to the site. No habitat trees would be impacted by the Activity. Habitat trees were marked with yellow spray paint and pink flagging tape.

Table 4.1 Habitat Trees n and Adjacent to the Site

	H1	H2
Common Name	River Red Gum	River Sheoak
Scientific Name	*Eucalyptus camaldulensis*	*Casuarina cunninghamiana*
Tree Height	20	12
DBH (cm)	160	50
Total Hollows	1	-
Small Limb Hollow	1	-
Medium Limb Hollow	-	-
Large Limb Hollow	-	-
Small Trunk Hollow	-	-
Medium Trunk Hollow	-	-
Large Trunk Hollow	-	-
Fissures	-	1 (Large)
Total Basal Hollow	-	-
Nests	1	-
Possum Dreys	-	-
Longitude	150.936338	150.936172
Latitude	-31.146606	-31.146551

Plate 4.3 Habitat Tree 1

Plate 4.4 Habitat Tree 2

4.2.2 Aquatic Habitat

Goonoo Goonoo Creek and associated tributaries provide riparian and aquatic habitat to a range of fauna species including turtles, frogs, fish, invertebrates, and birds. The DPI Fisheries NSW Spatial Data Portal maps Goonoo Goonoo Creek as potential Eel Tailed Catfish habitat. This species is listed as both an Endangered species and Endangered population under the FM Act. A seven-part test under the FM Act was performed and found the section of Goonoo Goonoo Creek within the site is of low suitability for the Eel Tailed Catfish.

Goonoo Goonoo Creek is associated with the FM Act listed Endangered Ecological Community (EEC): *Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River*. A seven-part significance test was performed and found the waterway within the site to be of low habitat value for the subject EEC.

Plate 4.3 Existing causeway at Goonoo Goonoo Creek

4.2.3 Artificial Microbat Roost Habitat

The existing concrete causeways do not provide any potential habitat for microbat roosting.

4.2.4 Connectivity

The site is described as a “Potential Subregional Corridor (riparian)” as per Scotts 2003. The landscape within the locality comprises farmland, riparian vegetation, and weedy roadside verge. Native vegetation is fragmented by agricultural uses and the existing road network. The cleared road easement results in a large break in connectivity between vegetation at the site (approximately 35 m). Given the scope of the Activity within a previously disturbed road corridor, connectivity on site is expected to remain the same post works.

4.3 Threatened Fauna

No threatened fauna species were confirmed at the site during the site inspection. No evidence of Koala usage was detected during opportunistic scat searches below mature trees.

The threatened species potential occurrence assessment (refer to **Appendix B**) identified that the study area provides potential habitat for the following locally recorded threatened species:

Birds

- Australasian Bittern – Foraging habitat.
- Black Falcon – Foraging habitat.
- Diamond Firetail – Foraging Habitat
- Little Eagle – Foraging habitat.
- Little Lorikeet – Foraging and habitat.
- Regent Honeyeater – Foraging habitat
- Turquoise Parrot – Foraging and habitat.

Mammals

- Grey-headed Flying-fox – Foraging habitat.
- Koala – Foraging habitat.
- Spotted-tailed Quoll – Foraging habitat.

The site itself provides only a small area of potential habitat for the above listed threatened species within the broader study area.

4.3.1 EPBC Act Listed Species

No migratory species listed under the EPBC Act were recorded at the site. The site does not comprise Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) defined important habitat for any listed migratory species. EPBC Act listed migratory species are not considered a constraint for the Activity.

5. Impacts and Mitigation

5.1 Potential Impacts of the Activity

Potential direct biodiversity impacts from the Activity include:

- No direct removal of PCT 84 within the site, except for one River Sheoak within site.
- Removal of up to 1.04 ha of exotic vegetation.
- Direct mortality or injury to fauna during vegetation clearing.
- Aquatic habitat modification of Goonoo Goonoo Creek.

Potential indirect biodiversity impacts from the Activity include:

- Aquatic habitat degradation due to erosion and sedimentation, potential water quality and waste impacts (refer to corresponding REF).
- Terrestrial habitat degradation adjacent to the site from edge effects, soil compaction, accidental damage to surrounding vegetation during clearing, erosion and sedimentation, potential water quality and waste impacts (refer to corresponding REF).
- Introduction or spread of weeds.
- Introduction or spread of disease pathogens transported by plant, equipment, or materials. This includes:
  - Phytophthora (*Phytophthora cinnamomi*) a soil-borne plant pathogen.
  - Myrtle Rust (*Puccinia psidii*) a fungal disease which infects plants in the Myrtaceae family.
- Anthropogenic disturbances during construction associated with noise and human presence during construction.

These impacts are relatively low in a local context and would be managed with a relatively high confidence such that biodiversity impacts may be minimised with the implementation of biodiversity safeguards provided in **Section 5.2**.

The Activity would impact on potential habitat for the following threatened entities:

- Threatened species:
  - Australasian Bittern.
  - Black Falcon.
  - Little Eagle.
  - Little Lorikeet.
  - Regent Honeyeater
  - Turquoise Parrot.
  - Spotted-tailed Quoll.
  - Koala.
  - Grey-headed Flying-fox.

Test of significance assessments were undertaken for these entities and concluded that the Activity was unlikely to result in a significant impact on any of these BC Act listed threatened species or their habitat (refer to **Appendix C**). The Activity is considered unlikely to have a significant impact on any threatened species, endangered populations or ecological communities listed under the BC Act, EPBC Act or FM Act.

5.2 Biodiversity Safeguards

The corresponding REF prepared for the Activity describes general environmental safeguards required to minimise potential impacts of the Activity. The following biodiversity specific safeguards would be implemented to minimise potential biodiversity related impacts from the Activity:

1. The works footprint will be clearly delineated where it adjoins native vegetation (PCT 84) and habitat trees to prevent unnecessary disturbance or accidental clearing.
2. Vegetation removal will be kept to the minimum extent required to undertake the works (refer to **Illustration 4.1**). Hollow-bearing trees will be retained as a priority.
3. All vegetation being removed will be inspected for fauna prior to clearing. If fauna are present, works would stop until the animal voluntarily vacates the site; or a spotter-catcher or ecologist would be contacted to undertake fauna capture and relocation. If threatened species are present (e.g., Koala), works would stop, and an ecologist contacted to determine the most appropriate course of action.
4. Should removal of habitat trees be required, a suitably licenced and experienced ecologist/ spotter-catcher will be present during trimming or felling of habitat features to guide the tree clearing process and undertake fauna rescue and relocation if required.
5. If unexpected threatened species are detected, stop works immediately and notify the Tamworth Regional Council Project Manager who will then contact an ecologist to determine the most appropriate course of action.
6. Contact an animal rescue agency/ wildlife care group or vet if native fauna are injured. WIRES Central Northern: 1300 094 737.
7. The River Oak to be removed will be directionally felled away from adjacent intact vegetation to avoid unnecessary damage.
8. Plant, equipment, and personnel will be free of soil and potential weed propagules prior to being brought to the site or leaving the site, in accordance with the Saving Our Species Hygiene Guidelines (DPE, 2020).
9. Disturbance to watercourses will be minimised as much as practicable and works will be scheduled to coincide with periods of low or no flow.

6. Statutory Requirements

The following sections examine the findings of the site assessment regarding relevant statutory requirements which require consideration.

6.1 Biodiversity Conservation Act 2016

This assessment has been prepared in accordance with the *Biodiversity Conservation Act 2016* provisions. Test of significance assessments ('five-part tests') under Section 7.3 of the BC Act were completed for the following species:

Threatened Fauna:

Birds

- Australasian Bittern.
- Black Falcon.
- Little Eagle.
- Little Lorikeet.
- Regent Honeyeater
- Turquoise Parrot.

Mammals

- Grey-headed Flying-fox.
- Koala.
- Spotted-tailed Quoll.

The assessments found that the Activity is unlikely to significantly affect any threatened species, TECs, or their habitat.

6.2 Environmental Protection and Biodiversity Conservation Act 1999

The EPBC Act protects/ regulates matters of national environmental significance, including:

- 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.
- Nuclear actions (including uranium mining).
- A water resource, in relation to coal seam gas development and large coal mining development.

Consideration of these matters based on the PMST database search (refer to **Appendix A**) and site assessment results is provided in **Table 6.1**. A significant impact to any MNES is unlikely to occur as a result from the Action, therefore referral to the Minister is not required.

Table 6.1 Assessment of MNES

Matter	Impact
Any impact on a World Heritage property?	
The MNES search results did not identify any World Heritage properties within 10 km of the site.	Nil
Any impact on a National Heritage place?	
The MNES search results did not identify any National Heritage places within 10 km of the site.	Nil
Any impact on a Wetland of International Importance?	
The MNES search identified that the site is downstream of three wetlands of international importance (Ramsar sites). The Action would not impact these sites.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for four threatened ecological communities and 41 threatened species was identified within 10 km of the site. Five threatened fauna species were determined to potentially occur at the site (refer to **7.Appendix B**). Review of the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (CoA, 2013) found that the Action is unlikely to result in a significant impact on any of these EPBC Act listed threatened species.	Minor
Any impact on Migratory species?	
Habitat for ten migratory species was identified within 10 km of the sites. No migratory fauna species were recorded in the site survey. No migratory species are likely to be significantly affected by the Activity given that no key areas of breeding habitat for these species would be affected.	Minor
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur within 10 km of the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Action would not impact on the Great Barrier Reef Marine Park (Queensland).	Nil
Does the project involve a nuclear action?	
No nuclear actions are proposed.	Nil
Does the project involve impacts to a water resource, in relation to coal seam gas development and large coal mining development?	
The Action is not a mining development.	Nil

6.3 Fisheries Management Act 1994 (FM Act)

The site traverses Goonoo Goonoo Creek which is a 7th order waterway. The works would involve direct impacts on the riparian zone of the waterway during bridge construction. These impacts can be minimised through appropriate implementation of water quality, waste and erosion and sediment control safeguards outlined in the associated REF document.

The Fisheries NSW Spatial Data Portal maps Goonoo Goonoo Creek as potential Eel Tailed Catfish habitat. This species is listed as both an Endangered species and Endangered Population under the FM Act. A seven-part significance test was performed and found the area to be of low suitability for the Eel Tailed Catfish.

Goonoo Goonoo Creek is associated with the FM Act listed Endangered Ecological Community (EEC): *Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River*.

A seven-part significance test was performed and found the waterway within the study area to be of low habitat value for the subject EEC.

Overall, the Activity is unlikely to significantly affect any threatened species, threatened populations or endangered ecological communities, or their habitat. Given the scope of works a permit application(s) would be prepared and submitted to DPI Fisheries prior to commencement of works.

7. Conclusion

Results of this BAR indicate that the Activity is unlikely to significantly affect threatened species, populations or ecological communities, or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994*. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance as listed under the *Environment Protection and Biodiversity Conservation Act 1999*; and therefore, referral to the Commonwealth Environment Minister is not required.

The Activity may result in some biodiversity impacts; however, these would not result in a significant impact on any threatened species or communities and these impacts can be effectively managed through the implementation of the safeguards in this BAR.

References

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Copyright and Usage

Appendix A

Database Search Results

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Plants in selected area [North: -31.04 West: 150.83 East: 151.03 South: -31.24] returned a total of 8 records of 3 species.
Report generated on 13/04/2023 11:13 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Myrtaceae	4134	*Eucalyptus nicholii*		Narrow-leaved Black Peppermint	V	V	1	
Plantae	Flora	Myrtaceae	4293	*Syzygium paniculatum*		Magenta Lilly Pilly	E1	V	1	
Plantae	Flora	Poaceae	4895	*Dichanthium setosum*		Bluegrass	V	V	6	

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Animals in selected area [North: -31.04 West: 150.83 East: 151.03 South: -31.24] returned a total of 105 records of 24 species.
Report generated on 13/04/2023 9:29 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Hylidae	3168	*Litoria booroolongensis*		Booroolong Frog	E1,P	E	1	
Animalia	Reptilia	Carphodactylidae	2139	*Uvidicolus sphyrurus*		Border Thick-tailed Gecko	V,P	V	6	
Animalia	Reptilia	Pygopodidae	2144	*Aprasia parapulchella*		Pink-tailed Legless Lizard	V,P	V	1	
Animalia	Aves	Megapodiidae	0008	*Alectura lathami*		Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	E2,P		2	
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*		Little Eagle	V,P		3	
Animalia	Aves	Accipitridae	0230	^^*Lophoictinia isura*		Square-tailed Kite	V,P,3		1	
Animalia	Aves	Falconidae	0238	*Falco subniger*		Black Falcon	V,P		4	
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*		Little Lorikeet	V,P		2	
Animalia	Aves	Psittacidae	0309	*Lathamus discolor*		Swift Parrot	E1,P	CE	6	
Animalia	Aves	Psittacidae	0302	^^*Neophema pulchella*		Turquoise Parrot	V,P,3		7	
Animalia	Aves	Strigidae	0248	^^*Ninox strenua*		Powerful Owl	V,P,3		1	
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*		Brown Treecreeper (eastern subspecies)	V,P		1	
Animalia	Aves	Meliphagidae	0603	*Anthochaera phrygia*		Regent Honeyeater	E4A,P	CE	2	
Animalia	Aves	Meliphagidae	8303	*Melithreptus gularis gularis*		Black-chinned Honeyeater (eastern subspecies)	V,P		1	
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*		Dusky Woodswallow	V,P		1	
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*		Diamond Firetail	V,P		4	
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*		Spotted-tailed Quoll	V,P	E	10	

Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	E1,P	E	13	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		7	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	28	
Animalia	Mammalia	Molossidae	1329	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat	V,P		1	
Animalia	Mammalia	Vespertilionidae	1353	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	1	
Animalia	Mammalia	Vespertilionidae	1372	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		1	
Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		1	

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Communities in selected area [North: -31.04 West: 150.83 East: 151.03 South: -31.24] returned 0 records for 10 entities.
Report generated on 13/04/2023 11:14 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				*Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions*		Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions	E3		K	
Community				*Howell Shrublands in the New England Tableland and Nandewar Bioregions*		Howell Shrublands in the New England Tableland and Nandewar Bioregions	E3		P	
Community				*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions*		Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	E3		K	
Community				*Mount Kaputar high elevation and dry rainforest land snail and slug community in the Nandewar and Brigalow Belt South Bioregions*		Mount Kaputar high elevation and dry rainforest land snail and slug community in the Nandewar and Brigalow Belt South Bioregions	E3		K	

Community	*Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland*	Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland		CE	K	
Community	*New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands*	New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands		CE	K	
Community	*Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions*	Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions	E3		K	
Community	*Weeping Myall Woodlands*	Weeping Myall Woodlands		E	K	
Community	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and*	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B		K	
Community	*White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		CE	K	

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Apr-2023

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	41
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	45
Commonwealth Heritage Places:	1
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	12
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	1000 - 1100km upstream from Ramsar site	In feature area
Riverland	900 - 1000km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1100 - 1200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			
Community Name	Threatened Category	Presence Text	Buffer Status
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area	In feature area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community may occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Polytelis swainsonii](#) Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area	In feature area
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
[Stagonopleura guttata](#) Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
[Maccullochella peelii](#) Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In feature area
FROG			
[Litoria booroolongensis](#) Booroolong Frog [1844]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Petaurus australis australis](#) Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In feature area
[Petrogale penicillata](#) Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Cadellia pentastylis			
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Callistemon pungens			
[55581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum			
bluegrass [14159]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus nicholii			
Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat known to occur within area	In feature area
Euphrasia arguta			
[4325]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Homoranthus prolixus			
[55198]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii			
Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prasophyllum sp. Wybong (C.Phelps ORG 5269)			
a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis			
[92384]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Anomalopus mackayi			
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In feature area
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area
Myuchelys belli			
Western Sawshelled Turtle [86075]	Endangered	Species or species habitat may occur within area	In buffer area only
Uvidicolus sphyrurus			
Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat known to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [12980]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [16080]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Commonwealth Trading Bank of Australia [12972]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12958]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [12964]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [12993]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian & Overseas Telecommunications Corporation [12962]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12965]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12963]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12950]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12955]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12953]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12954]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12956]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12973]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12957]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [15957]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [12969]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12968]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12967]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12966]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12975]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12979]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Service Homes Corporation [12951]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12971]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [12970]	NSW	In buffer area only
Commonwealth Land - Director of Defence Service Homes [12978]	NSW	In buffer area only
Defence - TAMWORTH GRES DEPOT ; BEERSHEBA BARRACKS-TAMWORTH [11202]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [16070]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12960]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12976]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12977]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15429]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16158]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15427]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [15428]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12959]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12981]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16069]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16100]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16101]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16102]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16103]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12961]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12974]	NSW	In buffer area only

Commonwealth Heritage Places

[Resource Information]

Name	State	Status	Buffer Status
Historic			
Tamworth Post Office	NSW	Listed place	In buffer area only

Listed Marine Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Chaffey Dam Pipeline Project	2022/09314		Completed	In buffer area only
Controlled action				
Hills Plain subdivision	2005/2432	Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
One Tree Hill Estate - Stage 13	2003/1142	Controlled Action	Post-Approval	In feature area
Operation of Peel River Drought Protection Works	2019/8590	Controlled Action	Post-Approval	In buffer area only
Vegetation clearing for a residential subdivision	2013/6812	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Replacement Pipeline between Dungowan Village and Calala	2021/9091	Not Controlled Action	Completed	In buffer area only
Residential Development & Assoc Infrastructure 31 & 41 Panorama Road	2005/2115	Not Controlled Action	Completed	In feature area
Residential Subdivision, Warramunga Avenue	2005/2201	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Rural residential subdivision, Lots 172 and 180 DP753851 Barakula Drive, Moore Creek, NSW	2016/7736	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix B

Threatened Species Potential Occurrence Assessment

Threatened Species Potential Occurrence Assessment - Overview

A potential of occurrence assessment was completed to assess the likelihood of occurrence of threatened species or populations at the subject site. All threatened biodiversity identified in background research were considered. The assessment is based on the habitat profile for the species and other habitat information in the Threatened Species Profile Database (Environment Energy and Science Group). The assessment also takes into consideration the dates and locations of nearby records and information about species populations in the locality.

Table B1 Threatened flora likelihood of occurrence criteria

Likelihood	Criteria
Known	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
High	A species has a high likelihood of occurrence if: ■ the subject site contains or forms part of a large area of high-quality suitable habitat that has not been subject to recent disturbance (e.g., fire), the species is known to form a persistent soil seedbank and the species has been recorded recently (within 10 years) in the locality ■ the species is a cryptic flowering species that has been recorded recently (within 10 years) in the locality and has a large area of high-quality potential habitat within the construction footprint that was not seasonally targeted by surveys.
Moderate	A species has a moderate likelihood of occurrence if: ■ the species: (i) has a large area of high-quality suitable habitat in the subject site that has not been subject to recent disturbance (e.g., fire) (ii) the species is known to form a persistent soil seedbank, but (iii) the species has not been recorded recently (within 10 years) in the locality. ■ the species: (iv) has a small area of high-quality suitable habitat or a large area of marginal habitat in the subject site That has not been subject to recent disturbance (e.g., fire) (v) the species is known to form a persistent soil seedbank. (vi) the species has been recorded recently (within 10 years) in the locality. (vii) the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the activity footprint, that was not seasonally targeted by surveys.
Low	A species has a low likelihood of occurrence if: ■ it is not a cryptic species, nor a species known to have a persistent soil seedbank species and was not detected despite targeted searches. ■ the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the activity footprint, that was not seasonally targeted by surveys as the species has not been recorded within 50 years in the locality.
None	Suitable habitat is absent from the subject site.

Table B2 Habitat Assessment – Threatened Flora

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Cadellia pentastylis	Ooline	V	V	Forms a closed or open canopy mixing with eucalypt and cypress pine species. There appears to be a strong correlation between the presence of Ooline and low- to medium-nutrient soils of sandy clay or clayey consistencies, with a typical soil profile having a sandy loam surface layer, grading from a light clay to a medium clay with depth.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Callistemon pungens		-	V	In or near rocky watercourses, usually in sandy creek beds on granite or sometimes on basalt.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Dichanthium setosum	Bluegrass	V	V	In NSW, occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture.	Low	Low- Field studies did not record any *Dichanthium* in the study area. Test of significance not required.
Eucalyptus nicholii	Narrow-leaved Peppermint	V	V	Grassy or sclerophyllous woodland on shallow relatively infertile soils on shales and slates.	Low	Low – Field studies did not record the species in the study area. Test of significance not required.
Euphrasia arguta	-	CE	CE	Known from three sites in/near Nundle State Forest in eucalypt forest with a mixed grass and shrub understorey. Habitat includes open forest country around Bathurst in subhumid places, grassy country near Bathurst and in meadows near rivers.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Homoranthus prolixus	Granite Homoranthus	V	V	Occurs in woodland and heath on shallow sandy skeletal soil on and around granite or acid volcanic outcrops.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Lepidium aschersonii	Spiny Peppercress	V	V	Predominantly growing in marginal central-west slopes and north-western plains of NSW with possible growth in south-western plains. Ground flora growing in grey loamy clays and on ridges of Gilgai clays dominated by Brigalow, Belah, Buloke and Grey Box	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Lepidium monoplocoides	Winged Peppercress	E	E	Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by Allocasuarina luehmannii (Bulloak) and/or eucalypts, particularly Eucalyptus largiflorens (Black Box) or Eucalyptus populnea (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Prasophyllum sp. Wybong	-	-	CE	Known to occur in open eucalypt woodland and grassland	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Syzygium paniculatum	Magenta Lilly Pilly	E	V	Occurs in lowland and littoral rainforest.	Low	Low – Field studies did not record the species in the study area. Test of significance not required.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Thesium australe	Austral Toadflax	V	V	Grassland or grassy eucalypt woodland where Themeda australis is predominant, on grassy headlands.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.
Tylophora linearis		V	E	Tylophora linearis grows in dense shrublands occasionally overtopped by Callitris glaucophylla and various species of Eucalyptus. Not previously recorded in Northern Rivers CMA area.	Low	Low - No BioNet records within the locality. Field surveys did not record the species in the study area. Test of significance not required.

Table B3 Fauna Likelihood of Occurrence Criteria

Likelihood	Criteria
Recorded	The species was observed in the study area during the current survey
High	It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (i.e., for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10 km) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration.
Moderate	Potential habitat is present in the study area. Species unlikely to maintain sedentary populations; however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded.
Low	It is unlikely that the species inhabits the study area and has not been recorded recently in the locality (10 km). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the study area, or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded.
None	Suitable habitat is absent from the study area. Based on a field assessment of the habitat constraints or microhabitats on the study area, the habitat is identified as being substantially degraded such that the species is unlikely to utilise the study area (or specific vegetation zones), or an expert report that is prepared that states the species is unlikely to be present on the study area or specific vegetation zones.

Table B4 Threatened Fauna Potential Occurrence

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Amphibians						
Litoria booroolongensis	Booroolong Frog	E	E	Permanent streams with some fringing vegetation cover such as ferns, sedges or grasses.	Low	Low – Potential marginal habitat alongside Bionet records. The species is unlikely to be dependent on available habitat. Test of significance not required.
Birds						
Alectura lathami	Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	E	-	The Australian Brush-turkey has a largely coastal distribution from Cape York south as far as the Illawarra in NSW. It occurs in forested and wooded areas of tropical and warm-temperate districts, particularly above 300 m to at least 1200 m altitude. A population of the Australian Brush-turkey is known from the Nandewar and Brigalow Belt South Bioregions.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Aphelocephala leucopsis	Southern Whiteface	-	V	Covering NSW from the Northern to Southern borders, it inhabits the majority of inland Australia avoiding the east coast of NSW. Foraging for insects, spiders and seeds they are found in open woodlands and shrublands, typically dominated by acacias or eucalypts, that provide a healthy understory of grasses, shrubs and leaflitter. Favouring habitat with a low tree density and herbaceous understory.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Anthochaera phrygia	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	Moderate	Moderate – Potential foraging habitat available. **Test of significance completed.**

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Botaurus poiciloptilus	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	Moderate	Moderate – Potential foraging habitat. **Test of significance completed.**
Calidris ferruginea	Curlew Sandpiper	E	CE	Tidal mudflats, sandy ocean shores and occasionally inland freshwater or salt-lakes.	None	None – Suitable habitat is absent from the study area. No BioNet records within the locality. Test of significance not required.
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	She oaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	Low	Low – Lack of appropriate feed trees. No BioNet records within the locality. Test of significance not required.
Climacteris picumnus victoriae	Brown Treecreeper	V	-	Eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range, and less commonly on coastal plains and ranges.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Falco hypoleucos	Grey Falcon	E	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Low	Low - No BioNet records within the locality. Site is outside of its known and predicted ranges. Test of significance not required.
Falco subniger	Black Falcon	V	-	Widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In NSW there is assumed to be a single population that is continuous with a broader continental population	Moderate	Moderate - Potential foraging and nesting habitat. **Test of significance completed.**
Glossopsitta pusilla	Little Lorikeet	V	-	Forages in open Eucalyptus Forest and woodland; also feeds on Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Moderate	Moderate – Potential foraging and nesting habitat. **Test of significance completed.**

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Grantiella picta	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Hieraaetus morphnoides	Little Eagle	V	-	Open eucalypt forest, woodland, or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	Moderate	Moderate – Potential foraging and nesting habitat. **Test of significance completed.**
Hirundapus caudacutus	White-throated Needletail	-	V	Most often recorded aerial foraging above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy. Breeding does not occur in Australia.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Lathamus discolor	Swift Parrot	E	CE	On mainland Australia foraging occurs where eucalypts are flowering profusely or where abundant lerp infestations occur. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Forest Red Gum E. tereticornis, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana, Blackbutt E. pilularis and Yellow Box E. melliodora.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Lophoictinia isura	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home ranges can extend over at least 100 km2.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)	V	E	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	Drier open forests or woodlands dominated by box and ironbark eucalypts, and open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Neophema chrysostoma	Blue-winged Parrot	-	V	Breeding outside NSW in Tas, south Vic and coastal south-eastern SA; they can be spotted in south-eastern and western NSW during migration periods from Autumn to early Spring. Favouring grasslands and grassy woodlands, but also found near wetlands on the coast and semi-arid regions. Feeding on a variety of native and introduced ground species of grasses, herbs and shrubs.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Neophema pulchella	Turquoise Parrot	V	-	Favours open, grassy woodland with dead trees near permanent water. Also inhabits coastal heaths and pastures with exotic grasses and weeds, along roadsides and in orchards.	Moderate	Moderate – Potential foraging habitat. **Test of significance completed.**
Ninox strenua	Powerful Owl	V	-	Woodland and open forest to tall moist forest and rainforest. Requires large tracts of forest or woodland habitat but may also occur in fragmented landscapes.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Polytelis swainsonii	Superb Parrot	V	V	Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Rostratula australis	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Stagonopleura guttata	Diamond Firetail	V	-	Grassy eucalypt woodlands, open forest, mallee, temperate grassland, and secondary grassland derived from other communities, riparian areas, and sometimes in lightly wooded farmland.	Moderate	Moderate - Potential foraging habitat. **Test of significance completed.**
Fish						
Maccullochella peelii	Murray Cod	-	V	Warm water habitats that range from clear, rocky streams to slow flowing turbid rivers and billabongs.	Low	Low – Potential marginal habitat available. Species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Mammals						
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	Low	Low – Low quality potential foraging habitat, no roosting habitat. Test not required
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Moderate	Moderate – Potential foraging habitat. **Test of significance completed.**
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Moist and dry eucalypt forest and rainforest, particularly at high elevations.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-	Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts in tree hollows.	Low	Low - Low quality potential foraging and roosting habitat. Test not required
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	Low	Low quality potential foraging habitat, no roosting habitat. Test not required

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	Mallee, bulloke and box eucalypt dominated communities, more common in box/ironbark/cypress-pine vegetation, inhabiting tree hollows, crevices, and under loose bark.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	V	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Dens in tree hollows of large trees, often in family groups. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Petaurus norfolcensis	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum Forest inland.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Petrogale penicillata	Brush-tailed Rock Wallaby	E	V	North-facing cliffs and dry eucalypt forest and woodland, inhabiting rock crevices, caves, overhangs during the day, and foraging in grassy areas nearby at night.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Phascolarctos cinereus	Koala	V	E	Appropriate food trees in forests and woodlands, and treed urban areas.	Moderate	Moderate – Presence of primary feed trees. **Test of significance completed.**
Pseudomys novaehollandiae	New Holland Mouse	-	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	None	None – Suitable habitat is absent from the study area. No BioNet records within the locality. Test of significance not required
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Moderate	Moderate – Potential foraging habitat. **Test of significance completed.**
Reptiles						

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirement	Suitability of Site Habitat	Potential Occurrence/ Subject Species
Anomalopus mackayi	Five-clawed Worm-skink	E	V	Close to or on the lower slopes of slight rises in grassy White Box woodland on moist black soils, and River Red Gum-Coolibah-Bimble Box woodland on deep cracking loose clay soils. May also occur in grassland areas and open paddocks with scattered trees.	None	None – Suitable habitat is absent from the study area. No BioNet records within the locality. Test of significance not required
Aprasia parapulchella	Pink-tailed Legless Lizard	V	V	Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (Themeda australis).	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.
Hemiaspis damelii	Grey Snake	E	E	The species is predominantly associated with the lower reaches of major westerly flowing rivers, including the Gwydir, Namoi, Castlereagh, Macquarie, Lachlan and Murrumbidgee River systems (ALA, 2020; Queensland Government, 2020; Wilson, 2005). There are no records of the species between floodplain environments of these five rivers, indicating a severely fragmented and patchy distribution with no lateral connectivity between sub-populations	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Myuchelys belli	Western Sawshelled Turtle (Bells Turtle)	E	E	Upper reaches and smaller tributaries of major rivers flowing through granitic bedrock, preferring narrow stretches of river, 30 to 40 m wide, with pools up to 3 m deep, and sandy and rocky. Riverbeds, with small beds of weed.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. No BioNet records within the locality. Test of significance not required.
Uvidicolus sphyrurus	Border Thick-tailed Gecko	V	V	Dry sclerophyll open forest and woodland associated with outcrops of granite, basalt, sandstone and metamorphic rocks.	Low	Low – Potential marginal habitat available. The species is unlikely to be dependent on available habitat. Test of significance not required.

Appendix C

Test of Significance Assessments

Assessment of Significance for Threatened Fauna

Fauna:

Birds

- Australasian Bittern – Foraging habitat.
- Black Falcon – Foraging habitat.
- Diamond Firetail – Foraging Habitat
- Little Eagle – Foraging Habitat
- Little Lorikeet – Foraging and habitat.
- Regent Honeyeater – Foraging Habitat
- Turquoise Parrot – Foraging and habitat.

Mammals

- Grey-headed Flying-fox – Foraging habitat.
- Koala – Foraging habitat.
- Spotted-tailed Quoll – Foraging habitat.

To minimise repetition, the responses to the five-part tests are structured as follows:

Part (a), (c), (d) and (e) are answered per species or as a collective group of species depending on the nature of impacts.

Part (b) deals specifically with threatened ecological communities, and hence is not relevant to the subject threatened species assessment.

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,

Potential Direct Impacts from the Activity include:

- The trimming or removal of native trees.
- Direct mortality or injury to fauna during vegetation clearing.

Potential Indirect Impacts form the Activity on threatened species include:

- Fauna avoidance in proximity to the work area due to noise and human presence during construction and human presence during the construction phase of the project.
- Habitat degradation of adjacent habitat due to potential clearing phase impacts (e.g., erosion and sedimentation impacts or chemical spills).
- Unintentional introduction or spread or introduction of weeds.
- Unintentional introduction or spread of propagules or plant disease by way of plant and machinery.

For the purposes of this assessment the local population of threatened fauna species is defined as the population within the study area and within a two-kilometer radius of the site where vegetation is contiguous for all the subject species.

Vegetation to be removed is the same as the vegetation immediately adjacent to the site which would remain and continue to provide suitable habitat values at the site. The Activity represents a minor loss/ modification of potential habitat for:

Birds

- Australasian Bittern - Foraging habitat.
- Black Falcon - Foraging habitat.
- Diamond Firetail – Foraging habitat.
- Little Eagle – Foraging habitat.
- Little Lorikeet - Foraging habitat.
- Regent Honeyeater – Foraging habitat.
- Turquoise Parrot - Foraging habitat.

Mammals

- Spotted-tailed Quoll - Foraging habitat.
- Koala - Foraging habitat.
- Grey-headed Flying-fox - Foraging habitat.

It is considered that the Activity would be unlikely to have an adverse effect on the life cycle of the listed threatened species such that a viable local population of the species would be placed 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,

N/A

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

The Activity would result in the direct modification of 1.04 ha of exotic vegetation and the removal of one native River Sheoak. The local landscape is in poor condition and has been historically cleared or modified for roads and agriculture.

Threatened fauna habitat impacts are as follows:

The Activity represents a negative incremental, although relatively minor loss/modification of potential habitat for:

Birds

- Australasian Bittern - Minor loss/ modification of foraging habitat.
- Black Falcon - Minor loss/ modification of foraging habitat.
- Diamond Firetail – Minor loss/modification of foraging habitat
- Little Eagle - Minor loss/ modification of foraging habitat
- Little Lorikeet - Minor loss/ modification of foraging habitat.
- Regent Honeyeater - Minor loss/ modification of foraging habitat
- Turquoise Parrot - Minor loss/ modification of foraging habitat.

Mammals

- Spotted-tailed Quoll – Minor loss/ modification of foraging habitat.
- Koala – Minor loss/ modification of foraging habitat.
- Grey-headed Flying-fox - Minor loss/ modification foraging habitat.

While the habitat loss is negative, the Activity would only impact up to one native River Sheoak available to the local population of the subject species which is a minor amount. The Activity is unlikely to have any significant or long-term impacts on foraging habitat or breeding territory defended by the subject fauna species.

(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

All the subject threatened species would have no difficulty in accessing habitats dissected by the road and clearing proposed clearing impacts therefore no area of habitat is likely to become substantially fragmented or isolated from other areas of habitat as a result of the Activity.

(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,

The habitats proposed for removal completely consist of exotic vegetation with some disturbance present on the road verge due to historic clearing. The removal of one River Sheoak is of limited importance for the subject species, considering that alternative habitat adjacent to the impact zone and within the broader locality would not be impacted by the Activity.

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),

No areas of outstanding biodiversity value have been declared in Tamworth Regional LGA.

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 a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species or ecological communities. The current list of KTP under the BC Act, and whether the Activity is recognised as a KTP is shown in **Table C1**.

Table C1 Key Threatening Processes

Key Threatening Process (as per Schedule 4 of the BC Act)	*Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?*		
	Likely	*Possible*	*Unlikely*
Aggressive exclusion of birds by noisy miners (*Manorina melanocephala*)			✓
Alteration of habitat following subsidence due to longwall mining			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic climate change			✓
Bushrock removal			✓
Clearing of native vegetation	✓		
Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)			✓
Competition and habitat degradation by feral goats (*Capra hircus*)			✓
Competition from feral honeybees (*Apis mellifera*)			✓

Key Threatening Process (as per Schedule 4 of the BC Act)	*Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?*		
	Likely	*Possible*	*Unlikely*
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest eucalypt dieback associated with over-abundant psyllids and bell miners			✓
Habitat degradation and loss by Feral Horses, *Equus caballus*			✓
Herbivory and environmental degradation caused by feral deer			✓
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition			✓
Importation of red imported fire ants (*Solenopsis invicta*)			✓
Infection by *Psittacine circoviral* (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis		✓	
Infection of native plants by *Phytophthora cinnamomi*			✓
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae			✓
Introduction of the large earth bumblebee (*Bombus terrestris*)			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)			✓
Invasion and establishment of the Cane Toad (*Bufo marinus*)			✓
Invasion, establishment and spread of Lantana (*Lantana camara*)			✓
Invasion of native plant communities by African Olive (*Olea europaea L. subsp. cuspidata*)			✓
Invasion of native plant communities by *Chrysanthemoides monilifera* (bitou bush and boneseed)			✓
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of the Yellow Crazy Ant (*Anoplolepis gracilipes*) into NSW			✓
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants			✓
Loss of hollow-bearing trees			✓
Loss or degradation (or both) of sites used for hill-topping by butterflies			✓
Predation and hybridisation by feral dogs (*Canis lupus familiaris*)			✓
Predation by the European Red Fox (*Vulpes vulpes*)			✓
Predation by the feral cat (*Felis catus*)			✓
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)			✓
Predation by the Ship Rat (*Rattus rattus*) on Lord Howe Island			✓
Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)			✓
Removal of dead wood and dead trees		✓	

Clearing of native vegetation is the only KTPs likely to be contributed to by the Activity.

Considering only one River Sheoak would be removed, it is unlikely that the Activity would contribute significantly to this KTP to the point of placing any local threatened species populations at risk of extinction.

The Activity is such that no other KTPs are considered likely to be substantially contributed to, especially with effective implementation of the mitigation measures in this report.

Overall, the degree that the Activity would contribute to any threatening process is not considered likely to place the local population of any of the subject species at significant risk of extinction.

Conclusion

It is considered unlikely that the local population of any of the subject species would be significantly impacted by the Activity.

Appendix D

FM Act 7 Part Test of Significance

A Test of Significance pursuant to Section 220ZZ of the *Fisheries Management Act 1994* (FM Act) has been prepared for:

Fish:

- Eel Tailed Catfish (*Tandanus tandanus*) and

Endangered Ecological Community:

- Aquatic ecological community in the natural drainage systems of the lowland catchment of the Darling River EEC as follows:

To minimise repetition, the responses to the seven-part test is structured as follows:

Part (a) and (f) deals specifically with species, and hence is not relevant to the subject EEC assessment.

Part (c) deals specifically with threatened ecological communities, and hence is not relevant to the subject threatened species assessment.

Part (d) deals with both species and EEC related impacts.

(a) in the case of a threatened species, whether the action proposed 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 Eel Tailed Catfish (ETC) is a medium sized fish ranging from 500-900mm long. It is found to prefer sluggish or slow-moving bodies of water with fringing vegetation. Bottom feeding fish, they mainly inhabit substrates that consist of rock or gravel, with nests being built using rocks and pebbles.

Common impacts to the ETC include:
- Competition or predation from invasive species
- Loss of potential habitat
- Loss of spawning habitat
- Barriers to movement
- Siltation over potential nest building sites

Potential impacts from the proposed works include:
- Minimal loss of fringing habitat
- Blockage of fish passage during works
- Little to no impact on nesting sites

Given the small extent of the site and variable flows of Goonoo Goonoo creek it is unlikely the works would greatly Impact any ETC permanent habitat or life cycles that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered population, whether the action proposed 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,

The ETC is listed as an endangered population under the FM Act. Consistent with part (a) above, potential impacts from works are regarded as minimal and it is unlikely works would greatly impact any ETC permanent habitat or life cycles such that a viable local population is likely to be placed at risk of extinction.

(c) In the case of an endangered ecological community, or critically endangered ecological community whether the action proposed:

- **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.**

The disturbance to the creek within site limits involves the clearing of 1.04ha of exotic weeds, not consistent with aquatic plants within the proposed EEC. Construction would ultimately have a positive effect on the community post works, allowing permanent fish movement through the creek. Hence works would not have an adverse effect on the extent of the ecological community, nor would it substantially or adversely modify the composition of the EEC such that its local occurrence is placed at risk of extinction.

(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 action proposed,**

Potential habitat removal in the case of the ETC:

- Removal of fringing habitat, 10m up and downstream
- Disturbance of creek bed, 10m up and downstream
- Reconstruction of the existing causeway to a concrete bridge

These impacts are minimal in the context of Goonoo Goonoo Creek and occur in small site area, with the construction of a bridge allowing better creek flow through the site improving habitat quality.

- ***ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and***

The activity may cause short term blockage of the creek during construction; however, post works would improve the net flow of the creek. Therefore, would be minimal impact to ETC movement through Goonoo Goonoo Creek.

- ***iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.***

The habitat within site limits is expected to be of little importance to the ETC and the scope of works is expected to be short term and of minor disturbance to the creek. With a limited reduction in habitat value during construction, post construction any reduced habitat value is expected be recovered. No habitat important to the long-term survival of the ETC within the site limits would be adversely affected by the activity.

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

The Activity is not within an area of critical habitat listed under the FM Act.

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

A recovery plan has not been prepared under the FM Act for the Eel Tailed Catfish. A Priorities Action Statement (PAS) has been prepared for ETC (refer: https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-populations2/eel-tailed-catfish/priorities-action-statement-actions-for-murray-darling-population-of-eel-tailed-catfish). Activity is not inconsistent with any objectives in this statement.

(g) whether the action proposed 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.

Key threatening processes listed in Schedule 6 of the FM Act include:

- Current shark meshing program in NSW waters.
- Hook and line fishing in areas important for the survival of threatened fish species.
- Human-caused climate change.
- Instream structures and other mechanisms that alter natural flow.
- Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales.
- The introduction of fish to fresh waters within a river catchment outside their natural range.
- The removal of large woody debris from NSW rivers and streams.
- The degradation of native riparian vegetation along New South Wales water courses.

The Activity is not considered characteristic any listed KTPs. Works would be of short duration and natural flow is unlikely to be hindered.

On this basis the degree that the Activity would contribute to any threatening process is not considered likely to place SPSG at significant risk of extinction.

Appendix B

Contaminated Land Database Search

Search results

Your search for:LGA: TAMWORTH REGIONAL COUNCIL

Matched 11 notices relating to 5 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
DURI	13 Railway AVENUE	Duri Store	1 current
SOUTH TAMWORTH	251 - 253 Goonoo Goonoo ROAD	Coles Express Tamworth	4 current
TAMWORTH	115 Marius STREET	Elgas Depot (former gasworks)	2 current
TAMWORTH	49 GUNNEDAH ROAD	Gunnedah Road Site	2 former
WOOLOMIN	65 Nundle ROAD	Woolomin Gold Rush Store	2 former

Page 1 of 1

30 March 2023

Appendix C

National Native Title Register

National Native Title Tribunal

Application Details

Back to search results

Gomeroi People (NC2011/006)

Application name	Gomeroi People
Tribunal file no.	NC2011/006
Federal Court file no.	NSD37/2019
Application type	Claimant
Date filed	20/12/2011
State or Territory	New South Wales
Area description	Northwest NSW
Approximate area size (sq km)	111317.6047
Local government area(s)	Coonamble Shire Council, Gilgandra Shire Council, Glen Innes Severn Shire Council, Gunnedah Shire Council, Gwydir Shire Council, Inverell Shire Council, Liverpool Plains Shire Council, Mid-Western Regional Council, Moree Plains Shire Council, Muswellbrook Shire Council, Narrabri Shire Council, Tamworth Regional Council, Upper Hunter Shire Council, Uralla Shire Council, Walcha Council, Walgett Shire Council, Warrumbungle Shire Council, Armidale Regional Council
Representative A/TSI body area(s)	New South Wales
Applicant's representative	NTSCORP
Registration decision status	Accepted for registration
Dates registered on the Register of Native Title Claims	Registered from 20/01/2012
Notification status	Notification Complete
Notification date(s)	16/05/2012 to 15/08/2012
Application status	Active **More information on Federal Court website**

Schedule extract and attachments

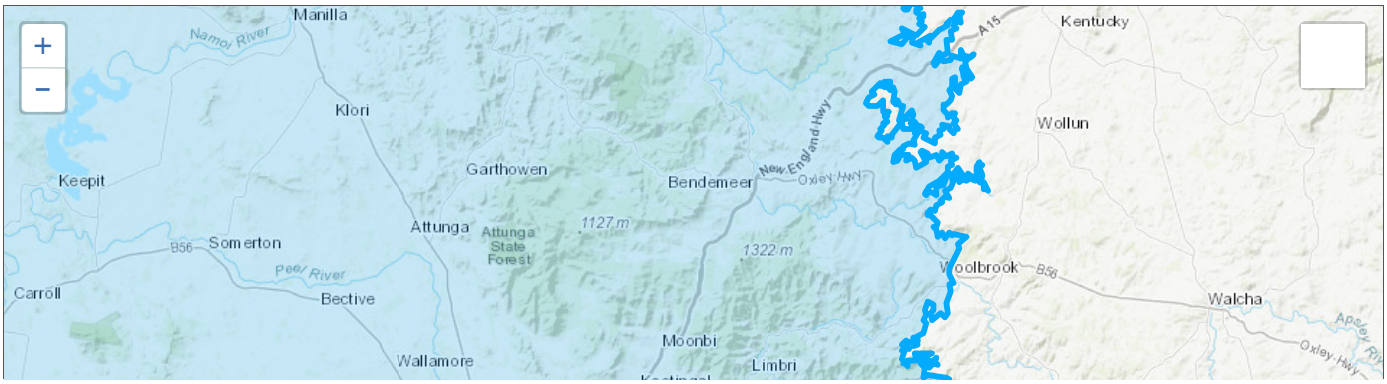
Schedule extract	**SNTAExtract_NC2011_006**
Schedule extract attachment/s	**NC2011_006 External boundary description** **NC2011_006 Map of the area covered by the application**

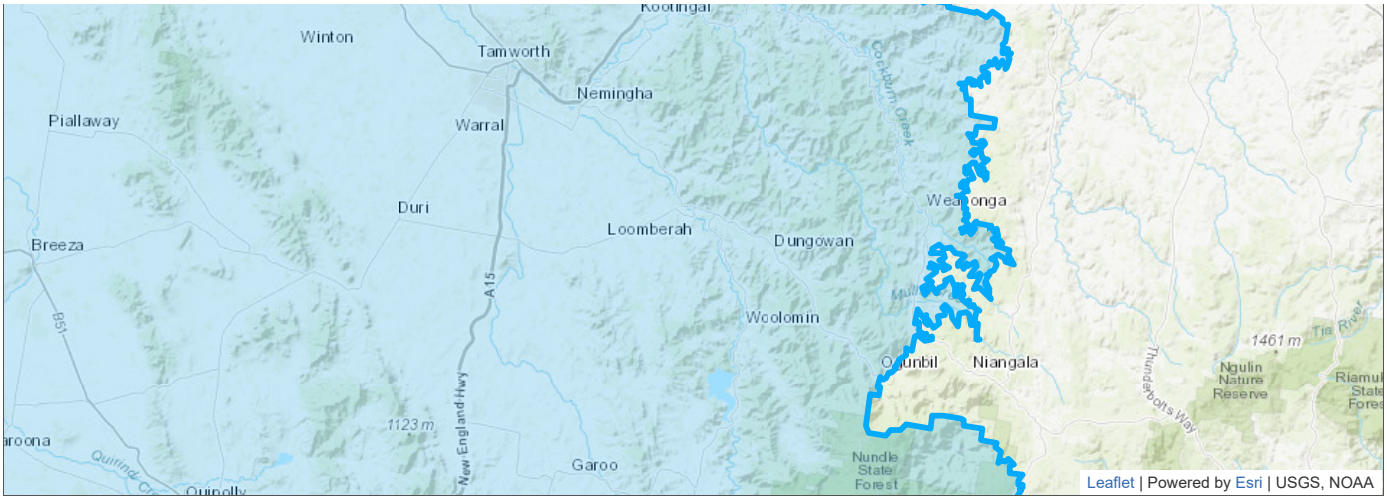
Registration Decision(s)

Tribunal file no.	Decision result	Decision type	Decision date	Reason for decision	Link to Register
NC2011/006-1	Accepted	Full Decision	20/01/2012	**pdf** **rtf**	**Register Details**

Determination(s)

No determinations of native title have been made for this application





View this map in NTV: **NC2011/006**

Appendix D

Aboriginal Cultural Heritage (Due Diligence) Assessment

Tim Hill
Heritage Management and Planning Pty Ltd
PO BOX 502
Bellingen NSW 2454
timhill.heritage@gmail.com
0473 033 615
ABN: 27 661 743 120

BRIDGE AND CULVERT REPLACEMENT, TAMWORTH LGA

ABORIGINAL CULTURAL HERITAGE (DUE DILIGENCE) ASSESSMENT

April 2023

Tamworth Regional Council

DOCUMENT CONTROL	
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Project Number	TH094
Author	Tim Hill
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Disclaimer *This document may only be used for the purpose for which it was commissioned.* *Heritage Management & Planning Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party.* *Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information.* *Information provided is not intended to be a substitute for legal advice in relation to any matter.* *Unauthorised use of this report in any form is prohibited.*	
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ABBREVIATIONS

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
DCP	Development Control Plans
DEECW	Department of Environment, Climate Change and Water (now Heritage NSW)
EPA	Environmental Planning and Assessment
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
NPW	National Parks and Wildlife
PAD	Potential Archaeological Deposit
Proposed Works	Replacement of bridges and culverts within the Tamworth Local government Area, being: Norris's Bridge (Top Somerton Road, Somerton) Walter's Bridge (Kelso Lane, Duri) Bolton's Creek Culvert (New Winton Road, Tamworth West), and Goonoo Goonoo Creek (Burgmanns Lane, Tamworth South)
REF	Review of Environmental Factors
TRC	Tamworth Regional Council

1. INTRODUCTION

1.1 Project Background

Heritage Management & Planning Pty Ltd has been commissioned by Tamworth Regional Council (TRC), to undertake an Aboriginal Cultural Heritage (Due Diligence) Assessment (ACHA) to support the Review of Environmental factors (REF) for bridge and culvert replacement works within the Tamworth Local Government Area (**Figure 1** and **Error! Reference source not found.**). The proposed bridge and culvert replacement works (the Proposed Works) include:

- Norris's Bridge (Top Somerton Road, Somerton)
- Walter's Bridge (Kelso Lane, Duri)
- Bolton's Creek Culvert (New Winton Road, Tamworth West), and
- Goonoo Goonoo Creek (Burgmanns Lane, Tamworth South)

The ACHA has been commissioned to consider the potential impacts of the Proposed Works on Aboriginal objects and cultural values and provide statements on the requirement for additional Aboriginal community consultation and archaeological investigations.

1.2 Project Brief & Methodology

The brief for this project was to undertake an Aboriginal cultural heritage assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DEECW 2010A) (CoPAI). The methods employed in this assessment include:

- a search of relevant Aboriginal heritage registers
- a review of environmental information relevant to the assessment
- a review of relevant archaeological and cultural heritage assessments
- development of an archaeological predictive model
- completion of a site inspection with a representative of Tamworth Local Aboriginal Land Council (LALC), and
- documenting the outcomes of the Due Diligence assessment including:
    i. a summary of the relevant background information to determine the likelihood that landforms will contain Aboriginal cultural heritage
    ii. a description of the methodology and results of the cultural heritage site inspection
    iii. statements on the requirement for additional consultation with the Aboriginal community and archaeological excavation based on the likelihood of harm to Aboriginal objects, and
    iv. management recommendations to mitigate impacts to Aboriginal heritage values to avoid impacts to Aboriginal cultural heritage, including an unexpected find procedure.

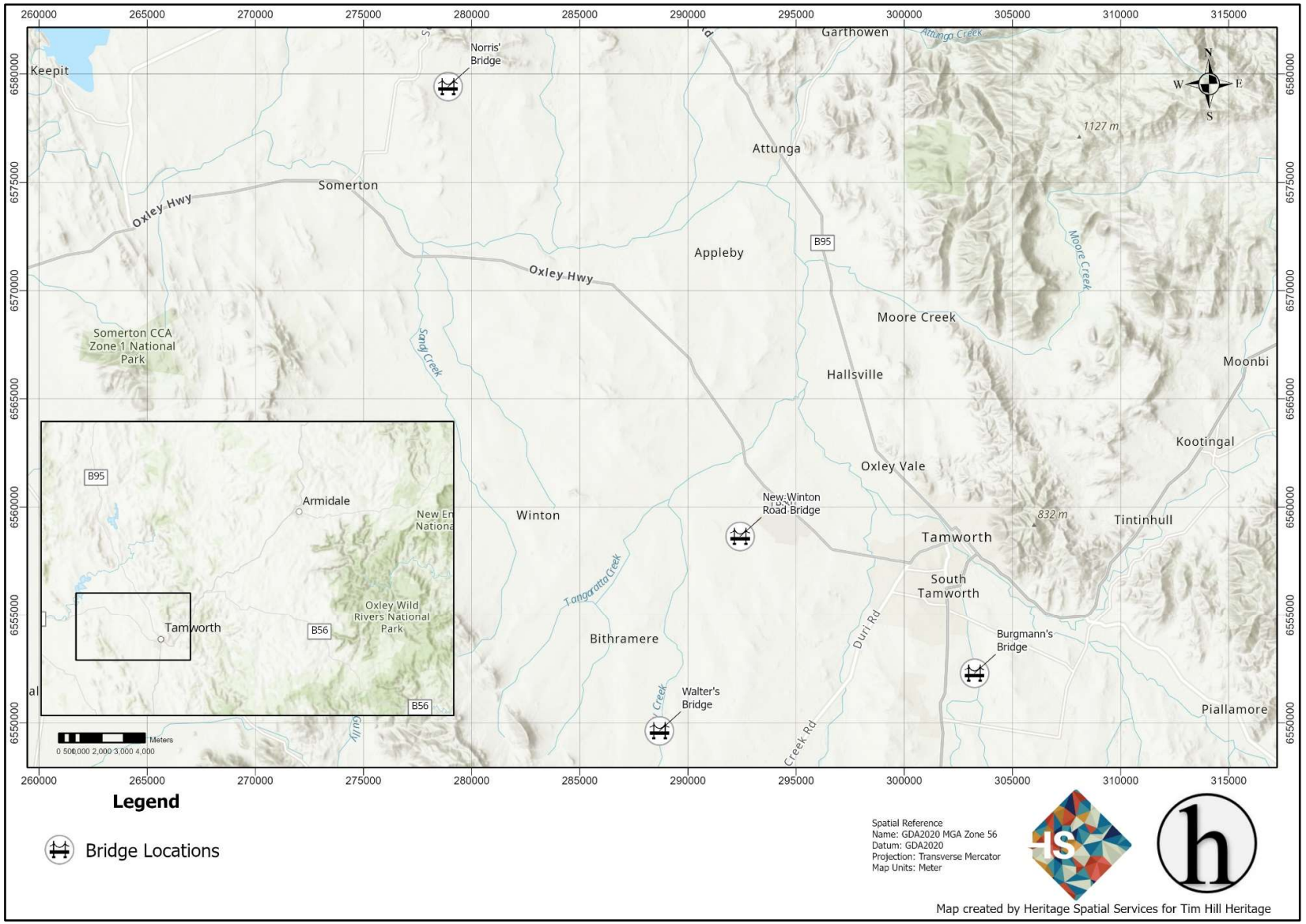

Figure 1: Location of the proposed timber bridge replacement works

2. LEGISLATIVE AND PLANNING CONTEXT

2.1 National Parks and Wildlife Act 1974 (NSW) and Regulations 2019 (NSW)

The National Parks and Wildlife Act 1974 (NSW) (NPW Act) is the primary legislation concerning the identification and protection of Aboriginal cultural heritage in New South Wales. Three key definitions in the NPW Act which are relevant to this assessment include:

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

  (a) a body or the remains of a body buried in a cemetery in which non-Aboriginal persons are also buried, or

  (b) a body or the remains of a body dealt with or to be dealt with in accordance with a law of the State relating to medical treatment or the examination, for forensic or other purposes, of the bodies of deceased persons.
- harm an object or place includes any act or omission that—

  (a) destroys, defaces or damages the object or place, or

  (b) in relation to an object—moves the object from the land on which it had been situated, or

  (c) is specified by the regulations, or

  (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c),

  but does not include any act or omission that—

  (e) desecrates the object or place, or

  (f) is trivial or negligible, or

  (g) is excluded from this definition by the regulations.

Section 86 of the NPW Act provides offense provisions for Aboriginal objects, Aboriginal skeletal remains and Aboriginal places in NSW (see the definition of 'Harm' above). Section 87 of the NPW Act outlines defences against prosecution relating to Aboriginal objects, skeletal remains and Aboriginal places. These include:

- Acting in accordance with an Aboriginal Heritage Impact Permit (AHIP) issued under Section 90 of the NPW Act
- Demonstrating 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"

- The activity was prescribed as a "low impact" activity or an "omission" under the NPW Regulations (2019), and
- Was undertaken in compliance with a Code of Practice adopted or prescribed by the NPW Regulations (2019).

2.2 Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW

The ACHA has been undertaken to determine whether the Proposed Works can be undertaken in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DEECW 2010A). The purpose of this Due Diligence Code of Practice is to establish a defence against prosecution in the event that Aboriginal objects may be inadvertently harmed during an activity (DEECW 2010A: 1 & 2). The Due Diligence Code of Practice:

> …sets out the reasonable and practicable steps which individuals and organisations need to take in order to:
>
> 1. identify whether or not Aboriginal objects are, or are likely to be, present in an area
> 2. determine whether or not their activities are likely to harm Aboriginal objects (if present)
> 3. determine whether an AHIP application is required (DEECW 2010A:2).

The Due Diligence Code of Practice makes the following statement on the requirement for an AHIP (DECCW 2010A:2):

> If Aboriginal objects are present or likely to be present and an activity will harm those objects, then an AHIP application will be required.

However, the practical application of the Due Diligence Code is that if the Due Diligence assessment concludes that harm to Aboriginal objects is "likely" to occur the proponent has an obligation to avoid the impacts by redesigning the activity or undertake additional archaeological investigation, including Aboriginal community consultation, in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DEECW 2010B) (CoPAI) (see below) to determine the requirement for an AHIP. A key limitation of the Due Diligence Code of Practice and the CoPAI is that they do not clearly define the thresholds of "likely" or "highly likely". To assist the assessment, the Merriam Webster dictionary definition of "likely" is:

> "Having a high probability of occurring or being true: very probable" (www.merriam-webster.com/dictionary).

As such, where the Due Diligence assessment concludes that there might be a residual possibility that the activity might impact on Aboriginal objects and measures are put in place to avoid or reduce the likelihood of Harm then documentation of the assessment process would still provide a defense against prosecution for the activity under the Due Diligence approval pathway.

2.3 Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW

The *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DEECW 2010B) (CoPAI) provides the following statement on the application of the Code:

> "This Code has been developed to support the process of investigating and assessing Aboriginal cultural heritage by specifying the minimum standards for archaeological investigation undertaken in NSW under the NPW Act. Where an Aboriginal cultural heritage assessment requires an archaeological investigation to be undertaken, this must be done in accordance with the requirements of this Code." (DEECW 2010B:2).

The CoPAI replaces the former Standards and Guidelines Kit and outlines the minimum requirements for archaeological investigation and reporting by archaeologists.

The purpose of the CoPAI is to (DEECW 2010B:1):

1. establish the requirements for undertaking test excavation as a part of archaeological investigation without an AHIP. If you comply with these requirements and you harm an Aboriginal object when undertaking test excavations, your actions will be excluded from the definition of harm and as such you will not be committing an offence of harm to an Aboriginal object.
2. establish the requirements that must be followed when carrying out archaeological investigation in NSW where an application for an AHIP is likely to be made. Under the NPW Act, the Director General can require that certain information accompany an application for an AHIP. This Code explains what that information is in relation to archaeological investigations.

In the event that the CoPAI assessment concludes that the activity is not likely to impact on Aboriginal objects (i.e. the ACHA concludes that harm to Aboriginal objects is not likely and that an AHIP is not required) a ACHA report that complies with the CoPAI is considered to be compliant with the requirements under the Due Diligence Code of Practice. Where the CoPAI investigation determines an AHIP is required then the works can only be authorised by an AHIP (i.e. works cannot be assessed under the Due Diligence approval pathway).

2.4 Environmental Planning and Assessment Act (1979)

The Environmental Planning and Assessment Act (NSW) (1979) (EPA Act) provides a framework to environmental assessment and approvals in NSW. The EPA Act includes three parts relevant to ACHA assessments:

Part 3- Planning instruments which include Local Environment Plans (LEPs), Development Control Plans (DCPs) and other strategic planning controls.

Part 4- Development assessment and consent controls including approvals by local Councils and Regional Planning Panels.

Part 5- Self assessment and approvals by a government agencies, or Determining Authorities, for infrastructure and environmental proposals, and for the approval of State Significant Infrastructure by the Planning Minister.

The proposed timber bridge replacement works are being determined by a REF under Part 5 of the EPA Act by Tamworth Regional Council.

2.5 Tamworth Regional Local Environmental Plan 2010

The Tamworth Regional LEP (2010) provides a framework to determine activities which require development consent and outlines considerations for the determination process. This includes the following general classes of heritage:

- Items on the NSW State heritage Register
- Items of local heritage significance listed on Schedule 5 of the Tamworth Regional LEP, and
- Aboriginal objects and Places as defined by the NPW Act.

The Tamworth Regional LEP (2010) sets out provisions to control activities at "Aboriginal Places of heritage significance", which include places which do not meet the definition of an Aboriginal object or Aboriginal Place under the NPW Act but are listed under the LEP. Part 5.10.8 of the Tamworth Regional LEP (2010) requires that TRC:

> "… must, before granting consent under this clause to the carrying out of development in a place of Aboriginal heritage significance:
>
> a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place, and
> b) notify the local Aboriginal communities (in such way as it thinks appropriate) about the application and take into consideration any response received within 28 days after the notice is sent.

Based on the requirement of the LEP, activities or land uses that may not otherwise require consent, such as some agricultural activities, trigger the requirement for development consent if they are in close proximity to Aboriginal objects, Aboriginal Places and Aboriginal Places of heritage significance.

3. DATABASE AND ENVIRONMENTAL REVIEW

3.1 Aboriginal Heritage Information Management System (AHIMS)

3.1.1 Norris's Bridge

A search of the AHIMS database was undertaken 25 March 2023 between Lat, Long From : -30.9814, 150.5569 - Lat, Long To : -30.8341, 150.8041 which returned five previously recorded sites (search #767298 see **Figure 2**, **Error! Reference source not found. A**). No Aboriginal archaeological sites are recorded on AHIMS in the vicinity of Norris's Bridge.

3.1.2 Burgmanns Lane

A search of the AHIMS database was undertaken 25 March 2023 between Lat, Long From : -31.165, 150.9175 - Lat, Long To : -31.1282, 150.9793 which returned nine previously recorded sites (search # 767294 see **Figure 3**, **Appendix B**). No Aboriginal archaeological sites are recorded on AHIMS in the immediate vicinity of Burgmanns Lane.

3.1.3 New Winton Bridge

A search of the AHIMS database was undertaken 25 March 2023 between Lat, Long From :: -31.1277, 150.7628 - Lat, Long To : -31.0542, 150.8864 which returned 33 previously recorded Aboriginal sites (search #767291 see **Figure 4** and **Appendix C**). Two Aboriginal archaeological sites are recorded in close proximity to the New Winton Bridge (**Table 1**). Neither of the sites has accurate coordinates and are considered to be located within at least 100 metres of the site centroid.

Table 1: AHIMS previously recorded sites within close proximity to New Winton Bridge

AHIMS ID	Site name	Easting	Northing	Site type
29-2-0283	TAB 1-5	292300	6559000	Isolated artefact
29-2-0284	TIS-1	293100	6558500	Artefact

3.1.4 Walters Bridge

A search of the AHIMS database was undertaken 25 March 2023 between Lat, Long from: -31.2377, 150.6841 - Lat, Long To : -31.0908, 150.9313 which returned 58 previously recorded sites (search # 767296 see **Figure 5**, **Appendix D**). One Aboriginal archaeological site is recorded on AHIMS in the immediate vicinity of Walters Bridge, being the DTG/OC5- Clay Creek open campsite (**Table 2**).

Table 2: AHIMS previously recorded sites within close proximity to Walters Bridge

AHIMS ID	Site name	Easting	Northing	Site type
29-2-0091	DTG/OC5- Clay Creek	288580	6549700	Open Campsite

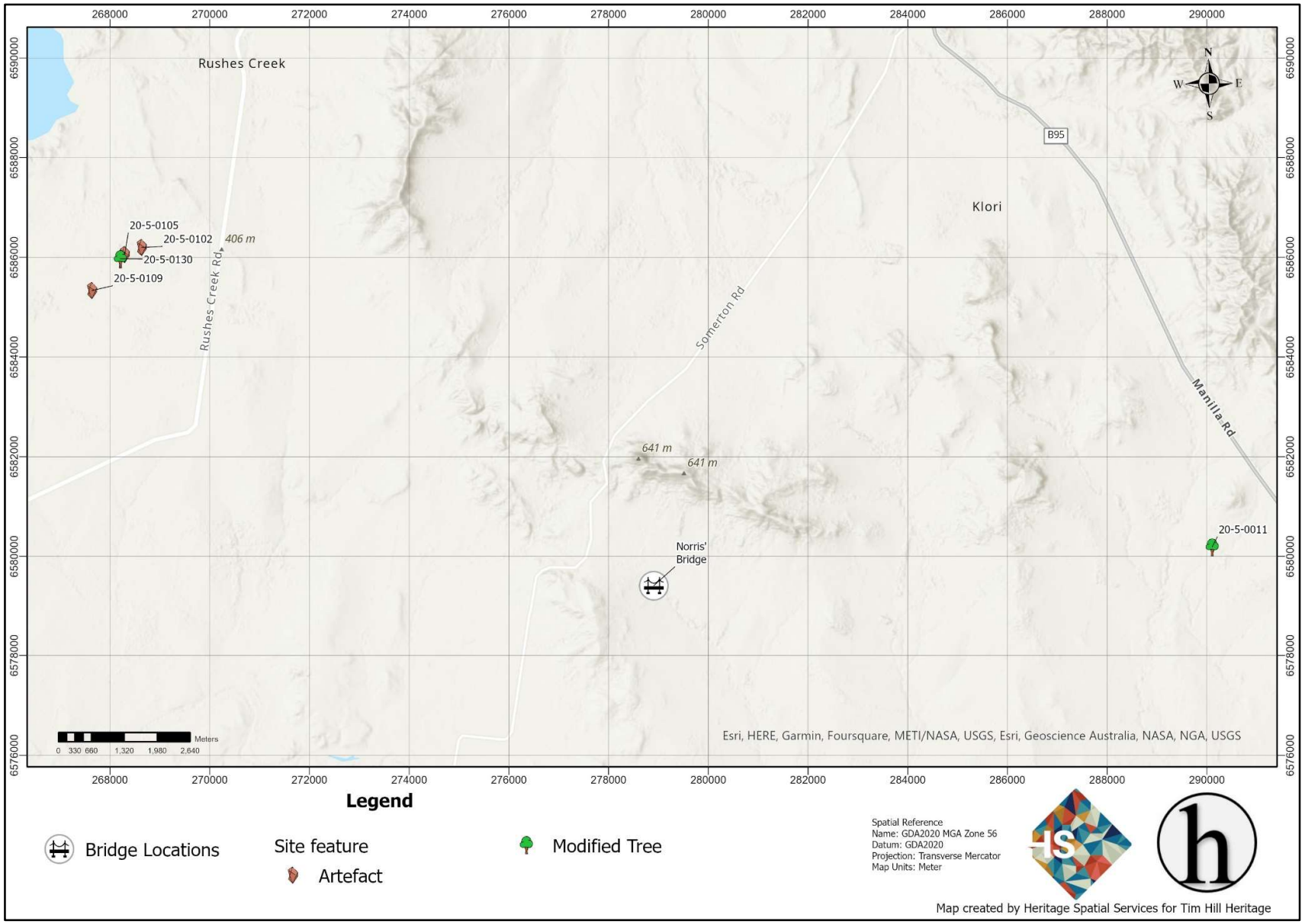

Figure 2: Map of AHIMS search results Norris' Bridge (AHIMS #767298)

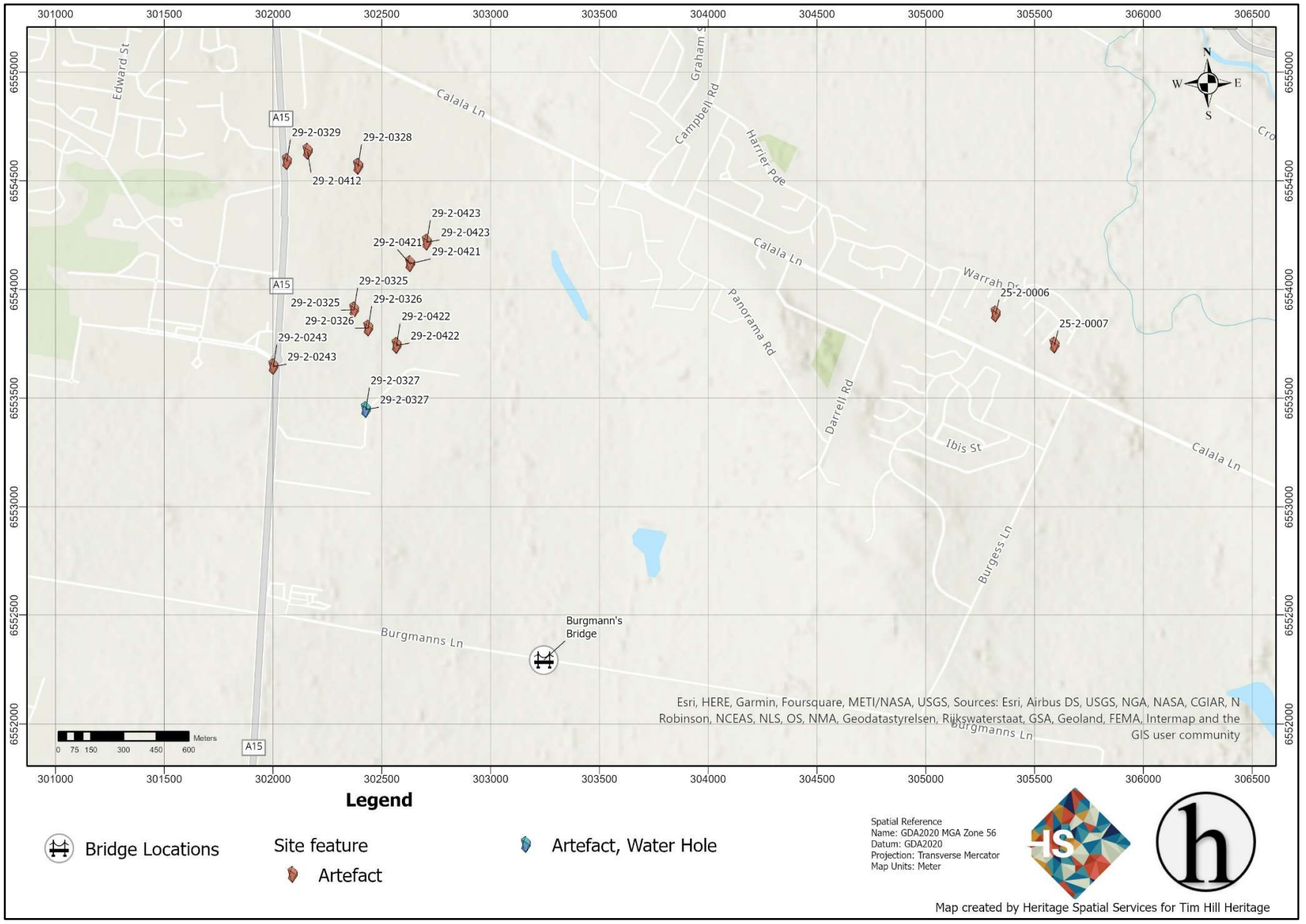

Figure 3:Map of AHIMS search results Burgmanns Lane (AHIMS # 767294)

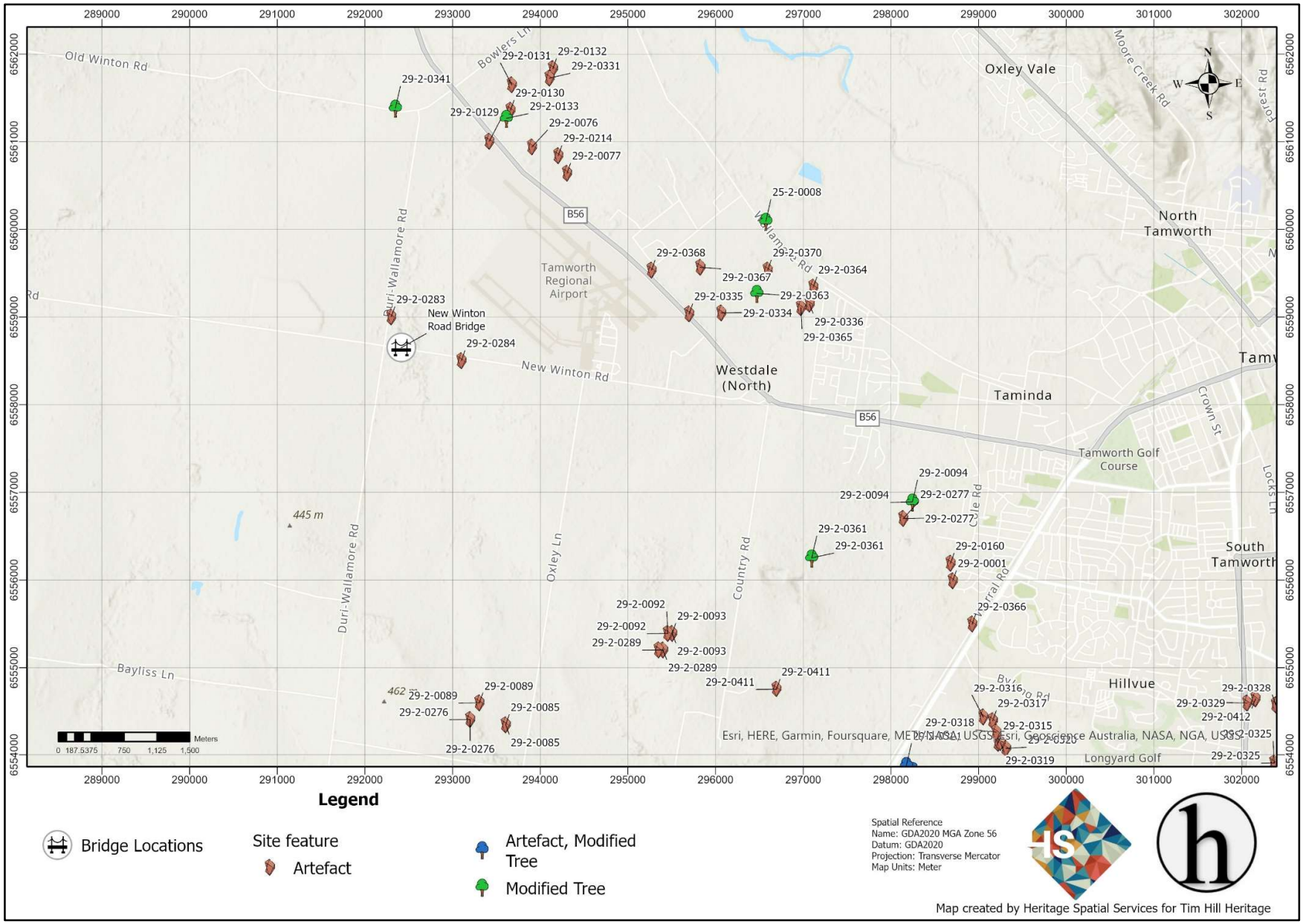

Figure 4:Map of AHIMS search results New Winton Bridge (AHIMS #767291)

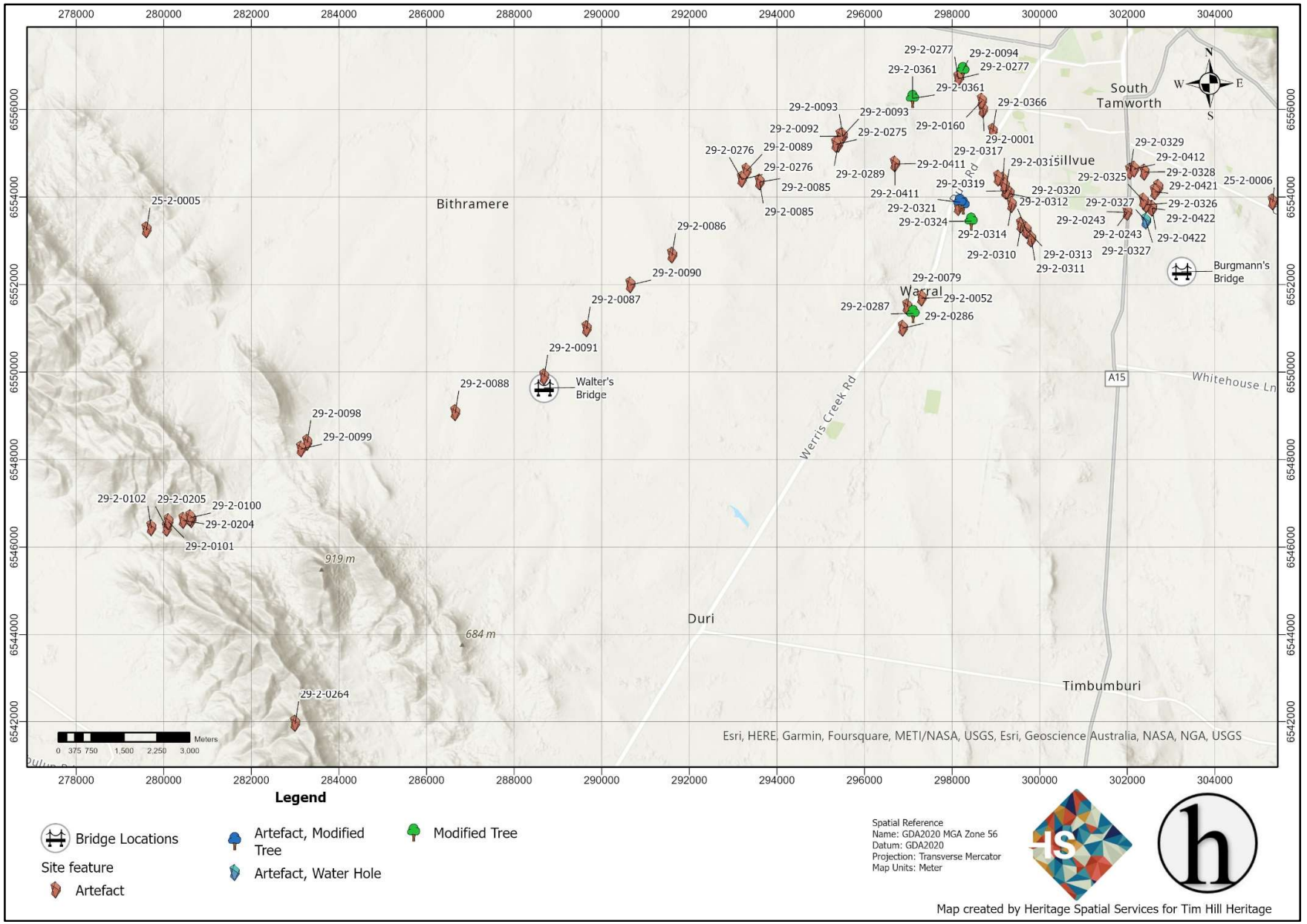

Figure 5: Map of AHIMS search results Walters Bridge (AHIMS #767296)

3.2 Environmental Context

3.2.1 Summary of the Peel River Catchment

The Peel River covers an area of 4,669 km^2 and forms part of the Murray Darling Basin. The top of the catchment flows from the western side of the Great Dividing Range east of Nundle to its confluence with the Namoi River east of Gunnedah (NSW Office of Water 2011:1). The upper catchment of the Peel River above Tamworth includes the major creek systems of the Dungowan Creek, Cockburn River and Goonoo Goonoo Creek. The complexity of these minor catchments is substantially related to the geological history of the catchment, with steeper and more complex creek systems coming out to of the more elevated ranges that comprise the Great Dividing Range. The catchment ranges in elevation from approximately 1300 metres above sea level on the eastern boundary to 288 metres above sea level at Carroll Gap.

The elevated ranges to the east and south of the Peel River catchment are associated to igneous and metamorphic geological formations associated with the Great Dividing Range (Geoscience Australia). To the west of the catchment the geology is predominately sedimentary which pre-date the Great Dividing Range and more recent alluvial/ quaternary sediments that have resulted from the erosion of the Great Dividing Range over time. Igneous rocks are known to have been quarried for the production and trade of axes, with the Daruka Axe Quarry to the north of Tamworth being a regionally significant Aboriginal site. The granitic boulders and outcrops to the north and east of the Peel Catchment are known to contain a rock art sites and stone arrangements associated with ceremonial and 'Dreamtime" events. Additionally, the older sedimentary (mudstone/ siltstone) and metamorphic materials (silcrete and quartzite) in the middle reaches of the Valley are suitable for the production of smaller stone tools which are common in New England archaeological assemblages.

3.2.2 Topography and hydrology

With respect to the likelihood that the Study Area will contain Aboriginal sites, the following landscape features are influential in the distribution of Aboriginal archaeological sites:

- The proximity of the rivers and creeks to small rocky outcrops and hills
- The confluence of the creeks tributaries which were used for navigation and resource use, and
- The deposition of alluvial soils which create small swamps and anna branches with relatively high biological diversity.

The following describes the topography and hydrology of the bridges subject to this study:

Table 3: Summary of topography and hydrology

Bridge	Description
Norris Bridge	Narrow meandering alluvial plain with low elevated ridges nearby, mostly sedimentary
Burgmans Lane	Broad alluvial plain south of the Peel River mostly cleared for farmland and likely developed by soil erosion and deposition from agriculture
New Winton	Broad alluvial plain south of the Peel River, some small swamps and anabranches
Walters Bridge	Alluvial floodplain with small lagoons and back channels nearby that retains some old growth box forests.

3.2.3 Mitchell Soil landscape summary

Burgmanns Lane is mapped as the "Peel Channels and Floodplain" landscape (DECCW 2002:76 see **Figure 10**).

> … floodplain, swamps, lagoons and terrace remnants on Quaternary alluvium, general elevation 300 to 550m, local relief 20m. Downstream of Attunga the river is incised across the geological structure. River oak (*Casuarina cunninghamiana*) in higher sectors of the channel merging with river red gum (*Eucalyptus camaldulensis*) as the floodplain widens. Rough-barked apple (*Angophora floribunda*) and yellow box (*Eucalyptus melliodora*) on the floodplain.

Norris' Bridge, New Winton Bridge and Walters Bridge area all mapped within the 'Tamworth Keepit Slopes and Plains" landscape, which are described as (DEECW 2002:77 see **Figure 10**).

> Extensive area of undulating to rolling slopes and plains with low hills and low ranges forming the western fall of the New England plateau. Complex geology of folded and faulted sedimentary and metamorphic rocks with minor interbedded volcanics. Rock types include; Silurian-Devonian chert, slate, phyllite, tuff, schist and Carboniferous conglomerate, sandstone, mudstone, andesite and small areas of limestone. General elevation 500 to 800m, local relief 250m, with some peaks reaching 1100m. Shallow stony soils on ridges. Texturecontrast soils on almost all slopes shifting in colour from red-brown on upper slopes to yellow with harsh subsoils prone to gully development on lower slopes. White box (*Eucalyptus albens*) grassy woodlands, with yellow box (*Eucalyptus melliodora*), Blakely's red gum (*Eucalyptus blakelyii*), cooba (*Acacia salicina*) and lightwood (*Acacia implexa*) on lower slopes. Rough barked apple (*Angophora floribunda*) and yellow box (*Eucalyptus melliodora*) on flats. River oak (*Casuarina cunninghamiana*) along major streams with river red gum (*Eucalyptus camaldulensis*) increasing to the west. Patches of red stringybark (*Eucalyptus macrorhyncha*) and red ironbark (*Eucalyptus sideroxylon*) on steeper slopes in the east.

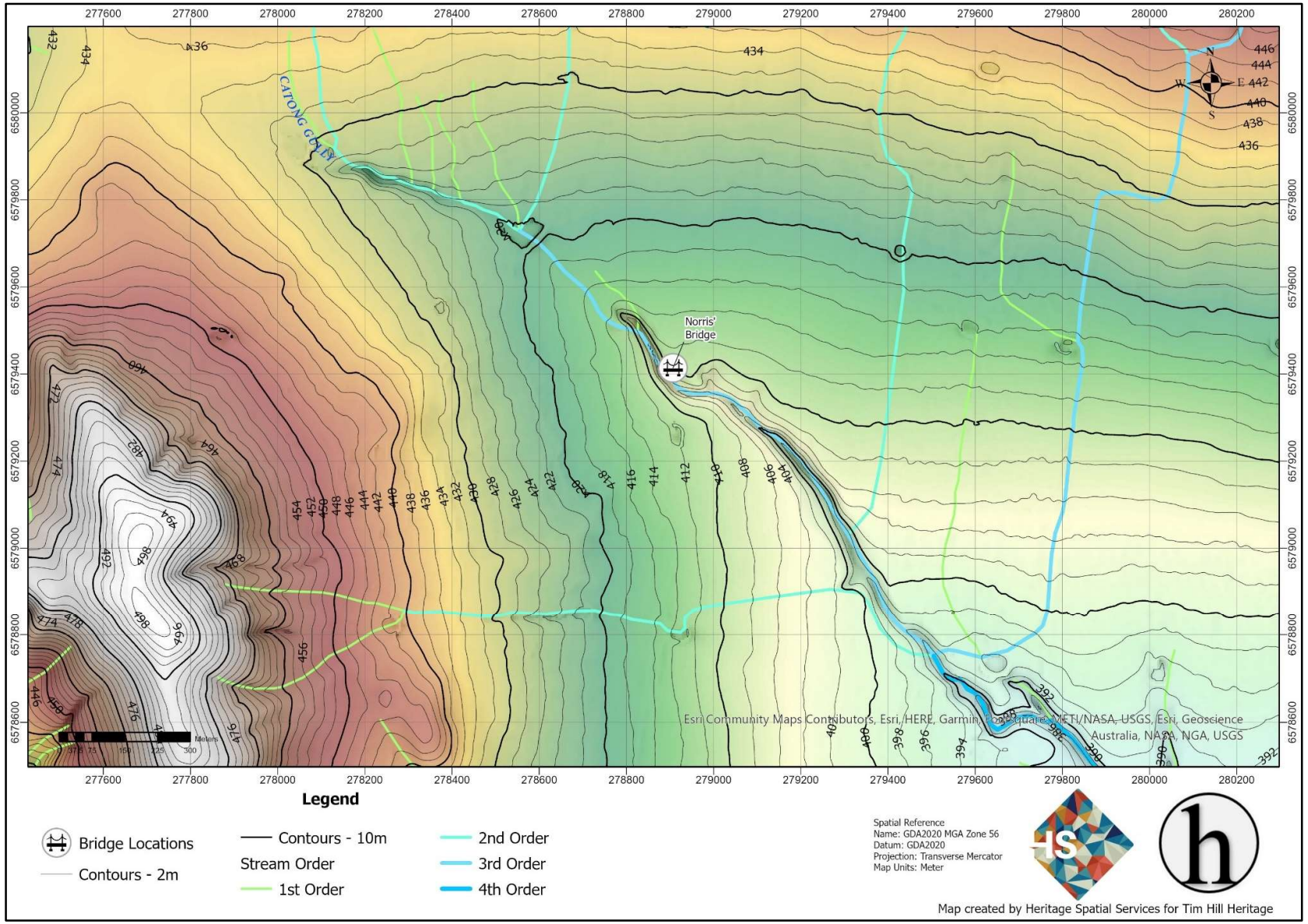

Figure 6: Topography and hydrology (Norris's Bridge)

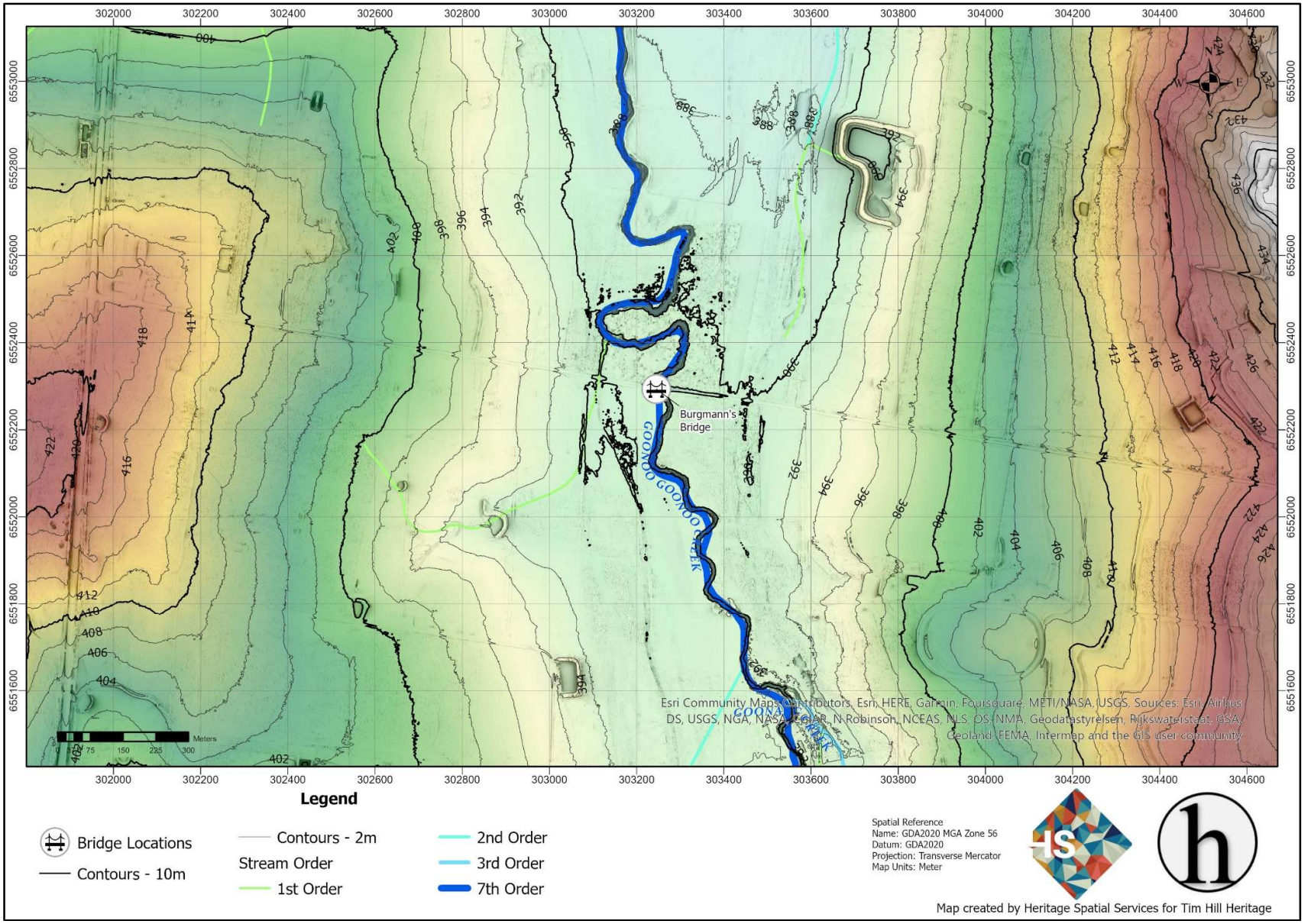

Figure 7: Topography and hydrology (Burgmanns Lane)

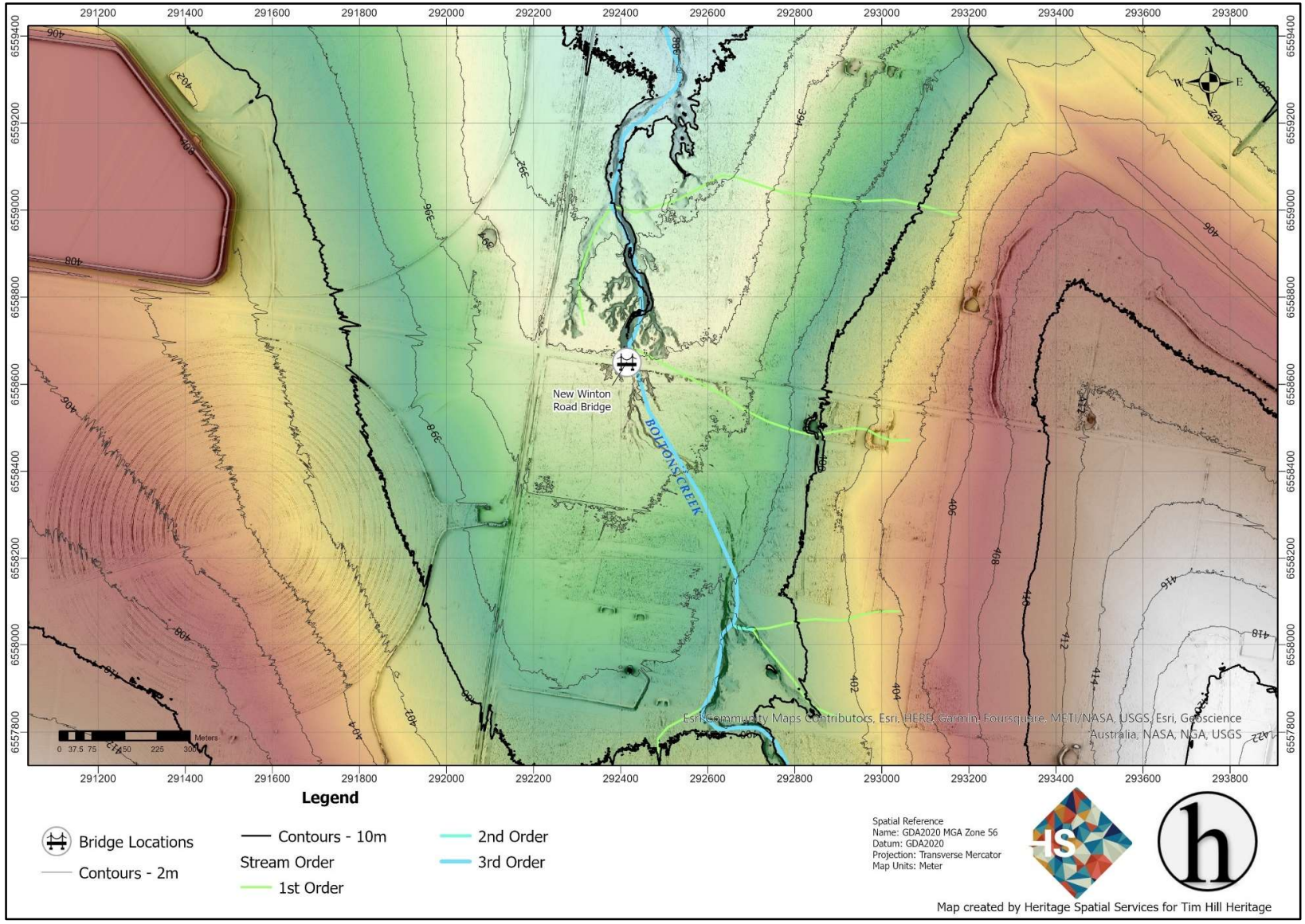

Figure 8: Topography and hydrology (New Winton Bridge)

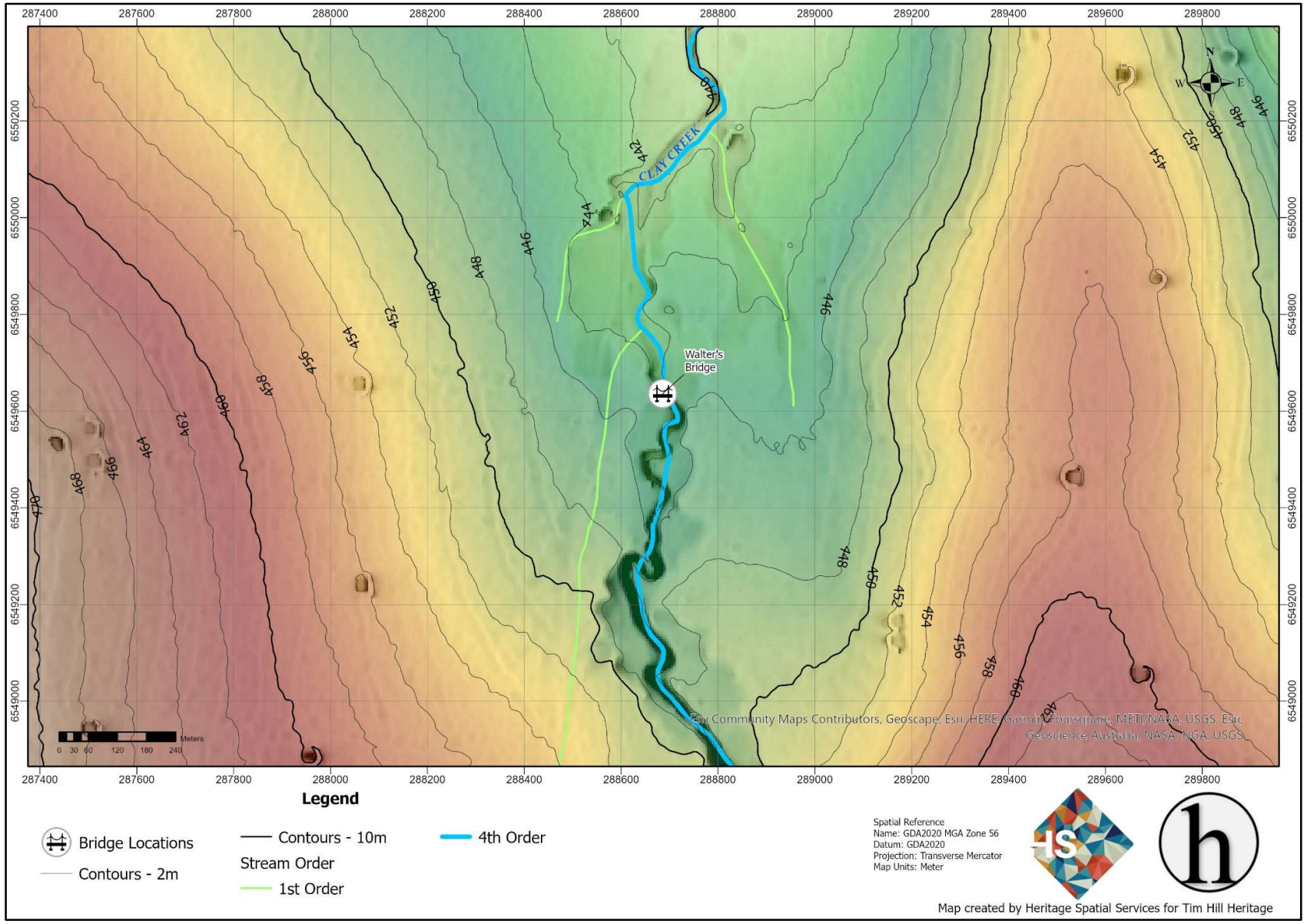

Figure 9: Topography and hydrology (Walters' Bridge)

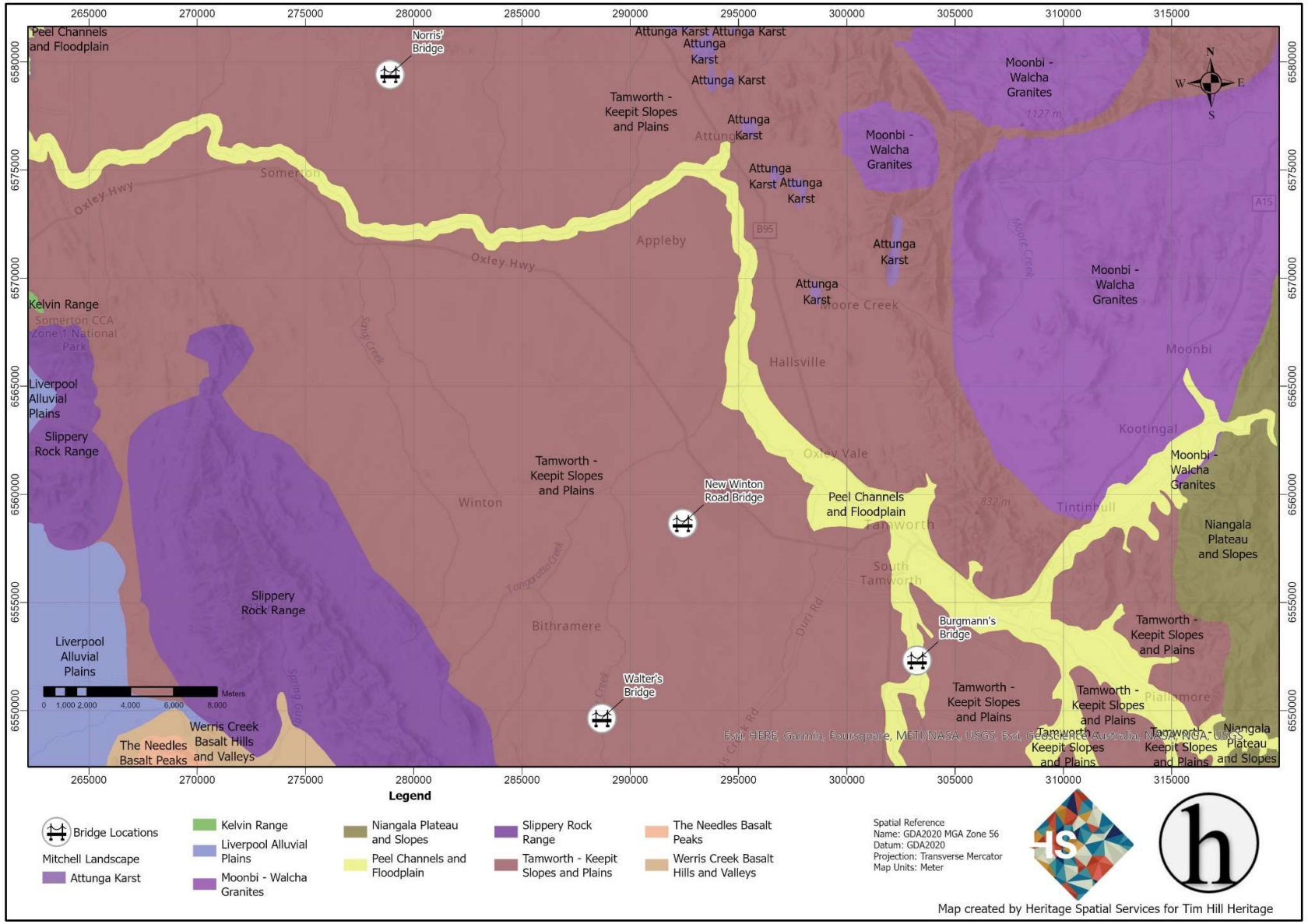

Figure 10: Mitchell landscapes mapping

3.2.4 Disturbance History

The impacts of previous ground disturbance is an important consideration in the Due Diligence assessment, particularly where ground disturbance removes Aboriginal objects from the soil profile or disturbs the objects to a degree that the interpretation of the archaeological survey results is significantly compromised. The Due Diligence Code of Practice provides the following definition of 'disturbed lands'.

> Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable.
>
> Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks (DEECW 2010:18).

Archaeological sites are vulnerable to the following types of disturbance from agriculture in the New England tablelands and upper western slopes (Table 4).

Table 4: Summary of disturbance history

Disturbance	Impact on Aboriginal archaeological landscape
Erosion-	increases soil erosion where portions of sites have fallen into the river as the outside bends remove parts of the floodplain. Localised erosion has largely removed organics sites, such as hearths and middens, which are vulnerable to relocation by fast flowing water
Tree clearing-	physical removes scarred and modified trees from the landscape either through forestry, ringbarking or as a result of bushfires and grass fires which burn older trees out
Accretion-	the deposition of alluvial soils has the effect of burying stone artefacts, hearths and burials making them less visible during archaeological surveys
Roadworks-	results in the removal of stone artefacts during the construction and continued maintenance of the road surface, verge and drains. While the sites typically extend along the rivers and creeks the spatial integrity of the sites within the road reserve are substantially lost.

4. ARCHAEOLOGICAL SYNTHESIS AND PREDICTIONS

4.1 Archaeological and Cultural heritage assessments

4.1.1 Dungowan Dam (EMM 2021)

EMM Consultants undertook an ACHAR for the proposed upgrades to the Dungowan Dam which is located upstream from Ogunbil and included the pipeline and powerline easements in the vicinity of Ogunbil (pipeline) and Weabonga (powerline). The study makes the following comment on the archaeological landscape of Dungowan Creek

> The field survey identified some 37 Aboriginal sites, places and/or objects across the project footprint... These sites were predominantly found on the alluvial terraces and lower slopes associated with Dungowan Creek; and have subsequently been integrated into the broader background scatter considered present across the project footprint...
>
> The archaeological test excavations were undertaken to explore the subsurface potential for cultural material. These focussed on alluvial terraces and lower slopes surrounding Dungowan Creek and its tributaries, many of which had been identified during the field survey through the presence of surface cultural material ... These excavations revealed that cultural material was primarily found within ~60 m of Dungowan Creek and associated tributaries, with significantly less cultural material found beyond this limit. This is substantially less than the 200 m buffer proposed from regional models. It is considered that this revised ~60 m buffer could also apply to nearby parts of Peel River given its similarity with the geomorphology of Dungowan Creek. The excavations recovered 1,662 stone artefacts, and demonstrated that a background scatter of ~10-15 artefacts/m^2 could be expected within the project footprint... This is a relatively high base-line value for the region, and may reflect the heavy exploitation of jasper (a raw material for stone tools) in the creek over the last 6 ka. Higher values of >30/m2, and up to 272/m2 in at least one location, are considered to reflect more intense and/or repeated use of a particular area or locale. Six of these foci were identified within the project footprint, and were generally small, <2,800 m2 (<60 x 60 m), but in some areas extended 350 m in length along the creek's edge. The cultural material was generally recovered from the upper 60 cm of the soil profile, with the highest densities between 10 cm and 50 cm below surface.

4.1.2 South Tamworth Rural Lands Masterplan (Everick Heritage 2014)

Everick Heritage Consultants Pty Ltd were commissioned to undertake a ACHA for the South Tamworth Rural Lands Masterplan, located on Goonoo Goonoo Road South Tamworth (Everick Heritage 2014). The Study concluded:

> The Development Area has no features that make it particularly likely to contain high concentrations of scientifically significant Aboriginal Objects, such as prominent water courses,

immediate access to marine and aquatic resources and stone resources. The area of most significance is a small portion of creek line on which Site GG04 is situated... This area was not necessarily the portion of creek line / gully that contained the densest concentration of Aboriginal artefacts prior to European settlement. Rather, it is the area that has seen the least ground disturbance, with the remainder of the creek line being heavily impacted by cultivation and grazing activities. This area has therefore been deemed of low to moderate archaeological significance.

It is anticipated that if the remainder of the Development Area is to contain Aboriginal Objects, they would be limited to isolated artefacts, or what is commonly known as a 'background scatter'. Given the high levels of ground disturbance over all of the Development Area, Aboriginal Objects that remain are likely to be of low scientific value. For these reasons, the Development Area has minimal potential to add to our understanding of past life ways of Indigenous peoples in the region. There may be areas within the Development Area that have nil scientific value, based on their intensive cultivation over a long period to time. ...

4.1.3 Chaffey Dam Augmentation (Navin Officer Heritage Consultants 2012)

Navin Officer Heritage Consultants (2012) undertook an Aboriginal Cultural Heritage Assessment on the upgrades to the Chaffey Dam including raising the dam wall. The assessment found seventeen previously recorded sites, thirteen of these had been previously recorded on the AHIMS register, and four new sites identified as PADs. Navin Officer Heritage Consultants (2012) identified sixteen additional sites consisting isolated finds, artefact scatters, a potential quarry and four PADs. These sites were found over many types of landforms, including slopes, creek banks, colluvial flats, spurs, terraces, gullies, and knolls. Navin Officer Heritage Consultants (2012) asserted that there is the possibility for many more Aboriginal cultural heritage sites within the Chaffey Dam Project Area, especially isolated artefacts, and artefact scatters.

The report makes the following conclusions from the study:

> Sixteen Aboriginal archaeological sites and four areas of potential archaeological deposit were identified during this investigation. This included a potential stone quarry. A large proportion of the site has been disturbed by stock grazing, mining activity or the dam. It is reasonable to assume that small Aboriginal artefact scatters and isolated finds remain undetected in the study area. Subsurface cultural material may be present in the area, both associated with the recorded sites and in the identified areas of archaeological potential. The current investigation has allowed for previous areas of identified PAD to be refined (Navin and Officer 2012:41).

4.1.4 Calala Creek (Gaynor 2011)

Pat Gaynor (2011) conducted an archaeological survey of Lot 191 DP1107583 near Calala Creek, Tamworth, NSW. An artefact scatter (Redbank 1 – artefact scatter) had been identified in a 2008 survey of the area, however, was unable to be relocated due to dense vegetation resulting in very low ground surface visibility.

A chert core was located, and attributed as part of this artefact scatter, later added to the number of artefacts for Redbank 1. A number of scarred trees were identified by a waterhole to the east of the survey area, however, whether these were culturally modified was indiscernible and thus, were not recorded. No artefacts were found within the area to be impacted by the Proposed works, as visibility was identified as approx. 2%. Calala Creek was highlighted as an area with the potential to contain subsurface Aboriginal cultural heritage, recommending that the area be inspected prior to road construction in the area.

4.1.5 Endeavor Drive Botanic Gardens (Gaynor and Wilson 1995)

Pat Gaynor and Janice Wilson (1995) were commissioned by the Tamworth City Council to conduct an archaeological assessment for the proposed Botanic Gardens on endeavour Drive, Tamworth. The proposed works included the gardens, gardener's depot, information rooms, lookout, walking tracks, an entrance road, and picnic area. One large artefact scatter was identified during surveys of the Project Area, located in a deep gully off the main watercourse in the locale, Deep Gully. The site fell into the proposed carpark area, however, following negotiations between the Tamworth LALC, City Council, National Parks and Wildlife Service, and landscapers, most of the site was avoided and left for educational purposes, with a small area salvaged and analysed.

4.1.6 Kamilaroi Walking Track (Wilson and McAdam 2000)

Wilson and McAdam (2000) undertook an archaeological assessment of the Tamworth area which included the Kamilaroi Walking Track near Oxley Park. The study recorded 4 archaeological sites comprising stone flakes produced from locally available hornfels, cherty argillite and andesitic greywacke. The artefacts from site 1 were along a 260 metre length of the walking track and the study concluded that the artefacts had potentially eroded downslope on to the track. Site 2 comprised a section of track 250metres long on a ridge saddle between two hills and comprised flakes produced from quartz, chert and hornfels. Site 3 comprised 4 artefacts, being made from chert and hornfels, on a small spur. The largest site, Site 4, comprised 22 artefacts which appeared to have been washed downslope to a saddle between ridge tops, approximately 500m above Long Gully and Fox Gully.

4.1.7 Baiada Poultry, Oakburn (Piper, Hill & Mazlin 2019)

The archaeological investigation of the Baiada poultry processing facility at Oakburn includes pedestrian transects across the processing site which is located on Boltons Creek. The survey area was substantially disturbed from cropping and grazing, however Aboriginal stone artefacts had been located along the creek by previous investigations which had subsequently resulted in the artefacts being removed under an AHIP. The Report makes the following comment on previous studies in the vicinity of the processing area:

> The Gaynor Wilson study assessed a small portion of the Oakburn property for Baiada Pty Ltd recording three Aboriginal sites: three (3) isolated artefacts. These were located in a non-perennial

branch of Boltons Creek to the east of the current Baiada Pty Ltd construction site (i.e. the existing Rendering Plant) on the Oxley Highway. The three artefacts were removed for analysis by Consent and not returned to their 'found' location. In effect the sites exist in name only, unless further Aboriginal materials were found in the same locations.

4.2 Predictive Models

4.2.1 Bowdler (1981)

Sandra Bowdler completed a major review of archaeological and ethnohistorical sources to complete a settlement model for the New England Tablelands during her tenure with the University of New England, building on the earlier model for north-eastern NSW proposed by Isabel McBryde. The model included the following general predictions to understand the archaeology of the New England tablelands:

- The tablelands were a major ceremonial centre in the region attended by people from the coast, the western slope and the permanent residents of the tablelands
- Land above 1000 metres above sea level were primarily used for ceremony, with most subsistence harvesting and hunting taking place in the lower elevations of the range, and
- The higher parts of the tablelands, above 600 metres above sea level, were substantially abandoned in winter, with people moving into the gorges to the east or the western slopes and upper Murray Darling River catchment.

4.2.2 Pearson (1981)

Pearson completed an investigation of Aboriginal and early European settlement patterns within the Upper Macquarie River region of NSW which included transitional landforms similar to the Tamworth region (Pearson 1981). The majority of the field coverage was directed by information from informants and was thus skewed toward large or obtrusive sites that were already known to local residents. Pearson excavated three rock shelter sites (Botobolar 5, and Granites 1 and 2) which provided a regional record of Aboriginal occupation dating back to around 7000 years before present. The following can be summarised from this study as a predictive model for the region:

- there is a strong relationship between site location and distance from water sources whereby distance to water varied from 10m to 500m, but in general the average distance from water decreased as site size increased
- sites were typically found on hilly or undulating places rather than on river flats or the banks of waterways
- good drainage and views over watercourses and river flats were important site location criteria
- most sites were located in contexts that would originally have supported open woodlands, with small numbers in original grassland or forest contexts

- burial sites and grinding grooves were situated as close to habitation areas as geological constraints would allow
- Ceremonial sites such as earth rings ('bora grounds') were located away from campsites
- stone arrangements were also located away from campsites in isolated places and tended to be associated with small hills or knolls or were on flat land
- quarry sites were located where stone outcrops with desirable working qualities were recognised and were reasonably accessible; and
- Aboriginal campsites were seldom used for longer than three nights and that large sites probably represent accumulations of short visits.

4.2.3 Godwin (1990)

Luke Godwin (1990) undertook a regional investigation of Aboriginal ethnohistorical sources across northern NSW, including the New England Tablelands and Western Slopes, in response to the models proposed by McBryde and Bowdler. Based on primarily ethnohistoric sources, Godwin (1990:171) proposes the following model of movement and settlement relevant to the study:

> The tablelands were occupied throughout the year by bands of people from the three main languages present. These bands were composed of between 15 and 25 individuals, and moved frequently, as would be expected due to the relatively fine-grained nature of resources in this region. Bands ranged widely over the tablelands and upper western slopes, and occasionally into the gorge country. The tablelands, however, were not abandoned at any time of the year.
>
> Both natural and artificial concentrations of resources (e.g. swamps/ lagoons and fired clearings in woodlands) were exploited where and when available. Plant resources, including a number of carbohydrate rich varieties, could be gathered from the forest/ woodland and swamps, and prepared, using a simple toolkit comprising digging stick, bags of plant fibre, and pebbles to pound some substances into a paste. As with the gorge country, meat may have been the major component of the diet during the winter and spring months. Apart from this, possums and macropods were hunted at this time because of the quality of their fur for rug manufacture…
>
> Large gatherings of people occurred at certain locations on the tablelands and the western slope. These were attended by people from the tablelands and the western slopes and were sometimes held during the winter months. Tablelands groups also travelled to the western slopes during the summer months. However, the seasonal aspect should not be overstressed…Animal drives involving large numbers of people were organised at such times, and nets were often employed in this activity. Tablelands and western slopes people exchanged material goods as well as rituals during such gatherings.

4.2.4 Gaynor and Wilson (1995)

Gaynor and Wilson (1995) outline an archaeological predictive model that specifically considers the role of geology in the nature and distribution of archaeological sites in the Tamworth, lower England Tablelands area which includes:

> …the marine sediments of the Tamworth area have undergone metamorphism due to their location within the contact aureole of the Moonbi Adamellite Intrusions. It was the metamorphosis of the Lower Devonian Baldwin Formation andesitic greywackes that produced the tough green-grey raw material found at the "Daruka" axe quarry at Moore Creek. This stone is so valued by Aboriginal people for the manufacture of axes that is found its way from trade or exchange over most of the north-west and over distances as great as 1000 kilometres (the most distant axes from this source positively identified to date were collected at Wilcannia)…Cherty Argillite and hornfels were also used in the manufacture of axes and other flaked stone tools in the Tamworth area…This indicates that these raw materials are likely to be found in any sites…It is also possible that Aboriginal people…would turn to the Peel River for high quality raw materials for flaking, such as chert and chalcedony…These raw materials are transported as pebbles in the river from its catchment in the Chaffey Dam area and are often of high quality and provide excellent flaking material…(Gaynor 1995:23)

4.2.5 Predictive model for the Study Area

From the review of previous archaeological and cultural heritage it is reasonable to proceed with the ACHA on the basis that the bridge replacement works have an overall low potential to contain Aboriginal archaeological sites. The following specific comments are provided to inform the ACHA:

- the bridge replacement works are located on the alluvial floodplains and rolling hills which typically do not have a high environmental diversity or species abundance
- large stone artefact scatters tend to be on elevated alluvial terraces above the waterways and are rarely on the immediate creek banks as Aboriginal campsites were typically on elevated ground with views over the surrounding landscape
- outcrops of rock suitable for tool production are not common on the floodplain and alluvial environments of the middle reaches of the Peel Valley
- the potential for stone artefact scatters is further diminished by the acceleration of erosion and accretion of soils which would have been exacerbated by repeated road upgrades and maintenance
- old growth trees with the potential for anthropogenic modification have mostly been removed during roadworks, and
- ceremonial sites such as bora rings and stone arrangements tend to be on elevated rocky hill country and are not common on alluvial floodplains

5. FIELD SURVEY: ABORIGINAL CULTURAL HERITAGE

5.1 Survey Methods

The archaeological site inspection was undertaken by Tim Hill and Uncle Don Fermor, Aboriginal Sites Officers (Tamworth LALC) on 3 April 2023 (**Figure 11**- **Figure 18**). Uncle Don was very familiar with the archaeological and cultural landscape of the Peel River and has undertaken archaeological surveys for numerous projects over the past 20 years. The survey method include meandering pedestrian transects within the road reserve with specific focus on areas which had not been subject to significant ground disturbance.

5.2 Constraints to Site Detection and Survey Coverage

An assessment of the constraints to site detection is made to assist in formulating a view as to the effectiveness of the field inspection to find Aboriginal sites and cultural materials and is a requirement of the CoPAI (DEECW 2010). The area of surface exposure and the degree of surface visibility within exposed surfaces are usually the product of 'recent' land uses e.g. agricultural tilling, road construction or use by vehicles to create informal tracks, areas of natural erosion on steeper slopes that may have been used repeatedly by animals (McDonald et.al. 1990:92). However, most of the survey areas were significantly disturbed from road and bridge construction with additional disturbance from erosion and soil deposition associated with the road construction (**Table 5** and **Figure 11**-**Figure 18**).

Table 5: Summary of archaeological survey

Survey Unit (SU)	Landform	Survey Area (m^2)	Visibility	Exposure	Effective coverage area (m^2)	Effective coverage %	No. of sites
Burgmanns	Alluvial	3000	10	10	30	1	0
Walter	Alluvial	3000	40	20	240	8	0
New Winton	Alluvial	2000	20	10	40	2	0
Norris	Alluvial	3000	40	40	480	16	0

Figure 11: Survey of Burgmann's Lane (looking west) showing the existing road pavement cut into the floodplain

Figure 12: Burgmanns Lane showing the floodplain, road pavement and drains looking east

Figure 13: Walters Bridge showing the current culvert crossing

Figure 14: Road reserve at Walters Bridge looking west

Figure 15: New Winton Bridge showing existing pavement and floodplain (looking west)

Figure 16: New Winton Bridge showing disturbance within the creek bed

Figure 17: Norris Bridge showing the wide road pavement and low ridge to the west of the bridge

Figure 18: New Norris Bridge showing road reserve (looking east)

5.3 Survey Results

The following statements summarise the outcomes of the site inspection and Due Diligence assessment:

- no Aboriginal sites were recorded within the road reserves in the vicinity of the bridge and culvert upgrade works
- the bridge and culvert upgrade works are located within landforms which have been subject to substantial historical ground disturbance, including the removal and relocation of topsoils and the introduction of aggregate and road base material to form the road pavement
- the previously recorded Aboriginal sites nearby to Walters Bridge and New Winton Bridge were not known to Uncle Don Fermor, however the undisturbed lands outside of the road reserve were identified as having the potential to contain Aboriginal sites
- the road reserves were mostly covered by thick grass with the main areas of archaeological visibility associated with areas of ground disturbance in drains and erosional zones beside the bridge abutments and road pavement
- there were no mature trees within the road reserves which had the potential for anthropogenic modification, and
- Uncle Don Fermor was not familiar with any ceremonial or dreaming sites associated with the creeks subject to the investigation.

5.4 Requirement for Additional Investigation

The requirement for additional archaeological investigation has been considered and it is concluded that additional consultation with the Aboriginal community and archaeological excavation is not required for the bridge and culvert upgrades as there is an overall low likelihood that Aboriginal sites will occur within the highly disturbed road reserve. The CoPAI (DEECW 2010B) requires that archaeological excavation should be undertaken under the following circumstances:

> "sub-surface Aboriginal objects with potential conservation value have a high probability of being present in an area, and the area cannot be substantially avoided by the proposed activity"

When applied across the upper Peel River, sites of 'conservation value' would include classes of archaeological sites which are either rare or of deeper significance to the Aboriginal community, including burials, ceremonial sites such as stone arrangements, birthing places, rock art sites, shell middens, scarred or carved trees and historic sites associated with Aboriginal reserves or "fringe" camps. Stone artefact scatters and isolated artefacts are relatively common throughout the western slopes and would not be considered candidates for conservation areas and are not considered to be of high conservation value. Additionally, based on the degree of ground disturbance within the road reserves it is not considered likely, or highly likely, that Aboriginal archaeological sites will be present or subject to harm from the Proposed Works. As such an appropriate management response for this proposal is the implementation of an Unexpected Aboriginal Objects Find Procedure (see below).

6. CONCLUSIONS AND RECOMMENDATIONS

The survey has concluded that the upgrades of bridges and culverts subject to this investigation will not likely result in harm to Aboriginal archaeological sites. As such the works can be undertaken using the Due Diligence approval pathway. However, it is recommended that an Aboriginal objects find procedure is put in place as a precautionary measure, supported by the Tamworth Local Aboriginal Land Council.

Recommendation 1: Aboriginal Objects Find Procedure

It is recommended that if it is suspected that Aboriginal objects have been uncovered as a result of construction within the Study Area:

a) work in the surrounding area is to stop immediately and records are made of the finds via project incident reporting procedures
b) a temporary fence is to be erected around the site and appropriate controls put in place to ensure that no additional ground disturbance happens in the vicinity of the find
c) an appropriately qualified archaeological consultant and a representative of the Tamworth LALC are to be engaged to identify the material and provide an initial assessment of the significance of the object and the likely nature and extent of any associated archaeological sites
d) if the material is found to be of Aboriginal origin, the find must be reported on the AHIMS database
e) In the event that the Aboriginal objects are considered to have been damaged or disturbed, the incident must be reported through the NSW Enviro Hotline, and
f) Works may only recommence after advice from Heritage NSW on the requirement for an AHIP or where design, engineer or construction measures are identified to mitigate further damage to the Aboriginal site.

It is recommended that Aboriginal sites officers from Tamworth Local Aboriginal Land Council are engaged as 'spotters' during the initial site preparation works which include the removal of grass and topsoils, including the establishment of site offices and ancillary work areas.

Recommendation 2: Aboriginal Human Remains

Although it is unlikely that Human Remains will be located within the Study Area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Tamworth), Tamworth LALC and the Heritage NSW (Parramatta) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the Heritage NSW should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all parties, provided it is in accordance with all parties' statutory obligations.

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APPENDIX A: AHIMS SEARCH RESULTS (NORRIS BRIDGE).

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Norris Bridge
Client Service ID : 767298

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
20-5-0105	Happy Hills-OS1	GDA	56	268294	6586054	Open site	Valid	Artefact : -		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Miss.Philippa Sokol					Permits		
20-5-0102	Happy Hills-IF2	GDA	56	268635	6586196	Open site	Valid	Artefact : -		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Miss.Philippa Sokol					Permits		
20-5-0011	Attunga;Kaytoun;	AGD	56	290000	6580000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Carved Tree	
	Contact	Recorders	David Bell					Permits		
20-5-0109	Bondah-OS9	GDA	56	267638	6585332	Open site	Valid	Artefact : -		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Miss.Philippa Sokol					Permits		
20-5-0130	Happy Hills-ST3	GDA	56	268207	6585970	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Miss.Philippa Sokol					Permits		

**** Site Status**

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

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

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

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

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -30.9814, 150.5569 - Lat, Long To : -30.8341, 150.8041. Number of Aboriginal sites and Aboriginal objects found is 5

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

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APPENDIX B: AHIMS SEARCH RESULTS (BURGMANNS LANE).

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Burgmanns Bridge

Client Service ID : 767294

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
25-2-0006	Redbank IP/1	GDA	56	305320	6553886	Open site	Valid	Artefact : 5		102239
	Contact	Recorders	Archaeological Surveys & Salvage					Permits		
29-2-0327	GG04	GDA	56	302426	6553446	Open site	Valid	Artefact : 1, Water Hole : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0423	GG-AFT03	GDA	56	302706	6554216	Open site	Valid	Artefact : -		
	Contact	Recorders	Everick Heritage Pty Ltd,Mr.Matt Finlayson					Permits		
29-2-0422	GG-AFT02	GDA	56	302567	6553741	Open site	Valid	Artefact : -		
	Contact	Recorders	Everick Heritage Pty Ltd,Mr.Matt Finlayson					Permits		
29-2-0243	EQUINE 1P/1	AGD	56	301896	6553455	Open site	Valid	Artefact : 3		102239
	Contact T Russell	Recorders	Archaeological Surveys & Salvage ,Tamworth LALC					Permits		
25-2-0007	Meadowbank IP/1	AGD	56	305486	6553554	Open site	Valid	Artefact : 5		102239
	Contact	Recorders	Archaeological Surveys & Salvage					Permits		
29-2-0421	GG-AFT01	GDA	56	302629	6554117	Open site	Valid	Artefact : -		
	Contact	Recorders	Everick Heritage Pty Ltd,Mr.Matt Finlayson					Permits		
29-2-0326	GG06	GDA	56	302437	6553821	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0325	GG05	GDA	56	302372	6553905	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		

**** Site Status**

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

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

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

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

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.165, 150.9175 - Lat, Long To : -31.1282, 150.9793. Number of Aboriginal sites and Aboriginal objects found is 9

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APPENDIX C: AHIMS SEARCH RESULTS (NEW WINTON BRIDGE)

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 New Winton
Client Service ID : 767291

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
29-2-0284	TIS-1	GDA	56	293100	6558500	Open site	Valid	Artefact : -		
	Contact	Recorders	Armidale NPWS					Permits		
29-2-0130	Boltons Creek 2	AGD	56	293555	6561168	Open site	Valid	Artefact : 28		97360
	Contact	Recorders	Janice Wilson					Permits		
29-2-0132	Boltons Creek 4	AGD	56	294039	6561643	Open site	Valid	Artefact : 141		97360
	Contact	Recorders	Janice Wilson					Permits		
29-2-0094	DTG/ST1 - Timbumduri Creek	AGD	56	298140	6556700	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Mr.Mark Rawson					Permits		
29-2-0129	Boltons Creek 1	AGD	56	293313	6560814	Open site	Valid	Artefact : 15		97360
	Contact	Recorders	Janice Wilson					Permits		
29-2-0276	DTG/OC 3-Boltons Creek 2	GDA	56	293200	6554400	Open site	Valid	Artefact : 1		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0368	Global Gateway Drainage Isolated Find C (GGD IF C)	GDA	56	295269	6559533	Open site	Destroyed	Artefact : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Tamworth Local Aboriginal Land Council					Permits		
29-2-0283	TAB 1-5 Isolated Artefacts	GDA	56	292300	6559000	Open site	Valid	Artefact : -		
	Contact	Recorders	Armidale NPWS					Permits		
29-2-0093	DTG/OC1 - Murroon Creek 1	AGD	56	295400	6555200	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mr.Mark Rawson					Permits		
29-2-0335	Heather brae 2	GDA	56	295698	6559035	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Adrian Piper					Permits		
29-2-0370	Tamworth Intermodal OS1	GDA	56	296594	6559533	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Nicholas James Harrop					Permits	4750	
29-2-0341	OLD WINTON RD SCARRED TREE	GDA	56	292347	6561382	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Eco Logical Australia Pty Ltd - Sydney - Individual users,Mr.Lyndon Patterson					Permits		
29-2-0367	Global Gateway Drainage Isolated Find B (GGD IF B)	GDA	56	295825	6559566	Open site	Valid	Artefact : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby					Permits		
29-2-0363	Global Gateway drainage (GGD) CMT 02	GDA	56	296470	6559268	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby					Permits		
25-2-0008	Heather Brae Scarred Tree	AGD	56	296468	6559903	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Ms.Suzanne Hudson					Permits		

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.1277, 150.7628 - Lat, Long To : -31.0542, 150.8864. Number of Aboriginal sites and Aboriginal objects found is 33

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 New Winton

Client Service ID : 767291

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
29-2-0411	WSF-001	GDA	56	296694	6554752	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Elaine Lin,Virtus Heritage Pty Ltd - Pottsville					Permits	4911	
29-2-0214	Oakburn 3	AGD	56	294100	6560650	Open site	Valid	Artefact : 1		103183
	Contact T Russell	Recorders	Archaeological Surveys & Salvage					Permits		
29-2-0336	Heather brea 3	GDA	56	297071	6559146	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Adrian Piper					Permits		
29-2-0364	Global Gateway Drainage Isolated Find E (GGD IF E)	GDA	56	297114	6559339	Open site	Valid	Artefact : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby					Permits		
29-2-0289	DTG/OC 1 Murron Creek 1	GDA	56	295400	6555200	Open site	Valid	Artefact : -		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0092	DTG/OC2 - Murroon Creek 2	AGD	56	295350	6555200	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0089	DTG/OC3 - Bottono Creek 2	AGD	56	293200	6554400	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits	2300,2304	
29-2-0334	Heatherbrae 1	GDA	56	296064	6559045	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Adrian Piper					Permits		
29-2-0085	DTG/IF3 - Boltons Creek 1	AGD	56	293500	6554150	Open site	Valid	Artefact : -	Isolated Find	97360
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0133	Boltons Creek ST 1	AGD	56	293508	6561076	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Janice Wilson					Permits		
29-2-0277	DTG/ST 1-Timbumburi Ck	GDA	56	298140	6556700	Open site	Valid	Artefact : -		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0365	Global Gateway Drainage Isolated Find D (GGD IF D)	GDA	56	296973	6559105	Open site	Valid	Artefact : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby					Permits		
29-2-0077	Oakburn 2	AGD	56	294200	6560450	Open site	Valid	Artefact : -	Isolated Find	103183
	Contact	Recorders	J.M Wilson,Archaeological Surveys & Salvage ,Mr.Richard Kelly					Permits	1139	
29-2-0076	Oakburn 1	AGD	56	293800	6560750	Open site	Valid	Artefact : -	Isolated Find	103183
	Contact	Recorders	J.M Wilson,Archaeological Surveys & Salvage ,Mr.Richard Kelly					Permits	1139	
29-2-0361	Potential Scarred Tree TQS-ST1	GDA	56	297096	6556251	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Miss.Rachel (Elle) (left Virtus Company) Lillis,Virtus Heritage Pty Ltd - Pottsville					Permits		
29-2-0275	DTG/OC 2-Murroon Creek 2	GDA	56	295350	6555200	Open site	Valid	Artefact : 2		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0131	Boltons Creek 3	AGD	56	293570	6561459	Open site	Valid	Artefact : 4		97360

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.1277, 150.7628 - Lat, Long To : -31.0542, 150.8864. Number of Aboriginal sites and Aboriginal objects found is 33

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 New Winton
Client Service ID : 767291

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Janice Wilson					Permits		
29-2-0331	Boltons Creek 01	GDA	56	294105	6561724	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Adrian Piper					Permits		

**** Site Status**

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

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

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

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

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.1277, 150.7628 - Lat, Long To : -31.0542, 150.8864. Number of Aboriginal sites and Aboriginal objects found is 33

APPENDIX D: AHIMS SEARCH RESULTS (WALTERS BRIDGE)

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Walters Bridge
Client Service ID : 767296

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
29-2-0205	DTG/IF28 Duri peak4	AGD	56	279965	6546239	Open site	Valid	Artefact : -		
	Contact S Scanlon	Recorders	ERM - Thornton					Permits	2300,2304	
29-2-0204	DTG/IF27 Duri Peak 3	AGD	56	280342	6546419	Open site	Valid	Artefact : 1		
	Contact S Scanlon	Recorders	ERM - Thornton					Permits	2300,2304	
29-2-0264	stc as 2	GDA	56	283000	6541960	Open site	Valid	Artefact : 2		
	Contact	Recorders	Ms.Gretta Logue					Permits		
29-2-0329	GG01	GDA	56	302063	6554587	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0328	GG03	GDA	56	302390	6554565	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0327	GG04	GDA	56	302426	6553446	Open site	Valid	Artefact : 1, Water Hole : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0423	GG-AFT03	GDA	56	302706	6554216	Open site	Valid	Artefact : -		
	Contact	Recorders	Everick Heritage Pty Ltd,Mr.Matt Finlayson					Permits		
29-2-0315	DR06	GDA	56	299223	6554130	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0312	DR03	GDA	56	299700	6553225	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0091	DTG/OC5 - Clay Creek 4	AGD	56	288580	6549700	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits		
25-2-0005	MW-1	AGD	56	279500	6553060	Open site	Valid	Artefact : 4		
	Contact	Recorders	Mr.John Appleton					Permits		
29-2-0090	DTG/OC4 - Clay Creek 2	AGD	56	290550	6551800	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits	2300,2304	
29-2-0086	DTG/IF4 - "Clay Creek 1"	AGD	56	291500	6552480	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Mr.Mark Rawson					Permits	2300,2304	
29-2-0422	GG-AFT02	GDA	56	302567	6553741	Open site	Valid	Artefact : -		
	Contact	Recorders	Everick Heritage Pty Ltd,Mr.Matt Finlayson					Permits		
29-2-0094	DTG/ST1 - Timbumduri Creek	AGD	56	298140	6556700	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Mr.Mark Rawson					Permits		
29-2-0320	DR11-1	GDA	56	299312	6554072	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0243	EQUINE 1P/1	AGD	56	301896	6553455	Open site	Valid	Artefact : 3		102239
	Contact T Russell	Recorders	Archaeological Surveys & Salvage ,Tamworth LALC					Permits		

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.2377, 150.6841 - Lat, Long To : -31.0908, 150.9313. Number of Aboriginal sites and Aboriginal objects found is 58

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Walters Bridge

Client Service ID : 767296

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
29-2-0001	Tamworth;West Tamworth;	AGD	56	298600	6555800	Open site	Not a Site	Artefact : -	Not an Aboriginal Site	1474
	Contact	**Recorders**	Harry Creamer,Davies Heritage Consultants Pty Ltd					**Permits**		
29-2-0098	DTG/OC43 - Wyalla Mountain 1	AGD	56	283170	6548200	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Mr.Mark Rawson					**Permits**		
29-2-0322	DR13-1	GDA	56	298252	6553818	Open site	Valid	Artefact : 1, Modified Tree (Carved or Scarred) : 1		
	Contact	**Recorders**	Mr.Tim Robins					**Permits**		
29-2-0099	DTG/OC44 - "Wyalla Mountain 2"	AGD	56	283030	6548050	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Mr.Mark Rawson					**Permits**	2300,2304	
29-2-0287	TCST 1 (Timbumburi Creek Scarred Tree 1)	GDA	56	297108	6551337	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Janice Wilson,Leila McAdam					**Permits**		
29-2-0412	Barnes Gully 1	GDA	56	302158	6554634	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Everick Heritage Pty Ltd,Mr.Matthew Finlayson					**Permits**		
29-2-0421	GG-AFT01	GDA	56	302629	6554117	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Everick Heritage Pty Ltd,Mr.Matt Finlayson					**Permits**		
29-2-0324	DR15-1	GDA	56	298435	6553446	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	**Recorders**	Mr.Tim Robins					**Permits**		
29-2-0276	DTG/OC 3-Boltons Creek 2	GDA	56	293200	6554400	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Stephanie Garling					**Permits**		
29-2-0160	Timbumburi Creek Coledale	AGD	56	298575	6556000	Open site	Valid	Artefact : 34		
	Contact	**Recorders**	Janice Wilson					**Permits**		
29-2-0203	DTG/IF26 - Duri Peak 2	AGD	56	280526	6546436	Open site	Valid	Artefact : 1		
	Contact S Scanlon	**Recorders**	Mr.Neville Baker					**Permits**	2300,2304	
29-2-0323	DR14-1	GDA	56	298142	6553755	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Mr.Tim Robins					**Permits**		
29-2-0093	DTG/OC1 - Murroon Creek 1	AGD	56	295400	6555200	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Mr.Mark Rawson					**Permits**		
29-2-0317	DR08	GDA	56	299161	6554386	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Mr.Tim Robins					**Permits**		
29-2-0319	DR10-1	GDA	56	299249	6554138	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Mr.Tim Robins					**Permits**		
29-2-0286	Timbumburi Creek/Warral	GDA	56	296875	6551000	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.2377, 150.6841 - Lat, Long To : -31.0908, 150.9313. Number of Aboriginal sites and Aboriginal objects found is 58

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Walters Bridge

Client Service ID : 767296

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Janice Wilson,Leila McAdam					Permits		
29-2-0079	T-OS-1 (Timbumburi Creek)	AGD	56	296870	6551300	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
29-2-0310	DR01	GDA	56	299573	6553355	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0366	Global Gateway Drainage Isolated Find A (GGD IF A)	GDA	56	298927	6555496	Open site	Valid	Artefact : -		
	Contact	Recorders	AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby					Permits		
29-2-0318	DR09	GDA	56	299201	6554255	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0411	WSF-001	GDA	56	296694	6554752	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Elaine Lin,Virtus Heritage Pty Ltd - Pottsville					Permits	4911	
29-2-0313	DR04	GDA	56	299696	6553246	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Richard Robins					Permits		
29-2-0311	DR02	GDA	56	299807	6553038	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0102	DTG/OC47 - "Chinamans Creek 3"	AGD	56	279610	6546250	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mr.Mark Rawson					Permits	2300	
29-2-0101	DTG/OC46	AGD	56	280000	6546390	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mr.Mark Rawson					Permits		
29-2-0088	DTG/IF7	AGD	56	286550	6548880	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Mr.Mark Rawson					Permits	2300,2304	
29-2-0326	GG06	GDA	56	302437	6553821	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0289	DTG/OC 1 Murron Creek 1	GDA	56	295400	6555200	Open site	Valid	Artefact : -		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0092	DTG/OC2 - Murroon Creek 2	AGD	56	295350	6555200	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0316	DR07	GDA	56	299053	6554428	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0089	DTG/OC3 - Bottono Creek 2	AGD	56	293200	6554400	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Stephanie Garling					Permits	2300,2304	
29-2-0085	DTG/IF3 - Boltons Creek 1	AGD	56	293500	6554150	Open site	Valid	Artefact : -	Isolated Find	97360
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0277	DTG/ST 1-Timbumburi Ck	GDA	56	298140	6556700	Open site	Valid	Artefact : -		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0052	Timbumburi Creek;	AGD	56	297200	6551500	Open site	Valid	Artefact : 10000	Open Camp Site	

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : TH094 Walters Bridge

Client Service ID : 767296

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Glen Morris,Janice Wilson,Leila McAdam					Permits		
29-2-0321	DR12-1	GDA	56	298176	6553878	Open site	Valid	Artefact : 1, Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0100	DTG/OC45 - "Chinamans Creek 1"	AGD	56	280500	6546480	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mr.Mark Rawson					Permits		
29-2-0087	DTG/IF5 - Clay Creek 3	AGD	56	289550	6550800	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Stephanie Garling					Permits	2300,2304	
29-2-0361	Potential Scarred Tree TQS-ST1	GDA	56	297096	6556251	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Miss.Rachel (Elle) (left Virtus Company) Lillis,Virtus Heritage Pty Ltd - Pottsville					Permits		
29-2-0325	GG05	GDA	56	302372	6553905	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		
29-2-0275	DTG/OC 2-Murroon Creek 2	GDA	56	295350	6555200	Open site	Valid	Artefact : 2		
	Contact	Recorders	Stephanie Garling					Permits		
29-2-0314	DR05	GDA	56	299361	6553823	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr.Tim Robins					Permits		

**** Site Status**

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

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

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

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

Report generated by AHIMS Web Service on 25/03/2023 for Tim Hill for the following area at Lat, Long From : -31.2377, 150.6841 - Lat, Long To : -31.0908, 150.9313. Number of Aboriginal sites and Aboriginal objects found is 58