

Transport
for NSW

HW16 Bruxner Highway S5470-5480 Tara to Captains Creek

Minor works review of
environmental factors

September 2023



transport.nsw.gov.au

Acknowledgement of Country

Transport for NSW acknowledges the Bundjalung group, the traditional custodians of the land on which the HW16 Bruxner Highway S5470-5480 Tara to Captains Creek is proposed.

We pay our respects to their Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.



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4.1	June 2022	Rebranded, consolidated SEPP updates and minor edits.
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4.3	July 2022	WCAG enabled and check box errors corrected
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4.5	August 2022	Removal of trees section and minor edits

Related policy and supporting information

- [Transport Environment and Sustainability Policy](#)
- [Environment & Sustainability Management Framework](#)

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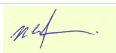
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Table of contents

1.	Introduction.....	1
2.	The proposal.....	2
2.1	Description.....	2
2.2	Need and options.....	9
2.3	Statutory and planning framework.....	10
2.4	Community and agency consultation.....	13
3.	Environmental assessment.....	15
3.1	Soil.....	16
3.2	Waterways and water quality.....	17
3.3	Noise and vibration.....	19
3.4	Air quality.....	20
3.5	Aboriginal heritage.....	21
3.6	Non-Aboriginal heritage.....	21
3.7	Biodiversity.....	22
3.8	Traffic and transport.....	36
3.9	Socio-economic.....	37
3.10	Landscape character and visual amenity.....	38
3.11	Waste.....	39
4.	Consideration of State and Commonwealth environmental factors.....	41
4.1	Environmental Planning and Assessment Regulation 2021 factors.....	41
4.2	Matters of National Environmental Significance.....	43
5.	Summary of safeguards and environmental management measures.....	44
5.1	Licensing and approvals.....	47
6.	Certification, review and decision.....	49
6.1	Certification.....	49
6.2	Environment staff review.....	50
6.3	Environment staff recommendation.....	50
6.4	Determination.....	52
6.5	EP&A Regulation publication requirement.....	52
	Appendix A: Concept plans.....	53
	Appendix B: AHIMS results.....	54
	Appendix C: PACHI.....	55
	Appendix D: Native title information.....	56

Appendix E: Contamination searches	57
Appendix F: Noise calculator	58
Appendix G: Biodiversity searches	59
Appendix H: Likelihood of occurrence assessment.....	60
Appendix I: Test of significance (BC Act).....	61

Tables

Table 2-1: Proposal location details.....	2
Table 2-2: Ancillary facilities	6
Table 2-3: Consultation required with Council	13
Table 2-4: Consultation with other public authorities	14
Table 2-5: Notification of council and occupiers of adjoining land	14
Table 3-1: Soil	16
Table 3-2: Waterways and water quality	17
Table 3-3: Noise and vibration	19
Table 3-4: Air quality.....	20
Table 3-5: Aboriginal heritage	21
Table 3-6: Non-Aboriginal heritage.....	21
Table 3-7: Biodiversity	22
Table 3-8: Traffic and transport	36
Table 3-9: Socio-economic.....	37
Table 3-10: Landscape character and visual amenity	38
Table 3-11: Waste	39
Table 4-1: Consideration of section 171 of the EP&A Regulation factors	41
Table 4-2: Matters of national environmental significance	43
Table 5-1: Summary of site-specific safeguards for proposed work.....	44
Table 6-1: EP&A Regulation publication requirement.....	52

1. Introduction

The purpose of the Minor Works review of environmental factors (REF) is to describe the proposal, to document the likely impacts of the proposal on the environment, to detail mitigation measures to be implemented and to determine whether or not the proposal can proceed. For the purposes of this work Transport for NSW (Transport) is the proponent and determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the proposed works and assessment of associated environmental impacts has been undertaken in the context of section 171 of the *Environmental Planning and Assessment Regulation 2021*, Guidelines for Division 5.1 Assessments (DPE, 2022), the *Biodiversity Conservation Act 2016 (NSW)* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* (EPBC Act).

In doing so the REF helps to fulfil the requirements of section 5.5 of the EP&A Act including that Transport 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 proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces 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 FM Act, in 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 proposal to significantly impact a matter of national environmental significance, including nationally listed threatened biodiversity matters, or the environment of Commonwealth land. Where a significant impact is considered likely on nationally listed biodiversity matters, either the proposal must be reconsidered or a Project REF must be prepared.

2. The proposal

2.1 Description

2.1.1 Proposal location details

Table 2-1: Proposal location details

Location details	
Title	HW16 Bruxner Highway Segment 5470 & 5480 Tara to Captains Creek Minor works review of environmental factors
File number	P.0069937
Road name and number	HW 16 - Bruxner Highway
Closest crossroad(s)	Clarence Way
Chainage of works	48-50.7km west of Casino
Local government area	Kyogle Council
Transport for NSW region	Northern Region

2.1.2 Proposal location description

The Segment 5470 & 5480 Tara to Captains Creek Project is located approximately 48km west of Casino on the Bruxner Highway, measuring from the Bruxner Highway/Summerland Way Roundabout in Casino (refer **Figure 1**). The work area will begin 50m prior to Segment 5470 and cease 50m into Segment 5490.

Transport for NSW proposes to rehabilitate these sections of road on the Bruxner Highway. The need to rehabilitate the pavement has stemmed from poor existing pavement conditions and a narrowed sealed width of around 7.0m. Transport's objectives are to rehabilitate the pavement to achieve a 20 year pavement design life, increase the sealed formation from 7m to 9m to achieve a minimum 3.5m Lane width (including enhanced centreline width and 1.0m sealed shoulders and increase road user safety by removing roadside hazards and implementing safety barrier. The works will include the repair or replacement of the existing drainage (culvert inlets/outlets, vegetation removal to widen the road formation and a structural overlay of the road surface to improve the structural capacity of the pavement and improve ride quality.

The proposal concept plan is shown in **Appendix A**.

Summary of proposed works:

- Compound establishment/disestablishment
- Traffic control establishment
- Implement erosion and sediment controls
- Pavement rehabilitation
- Tree removal – up to 182 native trees may require removal within the project area (refer **Section 3.7**)
- Pavement widening
- Culvert works – pipe extension and/or replacements to all culverts (per design drawings – **Appendix A**)
- Installation of safety barriers
- Sealing of pavement
- Line-marking and delineation, not including audio tactile line marking.

Sequence of events for achieving headwall and/or structure extensions for box culverts 516264, 516257 and 516258 in 5470.

1. Establish on site and commence site preparation work including de-grassing, silt and sediment removal from culvert and restoration of drainage lines.
2. Dewater culvert and inlets/outlets.
3. Install environmental controls.
4. Carry out local excavation to expose the sides of the end structure and assess condition.
5. Form up headwall and wingwall extension, place reinforcement, pour and finish concrete. Allow for starter bars to protrude to tie on reinforcement for the ground beam.
6. Allow for curing.
7. Remove formwork and place new formwork for the ground beam length, place reinforcement.
8. Pour and finish concrete.
9. Allow for curing.
10. Remove formwork and tidy up site, reinstate backfill to end structure, clean up site and refresh erosion and sediment controls.
11. Install guard fence to top of ground beam and approaches once pavement works are complete.

Hours of Works Expected:

Monday to Friday: 07:00 – 18:00

Saturday: 06:30 – 16:00 (if required).

Sunday and Public Holidays: no work.

However, work may be undertaken outside of the extended hours on weekends or nights to minimise traffic impacts on the community. If it is determined that work outside the nominated hours are required, an assessment would be undertaken to determine the safeguards and mitigations required.

Noisy works will be undertaken in accordance with RMS “Construction Noise and Vibration Guideline” (August 2016).

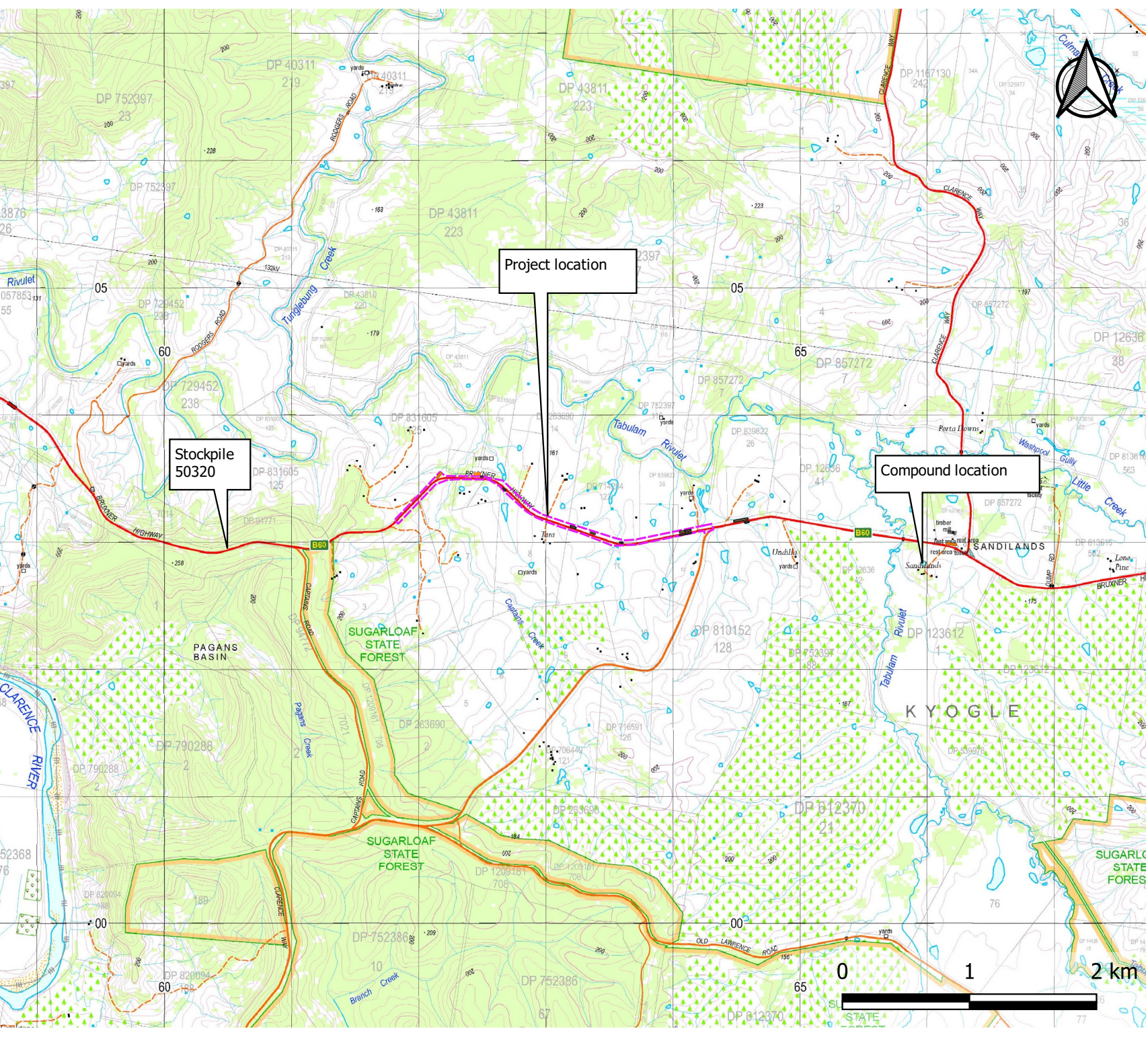
2.1.3 Proposal objectives

TfNSW objectives are to rehabilitate the pavement to achieve a 20 year pavement design life, increase the sealed formation from 7m to 9m to achieve a minimum 3.5m Lane width and 1.0m sealed shoulders and increase road user safety by removing roadside hazards and implementing safety.

Figure 1 - Site location

Legend

 Project boundary











Scale: 1: 13,000

Date August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.

Figure 2 - Site layout

Legend

-  Project boundary final
-  Culvert
-  Parking area
-  Stockpile area
-  Spoil site
-  Waterway
-  Cadastre
-  Compound

Scale: 1: 13,000

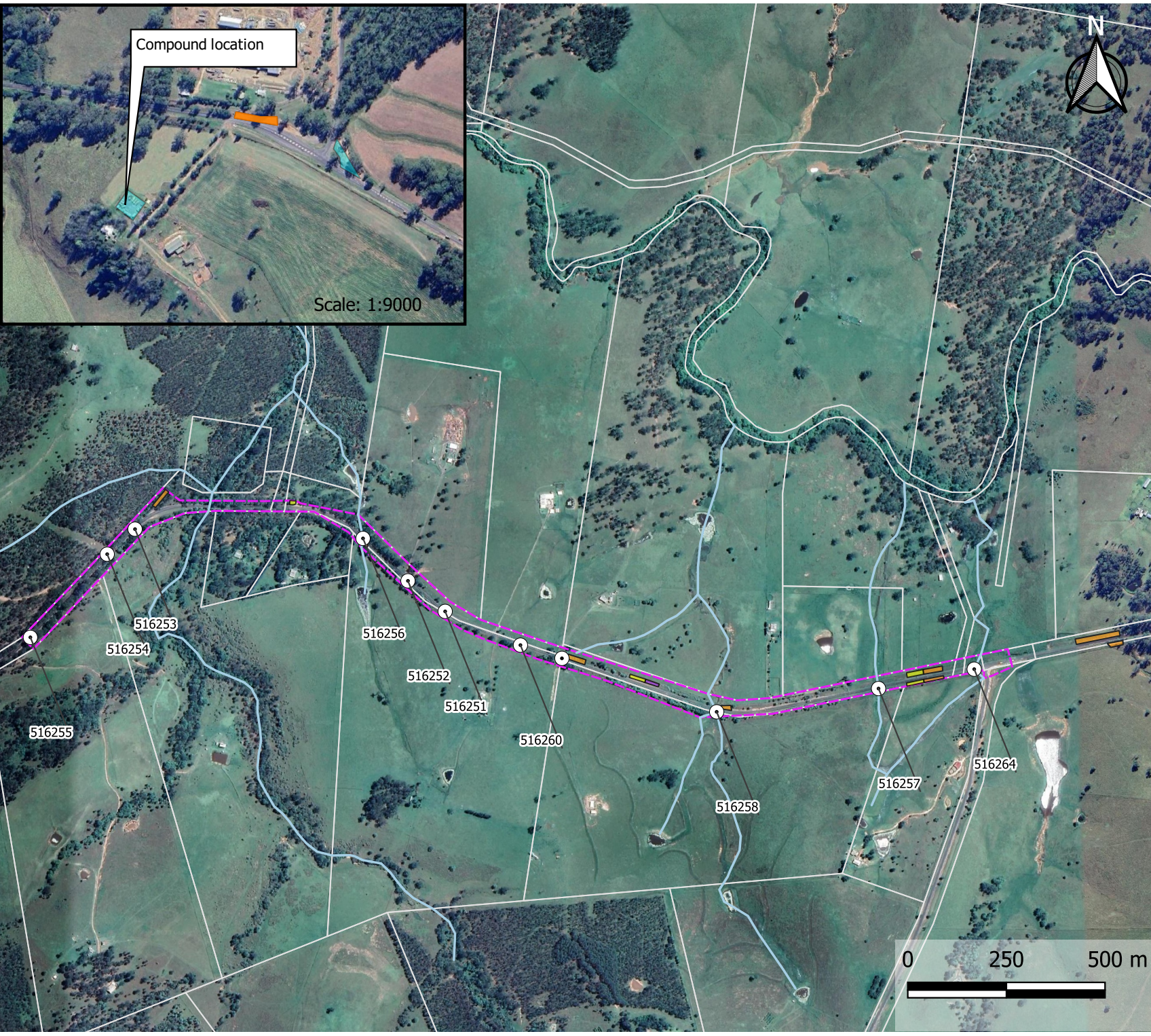
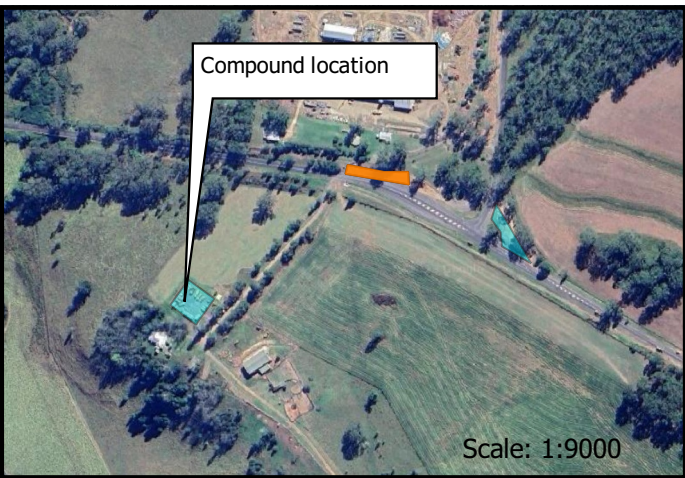
Date August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.



Compound location

Scale: 1:9000



2.1.4 Ancillary facilities

Table 2-2: Ancillary facilities

Ancillary facilities		
<p>Will the proposal require the use or installation of a compound site?</p> <p>The compound site for the project will be the same site used for the current Little Creek-Tabulam Rivulet project (east of the site on the Bruxner Hwy). The site is on private land (Lot 6 DP857272) at the intersection of Clarence Way and Bruxner Highway opposite the Sandilands Rest Area (refer Figure 2).</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Will the proposal require the use or installation of a stockpile site?</p> <p>Proposed stockpile sites for the project include:</p> <ul style="list-style-type: none"> • Previously used temporary Stockpile area 800m into Segment 5470, north side of the Bruxner Highway. • Stockpile #503220 – approx. 500m west of Captains Road (north side of Bruxner Hwy). This is the Rodgers Rd stockpile site that has its own MWREF. • LHS and/or RHS along the first 400m of Segment 5470 in the existing road corridor. Areas identified for surplus spoil material disposal are proposed for use as temporary stockpile areas if required. 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Are any other ancillary facilities required (e.g., temporary plants, parking areas, access tracks)?</p> <p>Several temporary plant parking locations have been identified (refer Figure 2). All of these areas are located within cleared areas of the road reserve dominated by pasture grass and do not require removal of any trees.</p> <p>ST50319 (approx. 700m West of the end of S5480) is an existing site in segment 5490, approximately 200m east of Captains Road on the northern side of the Bruxner Hwy and may also be used as a parking area.</p> <p>Other areas may also be used within the road reserve to enable plant to be parked close to the location where works are occurring without returning to compound/ parking areas each day. Plant parking locations must ensure they are located in areas where the road reserve is wide enough to safely park plant.</p> <p>The project requires locations for spoil material excavated during the works. Several potential sites have been identified (refer Figure 2):</p> <ol style="list-style-type: none"> 1. Within a wide section of road reserve approximately 100m west of Captains Creek bridge. The site covers approximately 400m² being approximately 40m x 10. This site is part of the old road alignment but is now covered in regrowth native vegetation. No large trees are required to be removed however native vegetation within the mid and understory will be required to be removed to allow access and a clear area to dump spoil (refer Plate 4). 2. Within the road reserve around the large culvert east of Captains Creek (approx. ch 48775). 3. Area within road reserve approximately 1.5km west of proposed work area in Segment 5500. This site is part of a proposed spoil site addressed in the determined MWREF <i>Widening adjacent to Rodgers Road pavement & drainage rehabilitation project HW16 Bruxner Highway – Segment 5500</i>. 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

2.1.5 Proposed date of commencement

The works are proposed to commence in November 2023. Note that any timeframes provided are indicative only.

2.1.6 Estimated length of construction period

The works are proposed to be finalised by December 2024. Note that any timeframes provided are indicative only.



Plate 1: Box culvert 264 at eastern end of site will require headwalls to be extended.



Plate 2: Box culvert 265 to be extended with raised headwalls.



Plate 3: Proposed (potential) spoil site on old road alignment 100m west of Captain Creek bridge. Understorey vegetation requires removal.



Plate 4: Proposed (possible) spoil site– Official Stockpile #50320) in segment 5490 (covered by a separate MWREF).



Plate 5: Culvert extension required at ch 48775. The two small Swamp Box will require removal; dewatering of the small pond will also be required.



Plate 6: Typical regrowth Swamp Box in east of site requiring removal.

Minor works review of environmental factors



Plate 7: Regenerating Grass Trees (circled) to be salvaged.



Plate 8: Mature Forest Red Gum west of Captains Creek – pruning of leaning limb (circled) required; tree retained.



Plate 9: Most trees within 9m of centre line proposed to be removed on north side of road, west of Captains Creek.



Plate 10 Swamp Box in drainage depression at culvert east of Captains Creek (ch. 49800) – all to be removed.



Plate 11: Regrowth Swamp Box and Broad-leaved Apple west of culvert in Plate 10 (ch. 49800); all trees within ~7m of the road (~ ch. 49820 -) 49850) to be removed.

2.2 Need and options

2.2.1 Options considered

The options considered for the proposal included:

The options considered for the proposal included a range of scoping alternatives to reduce the impact of the project's footprint, whilst still achieving the project objectives:

- Extent of tree removal – several attempts and revisions were made to the design to only remove those trees which are situated inside the project footprint (limits) and/or are located within the safety barrier deflection zone, as required by barrier design requirements.
 - At selected locations, targeted batter slope adjustments and localised narrowing of the cross section were made to reduce the project footprint and impact on the number of trees for removal. This included positioning the SO dish drain as part of the shoulder width.
 - Culvert works considered both full removal and rehabilitation of existing culverts insitu with whole of life costs used for the final decision either to replace or extend and re-line the barrels.
- Option 1 - 'Do nothing': no safety, efficiency or pavement/ride quality improvements would be provided. The safety for road users would potentially remain compromised due to the current alignment, width, and condition of the road. This was considered unacceptable as it does not address the objectives of the proposal, hence is not the preferred option.
 - Option 2 – Transport for NSW carries out a pavement upgrade and drainage maintenance for a section of the Bruxner Highway, involving widening the road along both sides for the full length of the project. Roadside hazards are removed, and safety barriers are implemented.
 - **Option 3 (Preferred)** – Transport for NSW carries the activities outlined in Option 2, but implements a range of scoping adjustments entailing cross section optimisation and widening to one side over three sections of the project length. This option reduces environmental impacts and is safer and more efficient for carrying out pavement widening along with replacing and extending drainage structures. Overall, this results in a shorter project duration, and still achieves the project objectives. Further scoping adjustments included:
 - Redesigning the proposed works to reduce the project footprint and only remove those trees which are situated inside the project footprint (limits) and/or are located within the safety barrier deflection zone, as required by barrier design requirements.
 - Consideration of both full removal and rehabilitation of existing culverts in situ, with whole of life costs used for the final decision either to replace or extend and re-line the barrels.

This option is preferred as it addresses the objectives of the proposal by improving safety, efficiency, and pavement/ride quality, while also implementing necessary scope adjustments while also reducing environmental impacts, overall cost and impacts to motorists and the community.

2.2.2 Justification for the proposal

The proposal is required to:

- Increase the sealed formation from 7m to 9m to achieve a 3.25m lane width and 1m sealed shoulder
- Improve road safety.

The proposal is considered justified as it would provide an upgrade to road pavement and alignment which will ultimately improve the safety of the Bruxner Highway for road users. The proposal will have some environmental impacts as a result tree removal, as well as short term noise impacts, however mitigation measures have been identified to minimise these impacts.

2.3 Statutory and planning framework

2.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the state, including for roads and road infrastructure facilities. Section 2.108 of the SEPP (Transport and Infrastructure) 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 of Transport, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Resilience and Hazards) 2021, State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021, State Environmental Planning Policy (Precincts – Central River City) 2021, State Environmental Planning Policy (Precincts – Western Parkland City) 2021, State Environmental Planning Policy (Precincts – Regional) 2021 or State Environmental Planning Policy (Planning Systems) 2021.

2.3.2 Other relevant legislation and environmental planning instruments

Legislation/Planning Instrument	Statement on Relevancy
<i>Biodiversity Conservation Act 2016</i>	An ecological assessment and review of relevant databases relating to the possible occurrence of State listed threatened species and/or communities was undertaken for the purposes of this review (refer to Section 3.7). The result of this assessment and review concluded that no State listed threatened species or communities are likely to be significantly impacted by the proposed works, therefore a Species Impact Assessment is not required.
<i>Biosecurity Act 2015</i>	<p>The North Coast Strategic Weed Management Plan provides a framework for regional weed management and supports regional implementation of the <i>NSW Biosecurity Act 2015</i>. The plan outlines how land managers can meet requirements under the General Biosecurity Duty. The plan also identifies state level and other priority weeds to provide focus to weed management in the region.</p> <p>Under this management plan two of the weeds present within the site, Lantana (<i>Lantana camara</i>), Cat's Claw Creeper (<i>Dolichandra unguis-cati</i>) are listed as State Priority Weeds and Weeds of National Significance (WONS). Furthermore, their spread should be minimised to protect priority assets.</p> <p>On 16 August 2023, NSW Department of Primary Industries issued the NSW Biosecurity (Fire Ant) Emergency Order (Order). The Order makes the entire State of NSW an Emergency Zone and places restrictions on the movement of 'fire ant carrier' materials into NSW from a known infested area including: organic mulch (including manure), soil and anything with soil on it, hay and baled material, potted plants, turf, agriculture or earth moving machinery, mining or quarry materials and sand and gravel. An Interstate Biosecurity Certificate, also known as a plant health certificate or equivalent must accompany 'fire ant carriers' that have been procured from a known infested area and brought into NSW.</p> <p>All of Transport for NSW staff, contractors and operators must comply with the requirements of the Order.</p>
<i>Fisheries Management Act 1994</i>	One of the key objectives of the <i>Fisheries Management Act 1994</i> is to conserve 'key fish habitats' and NSW Department of Primary Industries focus the application of the Act, Fisheries Management Regulations and other policies and guidelines on 'key fish habitats'.

Legislation/Planning Instrument	Statement on Relevancy
	<p>Concurrence from the Department of Primary Industries (Fisheries) is required prior to the commencement of works if triggers in accordance with Sections 198-202, 205 and 218-220 of the Act are met.</p> <p>The Fisheries NSW Spatial Data Portal does not map any of the watercourses in the site as being habitat for threatened freshwater species. Captains Creek and the two watercourses west of Clarence Way are mapped as key fish habitat. The waterways where culvert extension works are proposed are 1st and 2nd order streams and are not identified as Key Fish Habitat. The proposal would not involve dredging and reclamation (as defined in the Act) therefore, the project would not trigger consultation and/or permit requirements under the Act.</p>
<p><i>Heritage Act 1977</i></p>	<p>Searches of the NSW State Heritage Register, Australian Heritage Database and Kyogle Council LEP were completed (refer to Appendix B). Captains Creek Bridge is listed on the State Heritage register along with a number of other bridges on the Bruxner Highway. The bridge is representative of many simple utilitarian concrete bridges constructed by the DMR in the 1930s to enhance the economic development of regional NSW through improved transport and communication networks and is classified as Locally Significant.</p> <p>The works would not impact the listed heritage values of the bridge and the only impacts relate to the application of a new seal over the bridge deck. On this basis a Statement of Heritage Impact (SOHI) is not required.</p>
<p><i>National Parks and Wildlife Act 1974</i></p>	<p>The provisions of the <i>National Parks and Wildlife Act 1974</i> as they relate to the conservation of nature and cultural heritage items are unlikely to be triggered by the Proposal. Under the Act it is an offence to cause damage to a plant or animal or cultural heritage item unless it is essential for carrying out an activity by a determining authority within the meaning of Part 5 of that Act if the determining authority has complied with that Part.</p> <p>No National Park estate occurs in the immediate vicinity of the site, with the closest NPWS estate (Richmond Range National Park) being approximately 4km to the north-east.</p> <p>An Aboriginal Heritage Information Management System (AHIMS) search was completed in August 2023 (refer to Appendix B). No registered sites are listed as within or proximate to the site. Additionally, a Stage 1 PACHCI Assessment was completed for the works by Transport for NSW Northern Region – Aboriginal Cultural Heritage Officer (refer to Appendix C).</p> <p>Safeguards are identified in Section 3.5 to mitigate any impacts associated with the proposal.</p>
<p><i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i></p>	<p>Chapter 2 ‘Vegetation in non-rural areas’ of the Policy does not apply as the land is zoned RU1.</p> <p>Chapters 3 and 4 of the Policy aim to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. The Policy applies to Local Government Areas listed under Schedule 2 of the Policy which includes the subject site.</p> <p>The SEPP only applies in relation to activities which require a development application to be made. As Section 2.108(1) of TISEPP precludes the proposal from requiring development consent, the SEPP does not apply to the Proposal. However, it is TfNSW policy to consider all potential environmental impacts of proposed works, including potential impacts to Koalas and/or their habitat.</p> <p>The proposed works will impact koala habitat due to tree removal and Bionet records indicate koalas are present in the surrounding landscape. Impacts on koalas have been</p>

Legislation/Planning Instrument	Statement on Relevancy
	<p>considered as part of this MWREF and safeguards have been recommended to avoid and minimise potential impacts, both direct to individual animals and their habitat.</p>
<p><i>Environment Protection and Biodiversity Conservation Act 1999</i></p>	<p>In September 2015, a “strategic assessment” approval was granted by the Federal Environment Minister in accordance with the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The approval applies to TfNSW activities being assessed under Part 5 of the <i>Environmental Planning and Assessment Act 1979</i> with respect to potential impacts on nationally listed threatened species, ecological communities and migratory species. The practical effect of the approval is that TfNSW projects assessed via a REF:</p> <ul style="list-style-type: none"> • Must address and consider potential impacts on nationally listed threatened species, populations, ecological communities and migratory species, including application of the “avoid, minimise, mitigate and offset” hierarchy. • Do not require referral to the Federal Department of the Environment for these matters, even if the activity is likely to have a significant impact. <p>Matters of National Environmental Significance (MNES) have been considered in Section 4.2 of this MWREF. Additionally, an ecological assessment and review of potential Nationally listed threatened species and/or ecological communities was completed (refer to Section 3.7). The assessments concluded that no MNES or Commonwealth Land would be likely to be impacted by the proposal.</p>
<p><i>Environmental Planning and Assessment Act 1979</i></p>	<p>The Proposal is located within the Kyogle Local Government Area and is covered by the Kyogle Local Environmental Plan (LEP) 2012. Land surrounding the subject site is zoned RU1 Primary Production.</p> <p>Objectives of the RU1 zone are:</p> <ul style="list-style-type: none"> • To encourage sustainable primary industry production by maintaining • and enhancing the natural resource base. • To encourage diversity in primary industry enterprises and systems • appropriate for the area. • To minimise the fragmentation and alienation of resource lands. • To minimise conflict between land uses within this zone and land uses within adjoining zones. • To ensure that the productive capacity of agricultural land is appropriately recognised and managed. <p>Section 2.108(1) of TISEPP precludes the proposal from requiring development consent. However, it is TfNSW policy to consider all potential environmental impacts of proposed works, including zoning objectives. It is considered that the proposed works are consistent with the subject LEP zonings.</p>
<p><i>Native Title Act 1993</i></p>	<p>The <i>Native Title Act 1993</i> recognises and protects native title. The Act covers actions affecting native title and the processes for determining whether native title exists and compensation for actions affective native title. It establishes the Native Title Registrar, the National Native Title Tribunal, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements, and the National Native Title Register. Registered Native Title claims were identified within proposed works area in a search of the National Native Title Tribunal.</p> <p>A search of the Native Title Tribunal Native Title Vision website was undertaken, with one Native Title claimant, being the Western Bundjalung People Part A, and one Register of Indigenous Land Use Agreements (ILUA) identified (refer Appendix D).</p> <p>Native Title is extinguished in the road reserve so no formal Section 24KA notification to NTS Corp is required. The ILUA relates to National Park estate and as the proposed works will not occur within these areas the ILUA does not apply.</p>

Legislation/Planning Instrument	Statement on Relevancy
<i>Protection of the Environment Operations Act 1997</i>	The <i>Protection of the Environment Operations Act 1997</i> (POEO Act) is the key piece of environment protection legislation administered by the EPA. Part 5.4 sets out requirements to minimise air pollution, which will be complied with throughout the proposal. Part 5.5 sets out requirements to minimise noise pollution, which will be complied with throughout the proposal. Part 5.7 sets out a duty to notify pollution incidents. In the unlikely event of a pollution incident occurring during the proposed works, notification will be as required.

2.4 Community and agency consultation

2.4.1 SEPP (Transport and Infrastructure) consultation

Part 2.2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. This is detailed below:

Table 2-3: Consultation required with Council

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal within the coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? Land in the eastern extent of the project area is located on low lying floodplain country which may be subject to minor flooding during very high rainfall events. The proposed works are considered unlikely to change flooding patterns in the area given the proposed works will be restricted to the rehabilitation of the existing pavement in this area. Drainage will be maintained at existing culverts and bridges (eg. Captains Creek).	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Table 2-4: Consultation with other public authorities

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works located on flood liable land? (to any extent) (SEPP (Transport and Infrastructure) s2.13) Land in the eastern extent of the project area is located on low lying floodplain country which may be subject to minor flooding during very high rainfall events. The works would be considered routine maintenance of the road surface.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i> , or on land acquired under that Act?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Do the works include a fixed or floating structure in or over navigable waters?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on buffer land around the defence communications facility near Morundah?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Table 2-5: Notification of council and occupiers of adjoining land

Do Council and occupiers of adjoining land need to be notified under section 2.110 of the SEPP (Transport and Infrastructure)?		
Does the proposal include a car park intended for the use by commuters using regular bus services?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does the proposal include a bus depot?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does the proposal include a permanent road maintenance depot or associated infrastructure, such as garages, sheds, tool houses, storage yards, training facilities and workers amenities?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

2.4.2 Other agency and community consultation

No external agency or community consultation has been undertaken.

3. Environmental assessment

This section provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environmental potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021.

The matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) are also considered in section 4. Site-specific safeguards are provided to ameliorate the identified potential impacts.

Specialist Assessment

Field assessment of the project site was undertaken by a qualified and experienced ReconEco ecologist on four occasions (3rd and 10th May 2022; 27/07/2023 and 14/08/2023). Field survey included:

- Identification of vegetation communities occurring within the survey area
- Identification of areas of vegetation providing important habitat features including Koala food trees
- Searches for threatened flora species
- Searches for significant habitat features including tree hollows and nests
- Inspection of culverts for evidence of use, particularly by microbat species
- Identification and assessment of any trees and other vegetation likely to be disturbed by the proposed works =- all surveyed by GPS, dbh measured and inspected for hollows
- Identification of weed species.

Results of the field assessments have been incorporated into this MWREF (**Section 3.7**) rather than made the subject of a separate ecological assessment report.

A summary of field assessment is as follows:

Plant Community Types (PCT):

The site includes vegetation which forms a mosaic of the following PCTs:

- PCT 837: Forest Red Gum – Swamp Box forest of the Clarence lowlands of the NSW North Coast Bioregion. This PCT occurs in the east of the site and is characterised by canopy species including Forest Red Gum, Swamp Box, Pink Bloodwood and Grey Ironbark. The midstorey is generally sparse and includes native species such as *Acacia spp*, and *Jacksonia scoparia*. The groundcover is a mix of native and exotic species depending on disturbance and currently land use. Common natives include Snow Grass, Blady Grass and Kangaroo Grass.
- PCT 1209: Spotted Gum – Grey Box -Grey Ironbark dry open forest. This PCT occurs at the western side of Captains Creek on more elevated lands. Canopy trees include Forest Red Gum, Swamp Box, Pink Bloodwood, Grey Ironbark, Grey Gum, Spotted Gum and White Mahogany. The midstorey is generally dominated by native species including *Acacia spp*, *Banksia integrifolia*, *Allocasurina torulosa*, *Alphitonia excelsa*. The groundcover is dominated by native grasses including Snow Grass, Kangaroo Grass and Blady Grass as well as a mix of sclerophyll shrubs and forbs including Grass Tree (*Xanthorrhoea spp*) and Jam Tarts (*Melichrus procumbens*).

Habitat trees:

The vegetation contains occasional habitat trees with tree hollows. Two (2) of these trees are proposed to be removed as part of the works (one live tree and one stag). Pruning of an additional habitat tree will also be completed.

Threatened flora/communities:

No threatened flora species/communities were recorded.

Koala habitat:

All areas of vegetation on the site form Koala habitat particularly areas containing Forest Red Gum which is a primary food tree.

General Safeguards

The following general safeguards apply to the project:

Applies	General	
R	G1	If the scope of the works changes at any time, review the changes under the Transport for NSW <i>Environmental assessment procedure – routine and minor works</i> (EMF-PA-PR-0081) and complete any further requirements prior to carrying out works associated with the changed scope.
R	G2	An environmental management plan or environmental work method statement will be prepared in accordance with the specifications set out in the [adjust as necessary: QA Specification G36 – <i>Environmental Protection (Management System)</i> , QA Specification G38 – <i>Soil and Water Management (Soil and Water Plan)</i> , QA Specification G40 – <i>Clearing and Grubbing</i> , QA Specification G10 - <i>Traffic Management</i> and implemented prior to the commencement of works.
R	G3	No new access tracks will be created for the works.
R	G4	Parking of vehicles and storage of plant/equipment will only occur on existing paved areas. Where this is not possible, vehicles and plant/equipment will be kept away from environmentally sensitive areas and outside the dripline of trees.

Note an 'R' in the safeguard column indicates the safeguard actions are **REQUIRED**. Other safeguards are applied as per the TfNSW *Minor works safeguards list v 2.6*. Any **ADDITIONAL** safeguards are noted.

3.1 Soil

Table 3-1: Soil

Description of existing environmental and potential impacts		
Are there any known occurrences of salinity or acid sulfate soils in the area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? The proposal area does contains areas of steep gradient, however are not constrained not consist of steep slopes by narrow road corridors in these sections.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are there any sensitive receiving environments that are located in or nearby the likely proposal area or that would likely receive stormwater discharge from the proposal? Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments).	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is there any evidence within or nearby the likely footprint of potential contamination? A search of the NSW EPA Contaminated Land Record of Notices did not identify any potential sites of contamination within 1km of the proposal area (refer Appendix E). Dip site mapping for the area shows that the nearest dip site is situated approximately 1200 metres north-northeast of the junction of Bruxner Highway and Clarence Way (near Sandilands rest area); well away from potential impact from the proposed works.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the likely proposal footprint in or nearby highly sloping landform?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to result in more than 2.5ha (area) of exposed soil?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies		Erosion and sedimentation
R	E1	<p>Erosion and sediment control measures will be implemented and maintained to:</p> <ul style="list-style-type: none"> prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets reduce water velocity and capture sediment on site minimise the amount of material transported from site to surrounding pavement surfaces divert clean water around the site. <p>(in accordance with the Landcom/Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)).</p>
R	E2	Erosion and sedimentation controls will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.
R	E3	Erosion and sediment control measures will not be removed until the works are complete and areas stabilised.
R	E4	Work areas will be stabilised progressively during the works.
R	E5	A progressive erosion and sediment control plan will be prepared for the works.
R	E6	The maintenance of established stockpile sites will be in accordance with the Transport <i>Stockpile Site Management Guideline</i> (EMS-TG-10) (2015).

3.2 Waterways and water quality

Table 3-2: Waterways and water quality

Description of existing environmental and potential impacts		
<p>Is the proposal located within, adjacent to or near a waterway?</p> <p>Several minor watercourses are located within the site which receive stormwater discharge from the roadside. A total of 11 culverts occur, many of which flow into first and second order waterways. The main waterway is Captains Creek, a third order waterway located at the western end of the site.</p> <p>Works to culverts typically involve either a like-for-like replacement as well as extensions of 2.44m, requiring excavation to remove the culvert and inlet or outlet works. These works have potential to create short term increases in sedimentation and erosion and if not managed may negatively impact downstream waterways as a result of increase turbidity and decrease water quality. Culvert extensions will be achieved by raising the height of the headwall which will reduce direct impacts to the watercourse which would be required if a box culvert extension were to be used. Excavation will be required to expose the sides of the existing culvert which will include areas of the creek bank, along with localised site access tracks into the inlet and outlet of each structure.</p> <p>Safeguards are provided to minimise impacts to waterways.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Is the location known to flood or be prone to water logging?</p> <p>Low lying areas in the east of the site would be subject to flooding and water logging during high rainfall period. Captain Creek at western side of site would also be subject to flooding during extreme rainfall events.</p> <p>Compound and stockpile areas are not located within flood prone land.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Description of existing environmental and potential impacts		
Work in flood prone areas should be undertaken during dry periods and weather forecast monitored to identify risk of flooding while works are underway.		
Is the proposal located within or immediately adjacent to the area managed by WaterNSW covered by chapter 8 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation))?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal be undertaken on a bridge or ferry? Works are proposed to the small bridge that crosses Captains Creek however this will be limited to pavement rehabilitation only and does not involve changes to the existing bridge structure.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Is the proposal likely to require the extraction of water from a local water course (not mains)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Water quality/ Hazard and risk	
R	W1	No dirty water will be released into drainage lines and/or waterways.
R	W2	Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/slicks) will be undertaken on a regular basis to identify any potential spills or deficient silt curtains or erosion and sediment controls.
R	W3	Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.
R	W4	Measures to control pollutants from stormwater and spills will be investigated and incorporated in the pavement drainage system at locations where it discharges to receiving drainage lines. Measures aimed at reducing flow rates and potential scour during rain events will be incorporated in the design of the pavement drainage system.
R	W5	Excess debris from cleaning and washing will be removed using hand tools.
R	W8	Silt curtains will be installed, monitored and maintained as needed to contain any sediment.
R	R1	All fuels, chemicals and liquids will be stored in an impervious bunded area a minimum of 50 metres away from: <ul style="list-style-type: none"> rivers, creeks or any areas of concentrated water flow flooded or poorly drained areas slopes above 10%.
R	R2	Refueling of plant and equipment will occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways.
R	R4	Cleaning of spray bars (or equivalent equipment) will occur in suitable areas (e.g., not table drains) and not cause water pollution.
R	R5	Vehicle wash down and/or cement truck washout will occur in a designated bunded area.
R	R6	An emergency spill kit will be kept on site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site and personnel inducted in its use.
R	R7	If an incident (e.g., spill) occurs, the Transport <i>Environmental Incident Procedure</i> (EMF-EM-PR-0001) will be followed and the Transport Contract Manager notified as soon as practicable.

Applies	Water quality/ Hazard and risk	
R	R8	Emergency contacts will be kept in an easily accessible location on vehicles, vessels, plant and site office. All workers will be advised of these contact details and procedures.
R	R10	All workers will be advised of the location of the spill kit and trained in its use.
R	R11	Vehicles, vessels and plant will be properly maintained and regularly inspected for fluid leaks.
R	Additional	A Dewatering Plan is to be prepared to manage the diversion of waterflow around the site while works are undertaken within any creek channel. The Plan must be submitted to the Environment Officer for approval prior the activity occurring onsite and included in the Construction Environment Management Plan. Dewatering is to be undertaken with a 5mm mesh screen around the pump inlet. Netting and removal of fish/aquatic fauna should be undertaken at the late stages of dewatering. Any fish/aquatic fauna captured via netting should be released unharmed into adjacent waters downstream of the worksite.
R	Additional	On completion of excavation and stabilisation of creek channels the creek bank should be planted with <i>Lomandra longifolia</i> or <i>Carex appressa</i> at a density of 1 plant per m ² .

3.3 Noise and vibration

There are no residential properties or other noise sensitive areas near the location of the proposal that may be affected by the work (i.e., church, school, hospital).

Table 3-3: Noise and vibration

Description of existing environmental and potential impacts		
<p>During construction?</p> <p>A distance-based assessment (Construction scenario) has been completed for the project and identified a potential impact area of 115m during daytime (OOHW) for isolated dwelling residential receivers and 35m during daytime hours for industrial premise non-residential receivers (refer Appendix F).</p> <p>One residential property is located within 115m of the works (Lot 127/ DP831605). There are no industrial premises located within 35m of the works.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>During operation?</p> <p>Noise environment will remain unchanged following completion of the works.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Is the proposal going to be undertaken only during standard working hours?</p> <p>Standard working hours</p> <ul style="list-style-type: none"> Monday-Friday: 7:00am to 6.00pm Saturday: 06:30 – 16:00 (if required) Sunday and Public Holidays: no work <p>Extended working hours will apply for Staurday works if required.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Is any explosive blasting required for the proposal?</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would construction noise or vibration from the proposal affect sensitive receivers?</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would operation of the proposal alter the noise environment for sensitive receivers?</p> <p>The proposed works is not expected to increase the overall road noise once operational.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation?</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Noise and vibration	
R	N1	Works will be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts.
R	N2	Noise impacts will be minimised in accordance with Transport <i>Construction and Maintenance Noise Estimator</i> (EMF-NV-TT-0067) and Transport <i>Construction noise and vibration guidelines (for roads and maritime) 2022</i> (EMF-NV-GD-0056).

3.4 Air quality

Table 3-4: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is there likely to be an emission to air during construction? Emissions to air would be expected for the proposed activities as a result of vehicles and machinery use, however, given the limited amount of equipment to be used and the relatively small scale of works, the emission levels are expected to be negligible and able to be minimised further with the implementation of safeguards as recommended following.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Air quality	
R	A1	Measures (including watering or covering exposed areas) will be used to minimise or prevent air pollution and dust.
R	A2	Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.
R	A3	Vegetation or other materials will not to be burnt on site.
R	A4	Vehicles and vessels transporting waste or other materials that may produce odours or dust will be covered during transportation.
R	A5	Stockpiles or areas that may generate dust will be managed to suppress dust emissions in accordance with the Transport <i>Stockpile Site Management Guideline</i> (EMS-TG-10).

3.5 Aboriginal heritage

Table 3-5: Aboriginal heritage

Description of existing environmental and potential impacts		
<p>Would the proposal involve disturbance in any area that has not been subject to previous ground disturbances?</p> <p>The proposal will be carried out in a road corridor subject to significant historic disturbance due to road construction activities, and land subject to previous agricultural land use.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed?</p> <p>A search of the AHIMS Web Service (AWS) was completed in August 2023 (refer Appendix B). No registered Aboriginal sites or places were identified.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Is there potential for the proposal to impact on any items of Aboriginal heritage?</p> <p>The proposed section of road has previously been disturbed during road construction, and any new excavation required for the works would not occur in historically undisturbed earth. Furthermore, given that the AHIMS database search did not identify any Aboriginal places at or near the subject site, it is considered unlikely that the proposed works would impact any items of Aboriginal heritage.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would the proposal involve the removal of mature native trees?</p> <p>The proposed works include removal of up numerous native trees including up to 42 trees that would be considered mature (dbh >30cm); refer Section 3.7. No evidence of Aboriginal cultural practices (eg. scar trees) was observed.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Is the proposal consistent with the requirements of the legacy <i>Roads and Maritime Procedure for Aboriginal cultural heritage consultation and investigation</i> (PACHCI)?</p> <p>A Procedure for Aboriginal cultural heritage consultation and investigation has been completed (refer Appendix C). The project was assessed as being unlikely to have a potential impact on Aboriginal cultural heritage.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Aboriginal heritage
R	<p>B1 If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport Aboriginal cultural heritage officer and Senior Manager Environment and Sustainability contacted immediately. Refer to steps in the Transport <i>Unexpected heritage items procedure</i> (EMF-HE-PR-0076) which must be followed.</p>

3.6 Non-Aboriginal heritage

Table 3-6: Non-Aboriginal heritage

Description of existing environmental and potential impacts		
<p>Have online heritage database searches been completed?</p> <ul style="list-style-type: none"> Transport (including legacy Roads and Maritime) section 170 register NSW Heritage database Commonwealth Heritage List, established under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) Australian Heritage Places Inventory Local Environmental Plan(s) heritage items. 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Description of existing environmental and potential impacts		
Are there any items of non-Aboriginal heritage or heritage conservation areas listed on relevant heritage databases/registers that are located within the vicinity of the proposal? Captains Creek Bridge is listed on the State Heritage register along with a number of other bridges on the Bruxner Highway. The bridge is representative of many simple utilitarian concrete bridges constructed by the DMR in the 1930s to enhance the economic development of regional NSW through improved transport and communication networks and is classified as Locally Significant. The works would not impact the listed heritage values of the bridge and the only impacts relate to the application of a new seal over the bridge deck. On this basis a Statement of Heritage Impact (SOHI) is not required.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to occur in or near features that indicate potential archaeological remains? The proposal will be carried out within a road corridor subject to significant historical disturbance. There were no heritage items identified during the site survey.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Non-Aboriginal heritage	
R	H1	Works to be carried out in accordance with the approved Conservation Management Plan for the heritage item (where available).
R	H2	If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport <i>Unexpected heritage items procedure (EMF-HE-PR-0076)</i> must be followed.
R	H3	If an existing heritage item or item identified on the Transport for NSW s.170 register is on site or in the near vicinity of the works, the item will be protected to prevent any damage or disturbance.

3.7 Biodiversity

Table 3-7: Biodiversity

Description of existing environmental and potential impacts		
Have relevant database searches been carried out? The following relevant database searches were undertaken in August 2023 (refer Appendix G):	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<ul style="list-style-type: none"> NSW BioNet Atlas Search – threatened flora and fauna species within 10km x 10km area centred on the site Commonwealth EPBC Act – Protected matters search tool (PMST) Fisheries NSW Spatial Data Portal. 		
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory species in or within the vicinity of the proposed works? The BioNet search identified seven (7) Threatened Ecological Communities (TECs) and 23 threatened species comprising eighteen (18) fauna species and five (5) flora species within the locality (refer Figure 3, Appendix G). The Matters of National Environmental Significance report identified four TECs, 43 threatened species and 15 migratory species within the locality (refer Appendix G).	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Description of existing environmental and potential impacts

The Fisheries NSW Spatial Data Portal does not map any of the watercourses in the site as being habitat for threatened freshwater species. Captains Creek and the two watercourses west of Clarence Way are mapped as key fish habitat.

BioNet Search Results -Threatened Species

Scientific name	Common name	BC Act*	EPBC Act*	No. records
Aves				
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V	-	3
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	V	2
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper	V	-	12
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	1
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	10
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V	-	1
<i>Ninox strenua</i>	Powerful Owl	V	-	5
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	1
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	1
Mammalia				
<i>Aepyprymnus rufescens</i>	Rufous Bettong	V	-	2
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	1
<i>Petauroides volans</i>	Southern Greater Glider	E	E	16
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	1
<i>Phascolarctos cinereus</i>	Koala	V	E	17
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	3
<i>Chalinolobus nigrogriseus</i>	Hoary Wattled Bat	V	-	1
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	1
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	4
Flora				
<i>Callitris baileyi</i>	Bailey's Cypress Pine	E	-	36
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	4
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	CE	1
<i>Rhodomirtus psidioides</i>	Native Guava	CE	CE	1
<i>Sophora fraseri</i>	Brush Sophora	V	V	2

*V= Vulnerable, E = Endangered, CE = Critically Endangered

Threatened Ecological Communities

Community	BC Act*	EPBC Act*
Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion	E	
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E	
Lowland Rainforest of Subtropical Australia		CE
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E	
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E	
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E	
White Gum Moist Forest in the NSW North Coast Bioregion	E	

CE=Critically Endangered; E=Endangered

Description of existing environmental and potential impacts																									
<p>Does the proposal involve pruning, trimming or removal of any tree/s?</p> <p>Up to 182 native trees with a diameter at breast height (DBH) >5cm may require removal for the proposed works, with two trees proposed for retention with pruning required. The details of impacted trees are provided in Table 3-7-1. Two dead trees (stags) within the works footprint can be retained. All trees form part of plant community types (PCT) 837 and 1209. The location of trees proposed to be removed is provided at Figures 4A-C. Tree numbers in Table 3-7-1 correspond to numbers shown in Figures 4A-C.</p> <p>Note: original fieldwork identified impacted trees with numbers < 100. These numbers have been retained, with 'new' trees impacted by the project redesign starting at number 100. This accounts for the irregular numbering of impacted trees.</p> <p>All impacted native trees with a diameter at breast height (DBH) >5cm require compensation in accordance with the TfNSW <i>Tree and hollow replacement guidelines</i> (June 2022). Replacement ratios in accordance with the guidelines are provided in Table 3-7-1, along with details of the species, DBH, presence of tree hollows and Koala suitability (as per SEPP B&C 2021).</p>						Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
<p>Is the proposal likely to impact listed threatened species, ecological communities or migratory species?</p> <p>A Likelihood of Occurrence Assessment has been undertaken for all fauna species identified in the database searches to identify species likely to occur within the site and which may require further assessment (Appendix H). Ten threatened fauna species are considered to have a moderate to high likelihood of occurring within the site and therefore have potential to be impacted as a result of loss or degradation of habitat. A test of significance has been completed (refer Appendix I) to determine if there is likely to be a significant impact, as required by S7.3 of the BC Act. These species include:</p> <ul style="list-style-type: none"> • Dusky Woodswallow (<i>Artamus cyanopterus cyanopterus</i>) • Brown Treecreeper (eastern subspecies) (<i>Climacteris picumnus victoriae</i>) • Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>) • Squirrel Glider (<i>Petaurus norfolcensis</i>) • Little Lorikeet (<i>Glossopsitta pusilla</i>) • Squirrel Glider (<i>Petaurus norfolcensis</i>) • Southern Greater Glider (<i>Petauroides volans</i>) • Koala (<i>Phascolarctos cinereus</i>) • Hoary Wattled Bat (<i>Chalinolobus nigrogriseus</i>) • Greater Broad-nosed Bat (<i>Scoteanax rueppellii</i>). <p>The results of this assessment concluded that while the proposal will result in impacts to threatened species habitat (including critical habitat features such as koala food trees and tree hollows) there is unlikely to be a significant impact such that a viable local population of any species is likely to be placed at risk of extinction.</p> <p>Safeguards are provided which aim to mitigate impacts on threatened fauna species including pre-clearing surveys and spotter catcher to avoid direct impacts on individuals, as well as installation of nest boxes to replace loss of tree hollows.</p>						Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
<p>Would the proposal require the removal of any other vegetation?</p> <p>As noted, a portion of old road reserve west of Captains Creek may be utilised for spoil dumping and would require clearing if minor regrowth and up to three immature native trees.</p>						Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																		
<p>Would the proposal require the removal of any tree hollows?</p> <p>Two trees containing hollows are proposed to be removed as part of the works (one live tree, one stag). The details of these trees are provided below and their location is shown in Figure 4B and 4C.</p> <table border="1"> <thead> <tr> <th>Species name</th> <th>DBH (cm)</th> <th>Height (m)</th> <th>Distance from centre line (m)</th> <th>Number of hollows</th> <th>Size class</th> </tr> </thead> <tbody> <tr> <td><i>Eucalyptus tereticornis</i></td> <td>93</td> <td>15</td> <td>9</td> <td>6</td> <td>1-5cm,5-15cm</td> </tr> <tr> <td>Stag</td> <td>~80</td> <td>18</td> <td>~8</td> <td>3</td> <td>1-5cm, 5-15cm</td> </tr> </tbody> </table>						Species name	DBH (cm)	Height (m)	Distance from centre line (m)	Number of hollows	Size class	<i>Eucalyptus tereticornis</i>	93	15	9	6	1-5cm,5-15cm	Stag	~80	18	~8	3	1-5cm, 5-15cm	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Species name	DBH (cm)	Height (m)	Distance from centre line (m)	Number of hollows	Size class																				
<i>Eucalyptus tereticornis</i>	93	15	9	6	1-5cm,5-15cm																				
Stag	~80	18	~8	3	1-5cm, 5-15cm																				

Description of existing environmental and potential impacts		
<p>The impacted hollow bearing trees contain small to medium size hollows on branches with the diameter of opening ranging from <5cm up to 15cm. These trees provide important habitat suitable for some birds, microbat species and arboreal gliders. The loss of tree hollows is a key threatening process under the BC Act.</p> <p>As per requirement in the <i>Tree and hollow replacement guidelines</i>, three artificial hollows must be provided for every occupied hollow removed. The guidelines provide the following information with regard to hollow occupation: <i>Assume 20% occupancy rate. For every five hollows identified (or where less than five hollows will be impacted), assume one hollow will be occupied and requires replacement. Where hollows are inspected during the clearing process, actual occupation can be used as the basis for the replacement requirement.</i> On this basis, the number of compensation hollows will be determined following tree felling and inspection, with it likely that at least two artificial nest boxes required to be installed.</p>		
<p>Are there any known areas of outstanding biodiversity value or areas mapped as 'littoral rainforest' or 'coastal wetland' under chapter 2 of SEPP (Resilience and Hazards) in or within the vicinity of the proposed work?</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would the proposal provide any additional barriers to the movement of wildlife? Roads can create barriers to the movement of wildlife however the proposed changes will not significantly increase the existing barrier or create new barriers to the movement of wildlife.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Would the proposal disturb any natural waterways or aquatic habitat? Waterways at the site have been subject to previous disturbance associated with road construction works and vegetation is generally in poor/ moderate condition. There are no native trees on the creek bank and the waterways occur as part of land used for cattle grazing. Native vegetation present is dominated by <i>Carex fasciculosa</i>, <i>Leersia hexandra</i>, <i>Lomandra longifolia</i> and <i>Persicaria decipens</i>.</p> <p>The proposal will involve minor disturbance to the watercourse at culvert 516258. Aquatic habitat at this location is of poor quality (a few plants of <i>Ottelia ovalifolia</i>) and small in area (a small pool ~5m across).</p> <p>The culvert extensions are proposed to occur in 1st and 2nd order streams most of which have only seasonal waterflows and would be dry for much of the year. The two larger streams at the eastern end of the site (Culvert 516264 and 516257) have potential to have higher water flows and may contain water for much of the year. If water is present at the time works are proposed dewatering will be required prior to undertaking works at these sites to divert water around the excavation site. A Dewatering Plan should be prepared and approved by a TfNSW Environmental officer prior to commencing works.</p> <p>Potential impacts to waterways may occur as a result of:</p> <ul style="list-style-type: none"> • Removal of riparian vegetation • Disturbance to the creek channel leading to increase erosion, sedimentation and turbidity of the waterway • Restricting movement and direct impacts to aquatic fauna as a result of dewatering • Accidental release of fuels oils or contaminants. <p>Proposed safeguards including installation of sediment and erosion control measures and timing of works for dry period (July – November), and revegetation if the site following works will mitigate any potential impacts.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Would the proposal impact (directly or indirectly) any potential microbat roosting or breeding habitat such as on bridges and culverts? The proposed works will not directly disturb any potential bats habitat. Culverts within the survey area were inspected and no microbats were present and there was no evidence of use. Most culvert pipes are narrow and provide low quality potential habitat for microbat species that may occur in the area. The larger box culverts were inspected, and they lack any suitable roost location such as expansion gaps or lift holes.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Table 3 7-1: Native trees impacted

Tree no.	Common name	dbh (cm)	Koala use (SEPP B&C)	Hollows?	Action	Offset requirement*
Small Tree (> 5cm – 19cm dbh)						
234	Swamp Box	5	no	no	REMOVE	2
206	Swamp Box	5.5	no	no	REMOVE	2
141	Swamp Box	6	no	no	REMOVE	2
163	Swamp Box	6	no	no	REMOVE	2
219	Swamp Box	6	no	no	REMOVE	2
225	Swamp Box	6	no	no	REMOVE	2
227	Forest Oak	6	no	no	REMOVE	2
243	Broad-leaved Apple	6	no	no	REMOVE	2
121	Swamp Box	7	no	no	REMOVE	2
142	Swamp Box	7	no	no	REMOVE	2
150	Swamp Box	7	no	no	REMOVE	2
167	Swamp Box	7	no	no	REMOVE	2
185	Swamp Box	7	no	no	REMOVE	2
229	Broad-leaved Apple	7	no	no	REMOVE	2
233	Swamp Box	7	no	no	REMOVE	2
236	Broad-leaved Apple	7	no	no	REMOVE	2
241	Broad-leaved Apple	7	no	no	REMOVE	2
113	Swamp Box	8	no	no	REMOVE	2
175	Swamp Box	8	no	no	REMOVE	2
207	Swamp Box	8	no	no	REMOVE	2
108	Swamp Box	9	no	no	REMOVE	2
176	Swamp Box	9	no	no	REMOVE	2
235	Broad-leaved Apple	9	no	no	REMOVE	2
238	Broad-leaved Apple	9	no	no	REMOVE	2
148	Swamp Box	10	no	no	REMOVE	2
157	Swamp Box	10	no	no	REMOVE	2
172	Swamp Box	10	no	no	REMOVE	2
218	Swamp Box	10	no	no	REMOVE	2
224	Forest Red Gum	10	YES	no	REMOVE	2
228	Broad-leaved Apple	10	no	no	REMOVE	2
245	Swamp Box	10	no	no	REMOVE	2
252	Pink Bloodwood	10	YES	no	REMOVE	2
253	Forest Red Gum	10	YES	no	REMOVE	2
105	Swamp Box	11	no	no	REMOVE	2
110	Swamp Box	11	no	no	REMOVE	2
112	Swamp Box	11	no	no	REMOVE	2
149	Swamp Box	11	no	no	REMOVE	2
164	Swamp Box	11	no	no	REMOVE	2
254	Hickory Wattle	11	no	no	REMOVE	2
107	Swamp Box	12	no	no	REMOVE	2
116	Swamp Box	12	no	no	REMOVE	2
117	Swamp Box	12	no	no	REMOVE	2
134	Swamp Box	12	no	no	REMOVE	2

Tree no.	Common name	dbh (cm)	Koala use (SEPP B&C)	Hollows?	Action	Offset requirement*
137	Blackwood	12	no	no	REMOVE	2
140	Swamp Box	12	no	no	REMOVE	2
147	Swamp Box	12	no	no	REMOVE	2
152	Swamp Box	12	no	no	REMOVE	2
169	Swamp Box	12	no	no	REMOVE	2
187	Hickory Wattle	12	no	no	REMOVE	2
194	Swamp Box	12	no	no	REMOVE	2
222	Swamp Box	12	no	no	REMOVE	2
223	Swamp Box	12	no	no	REMOVE	2
240	Broad-leaved Apple	12	no	no	REMOVE	2
242	Broad-leaved Apple	12	no	no	REMOVE	2
244	Swamp Box	12	no	no	REMOVE	2
106	Swamp Box	13	no	no	REMOVE	2
125	Swamp Box	13	no	no	REMOVE	2
145	Swamp Box	13	no	no	REMOVE	2
162	Swamp Box	13	no	no	REMOVE	2
165	Swamp Box	13	no	no	REMOVE	2
186	Swamp Box	13	no	no	REMOVE	2
192	Swamp Box	13	no	no	REMOVE	2
197	Forest Red Gum	13	YES	no	REMOVE	2
232	Broad-leaved Apple	13	no	no	REMOVE	2
115	Swamp Box	14	no	no	REMOVE	2
151	Swamp Box	14	no	no	REMOVE	2
161	Swamp Box	14	no	no	REMOVE	2
177	Swamp Box	14	no	no	REMOVE	2
178	Swamp Box	14	no	no	REMOVE	2
203	Swamp Box	14	no	no	REMOVE	2
216	Swamp Box	14	no	no	REMOVE	2
217	Swamp Box	14	no	no	REMOVE	2
239	Broad-leaved Apple	14	no	no	REMOVE	2
122	Swamp Box	15	no	no	REMOVE	2
135	Swamp Box	15	no	no	REMOVE	2
153	Swamp Box	15	no	no	REMOVE	2
179	Swamp Box	15	no	no	REMOVE	2
202	Swamp Box	15	no	no	REMOVE	2
109	Swamp Box	16	no	no	REMOVE	2
111	Swamp Box	16	no	no	REMOVE	2
118	Swamp Box	16	no	no	REMOVE	2
146	Swamp Box	16	no	no	REMOVE	2
154	Swamp Box	16	no	no	REMOVE	2
156	Swamp Box	16	no	no	REMOVE	2
159	Swamp Box	16	no	no	REMOVE	2
182	Grey Ironbark	16	YES	no	REMOVE	2
205	Swamp Box	16	no	no	REMOVE	2
213	Swamp Box	16	no	no	REMOVE	2

Tree no.	Common name	dbh (cm)	Koala use (SEPP B&C)	Hollows?	Action	Offset requirement*
215	Swamp Box	16	no	no	REMOVE	2
221	Swamp Box	16	no	no	REMOVE	2
230	Broad-leaved Apple	16	no	no	REMOVE	2
237	Broad-leaved Apple	16	no	no	REMOVE	2
102	Swamp Box	17	no	no	REMOVE	2
114	Swamp Box	17	no	no	REMOVE	2
120	Swamp Box	17	no	no	REMOVE	2
124	Swamp Box	17	no	no	REMOVE	2
143	Swamp Box	17	no	no	REMOVE	2
144	Swamp Box	17	no	no	REMOVE	2
16	Swamp box	18	no	no	REMOVE	2
21	Forest Red Gum	18	yes	no	REMOVE	2
23	Forest Red Gum	18	yes	no	REMOVE	2
103	Swamp Box	18	no	no	REMOVE	2
119	Swamp Box	18	no	no	REMOVE	2
158	Swamp Box	18	no	no	REMOVE	2
160	Swamp Box	18	no	no	REMOVE	2
170	Swamp Box	18	no	no	REMOVE	2
171	Swamp Box	18	no	no	REMOVE	2
199	Swamp Box	18	no	no	REMOVE	2
200	Swamp Box	18	no	no	REMOVE	2
210	Swamp Box	18	no	no	REMOVE	2
220	Swamp Box	18	no	no	REMOVE	2
226	Broad-leaved Apple	18	no	no	REMOVE	2
231	Broad-leaved Apple	18	no	no	REMOVE	2
123	Swamp Box	19	no	no	REMOVE	2
126	Swamp Box	19	no	no	REMOVE	2
132	Blackwood	19	no	no	REMOVE	2
138	Swamp Box	19	no	no	REMOVE	2
211	Swamp Box	19	no	no	REMOVE	2
Medium Tree (> 20cm – 49cm dbh)						
104	Swamp Box	20	no	no	REMOVE	4
133	Blackwood	20	no	no	REMOVE	4
183	Swamp Box	20	no	no	REMOVE	4
201	Swamp Box	20	no	no	REMOVE	4
130	Swamp Box	21	no	no	REMOVE	4
173	Swamp Box	21	no	no	REMOVE	4
174	Swamp Box	21	no	no	REMOVE	4
184	Swamp Box	21	no	no	REMOVE	4
131	Swamp Box	22	no	no	REMOVE	4
101	Swamp Box	23	no	no	REMOVE	4
155	Swamp Box	23	no	no	REMOVE	4
195	Grey Gum	23	YES	no	REMOVE	4
128	Swamp Box	24	no	no	REMOVE	4
198	Swamp Box	24	no	no	REMOVE	4


Tree no.	Common name	dbh (cm)	Koala use (SEPP B&C)	Hollows?	Action	Offset requirement*
129	Swamp Box	25	no	no	REMOVE	4
139	Swamp Box	25	no	no	REMOVE	4
196	Swamp Box	25	no	no	REMOVE	4
247	Swamp Box	25	no	no	REMOVE	4
168	Swamp Box	26	no	no	REMOVE	4
189	Grey Box	26	YES	no	REMOVE	4
37	Broad-leaved Apple	27	no	no	REMOVE	4
209	Swamp Box	27	no	no	REMOVE	4
127	Swamp Box	29	no	no	REMOVE	4
136	Swamp Box	29	no	no	REMOVE	4
212	Swamp Box	30	no	no	REMOVE	4
11	Forest Red Gum	32	yes	no	REMOVE	4
166	Swamp Box	32	no	no	REMOVE	4
193	White Mahogany	32	YES	no	REMOVE	4
204	Swamp Box	32	no	no	REMOVE	4
49	Spotted Gum	34	yes	no	REMOVE	4
70	Grey Gum	34	yes	no	REMOVE	4
71	Grey Gum	34	yes	no	REMOVE	4
250	Swamp Box	34	no	no	REMOVE	4
214	Forest Red Gum	35	YES	no	REMOVE	4
57	Grey Gum	36	yes	no	REMOVE	4
191	Forest Red Gum	37	YES	no	REMOVE	4
188	Grey Box	38	YES	no	REMOVE	4
10	Grey box	40	yes	no	REMOVE	4
208	Swamp Box	43	no	no	REMOVE	4
8	Spotted Gum	45	yes	no	REMOVE	4
60	Spotted Gum	45	yes	no	REMOVE	4
45	Broad-leaved Apple	47	no	no	REMOVE	4
77	Spotted Gum	47	yes	no	REMOVE	4
76	Spotted Gum	48	yes	no	REMOVE	4
50	White Mahogany	49	yes	no	REMOVE	4
58	Grey Ironbark	49	yes	no	REMOVE	4
Large Tree (> 50cm – 100cm dbh)						
72	Grey Gum	50	yes	no	REMOVE	8
9	White Mahogany	54	yes	no	REMOVE	8
255	Grey Gum	54	YES	no	REMOVE	8
48	Forest Red Gum	57	yes	no	REMOVE	8
44	White Mahogany	59	yes	no	REMOVE	8
74	Grey Gum	59	yes	no	REMOVE	8
75	Grey Box	64	yes	no	REMOVE	8
52	Spotted Gum	67	yes	no	REMOVE	8
26	Forest Red Gum	71	yes	no	REMOVE	8
4	Forest Red Gum	73	yes	no	REMOVE	8
59	Spotted Gum	74	yes	no	Remove	8
248	Forest Red Gum	77	YES	no	REMOVE	8

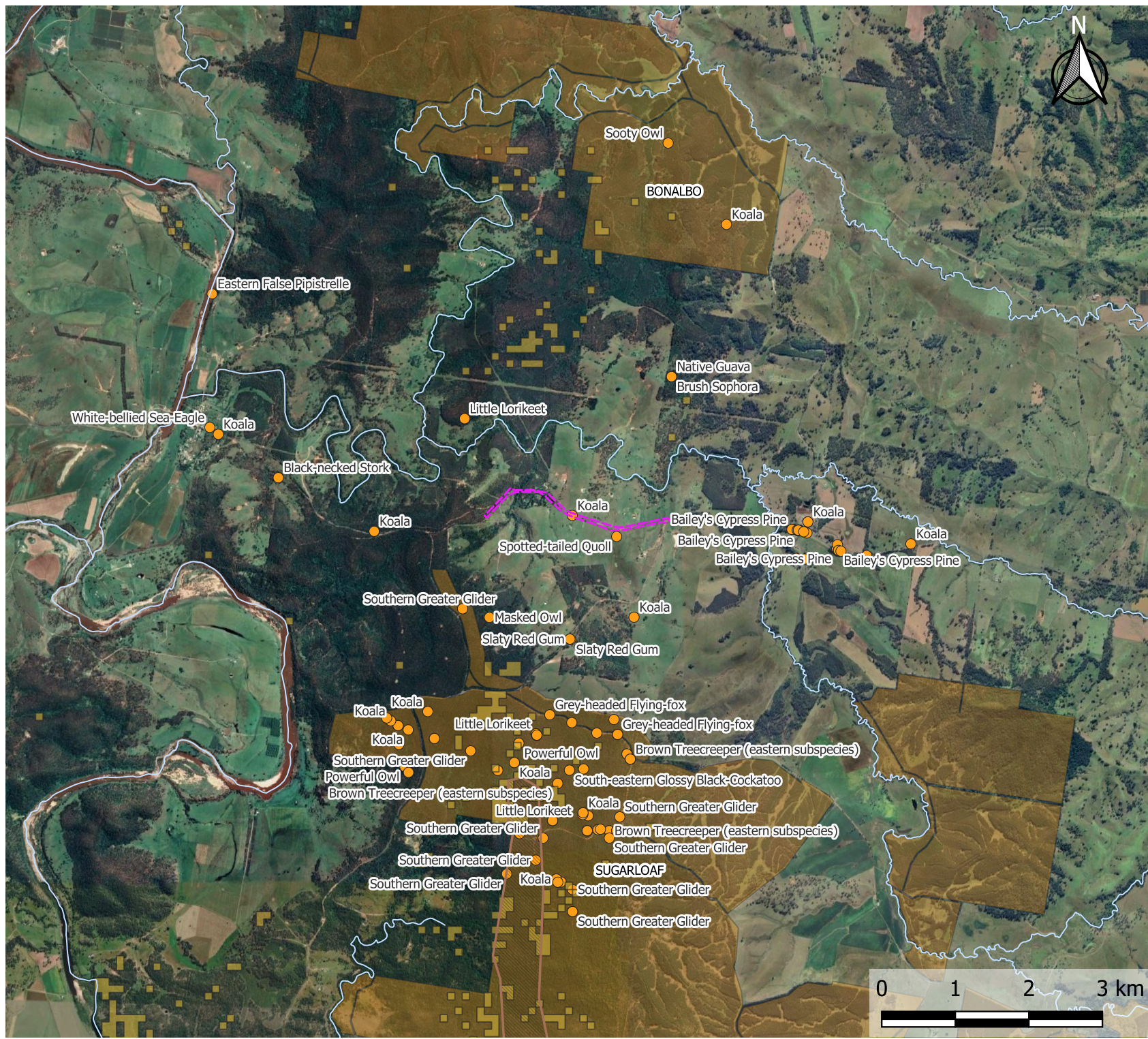
Tree no.	Common name	dbh (cm)	Koala use (SEPP B&C)	Hollows?	Action	Offset requirement*
7	White Mahogany	78	yes	no	REMOVE	8
180	Forest Red Gum	80	YES	no	prune	n/a
251	White Mahogany	80	YES	no	REMOVE	8
27	Forest Red Gum	93	yes	yes	REMOVE	8 (+ hollow compensation)
51	Forest Red Gum	116	yes	yes	Prune	n/a
100	Stag			no	Retain	n/a
181	Stag		no	YES	Retain	n/a
190	Stag		no	YES	REMOVE	hollow compensation
246	Stag		no	no	REMOVE	n/a
262	Stag		no	no	REMOVE	n/a
TOTAL TREE COMPENSATION						540

*refer TfNSW *Tree and hollow replacement guidelines* (June 2022)

Figure 3 Threatened species records

Legend

-  Project boundary
-  FaunaCorridors NE NSW
-  State Forest
-  Fauna Key Habitats NE NSW
-  Key waterways
-  BioNet records



Scale: 1:70000

Date: August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.

Figure 4A Tree removal - eastern area

Legend

-  Project boundary
-  Culvert
-  Parking area
-  Stockpile area
-  Spoil sites
-  Waterway
-  Cadastre

Trees to be impacted:

-  Prune
-  Remove
-  Retain
-  Habitat trees

Scale: 1: 6000

Date: August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.

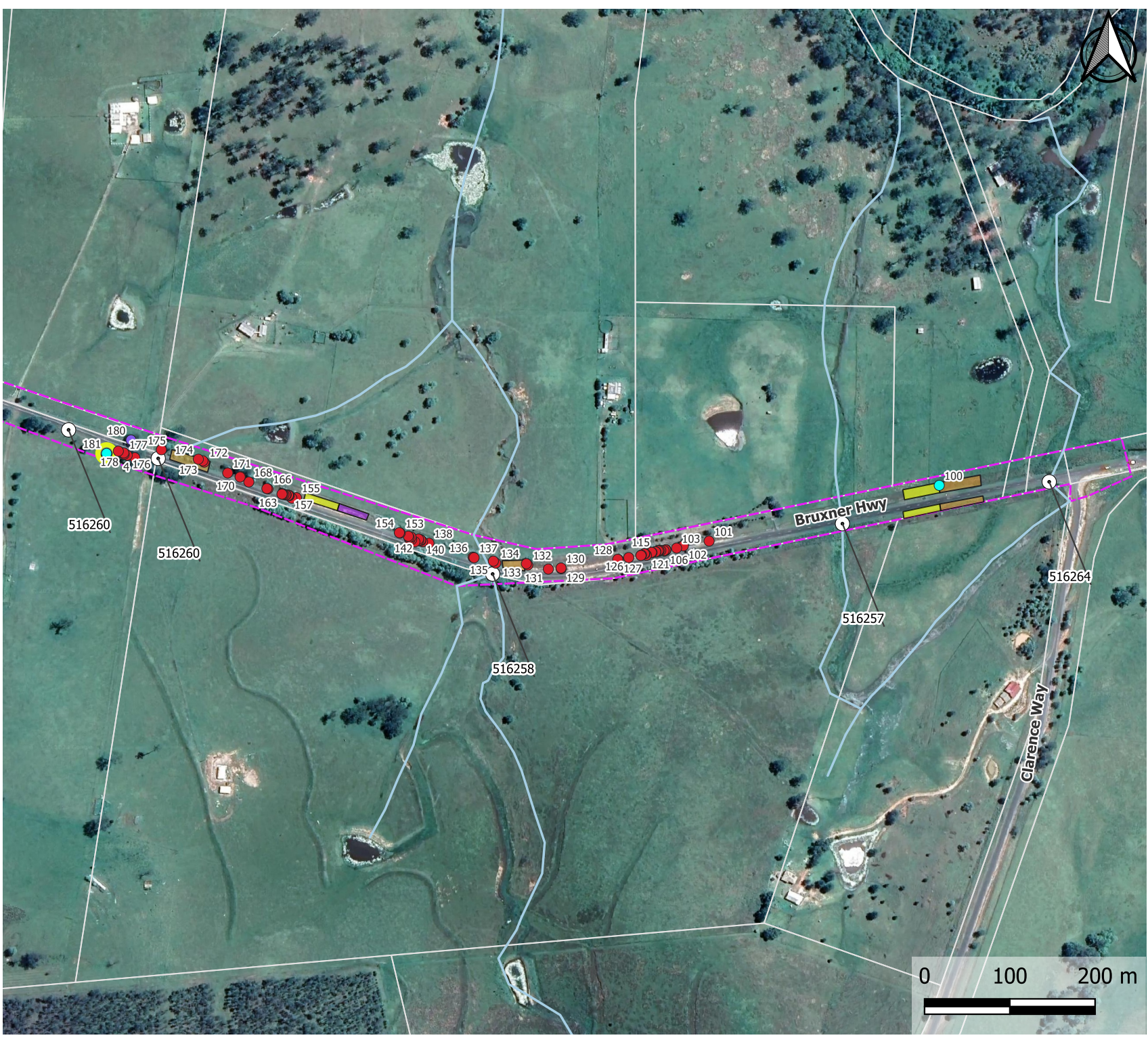






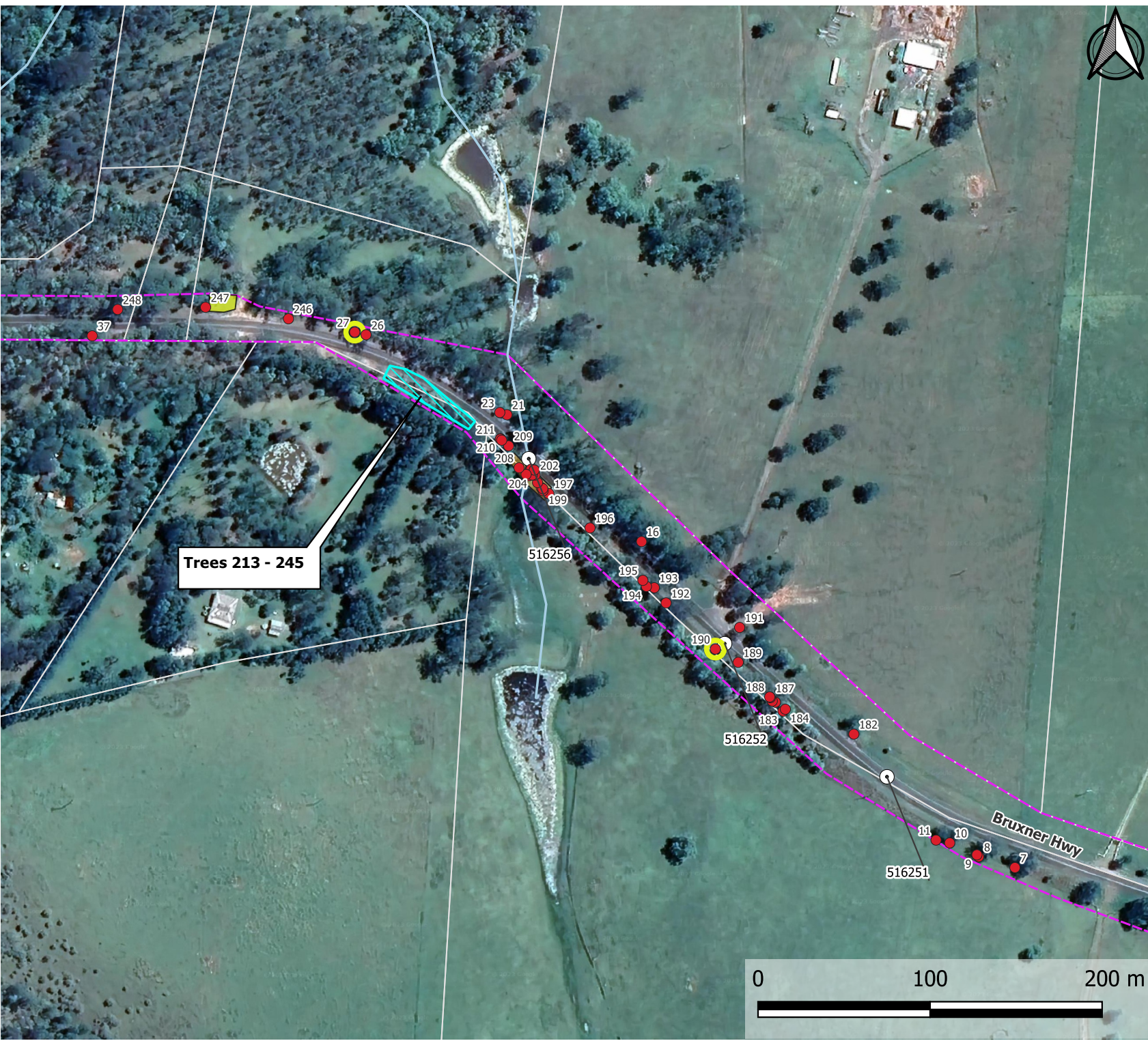
Figure 4B Tree removal - central area

Legend

-  Project boundary
-  Trees 213-245
-  Culvert
-  Parking area
-  Spoil sites
-  Waterway
-  Cadastre

Trees to be impacted:

-  Remove
-  Habitat trees



Trees 213 - 245

Scale: 1: 3000


Date: August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.

Figure 4C Tree removal - western area

Legend

 Project boundary

 Culvert

 Spoil sites

 Waterway

 Cadastre

Trees to be impacted:

 Prune

 Remove

 Habitat trees



Scale: 1: 3000

Date: August 2023

ReconEco makes every effort to ensure this map is free from errors, but does not warrant the map or any of its features are either spatially or temporally accurate or fit for a particular use.

Safeguards

Safeguards to be implemented are:

Applies	Biodiversity	
R	F1	There will be no disturbance or damage to threatened species or areas of outstanding biodiversity value.
R	F2	Works will not harm threatened fauna (including where they inhabit bridges or other structures e.g., timber fence posts or maritime piles).
R	F3	In accordance with the Transport <i>No Net Loss Guidelines</i> (EMF-BD-GD-0011), impacts requiring offsetting or conservation measures will be identified prior to the commencement of works and a Biodiversity Offset Strategy prepared and implemented.
R	F4	In accordance with the Transport <i>Tree and Hollow Replacement Guidelines</i> (EMF-BD-GD-0129), trees and hollows that require replacement will be identified and: <ul style="list-style-type: none"> a Tree and Hollow Replacement Plan will be prepared to address the impacts prior to the commencement of works (refer to EMF-BD-GD-0219-TT1); OR payment will be made to the Transport Conservation Fund prior to the commencement of works.
R	F5	If threatened fauna or flora species are discovered unexpectedly, stop works immediately and follow the Transport <i>Unexpected Threatened Species Find Procedure</i> contained in the Transport <i>Biodiversity Guidelines – Guide 1 (Pre-clearing process)</i> (EMF-BD-GD-0032).
R	F7	All pathogens (e.g., Chytrid, Myrtle Rust and Phytophthora) will be managed in accordance with Transport <i>Biodiversity Guidelines - Guide 7 (Pathogen Management)</i> (EMF-BD-GD-0032) and <i>Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi</i> (DECC) (for Phytophthora).
R	F8	Priority weeds will be managed according to requirements under the <i>Biosecurity Act 2015</i> and Transport <i>Biodiversity Guidelines - Guide 6 (Weed Management)</i> (EMF-BD-GD-0032).
R	F9	Works with the potential to directly or indirectly impact potential microbat roosting or breeding habitat such as on bridges and culverts will be carried out in accordance with Transport <i>Microbat Management Guidelines</i> (EMF-BD-GD-0012).
R	F10	Fauna handling must be carried out in accordance with Transport <i>Biodiversity Guidelines - Guide 9 (Fauna Handling)</i> (EMF-BD-GD-0032).
R	F11	Works will not create an ongoing barrier to the movement of wildlife.
R	F12	Pruning of mature trees will be in accordance with Part 5 of the Australian Standard 4373-2007 <i>Pruning of amenity trees</i> .
R	Additional	Clearing supervision should be undertaken by a suitably qualified ecologist or spotter catcher to ensure no direct impacts occur to fauna that may be occupying tree hollows at the time of clearing. Hollow sections should be lowered to the ground in an undamaged state to avoid direct impacts to any species that may be present at the time of removal.
R	Additional	Efforts should be made to avoid removal of these trees and undertake pruning where possible. Where removal is the only feasible options hollow sections of the branches should be retained and modified to create ‘nest boxes’ that can be installed in suitable trees in the surrounding landscape. Alternatively, hollows may be replaced with prefabricated nest boxes or with the creation of hollows using a boring device. Trees identified as nest box locations should be located within the road corridor as far as possible away from the road pavement to avoid future impacts.
R	Additional	Grass Trees (<i>Xanthorrhoea</i> spp) have regenerated at several sites impacted by the works (eg. ch 49485. Once the extent of works has been clearly established/demarcated, an ecologist shall clearly

Applies	Biodiversity
	mark all Grass Trees impacted and these shall be translocated into other suitable receiving sites within the road reserve. All Grass Trees salvaged shall be placed in pre-excavated holes and thoroughly watered in and mulched.
R	<p>Additional</p> <p>If standing water is present during works and dewatering is required, the following approach must be adopted where relevant (consistent with general advice from DPI Fisheries):</p> <ul style="list-style-type: none"> Dewatering should be undertaken with a pump submerged within a container with maximum 5mm mesh size to prevent the ingress of fish into the pump. Intermediate bulk containers with hundreds of 5mm holes drilled into the sides work well. Pumped water should be released downstream ensuring that jetting at the hose outlet does not cause scouring of the creek bed or banks. A dissipation device may be required. During later stages of dewatering when water is turbid, water should be pumped to either a basin or onto vegetated land to prevent fines from entering the waterway. The remaining pool should be fished out by a qualified and licenced ecologist at the later stages of dewatering to ensure no fish become stranded.
R	<p>Additional</p> <p>An Interstate Biosecurity Certificate (or equivalent) must accompany 'fire ant carriers' that have been procured from a known infested area and brought into NSW. This applies to Transport for NSW staff, contractors and operators.</p>

3.8 Traffic and transport

Table 3-8: Traffic and transport

Description of existing environmental and potential impacts		
<p>Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction?</p> <p>Temporary lane closures and traffic control would likely be required to undertake the project. A traffic control plan would be required to address any changes to traffic flow.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?</p> <p>The proposal is to maintain the safety of the existing roadway. Therefore, no additional ongoing detours or disruptions to traffic flow or access are being introduced to the area as a result of the works.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Is the proposal likely to affect any other transport nodes or transport infrastructure (e.g., bus stops, bus routes) in the surrounding area? Or result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?</p> <p>There are no registered bus stops within the proposal area, however initial consultation with Simes Coaches has occurred by the Project Development Manager and this stakeholder is included in the Community Engagement Plan for project notifications and updates.</p> <p>The proposal is to maintain the safety of the existing roadway. Therefore, no additional ongoing detours or disruptions to traffic flow or access are being introduced to the area.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Traffic	
R	T1	Where possible, current traffic movements and property accesses will be maintained during the works. Any disturbance will be minimised to prevent unnecessary traffic delays. Refer to the TfNSW Community Engagement Plan for particulars.
R	T3	A traffic guidance scheme will be prepared in accordance with Transport <i>Traffic control at work sites manual</i> (version 6.1, 2022) and Australian Standard 1742.3 <i>Manual of uniform control devices</i> .

3.9 Socio-economic

Table 3-9: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to require any property acquisition?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to alter any access for properties (either temporarily or permanently)? Informal farm access may be used to access the proposed spoil site to the east of Captains Creek Bridge however there will be no alteration of permanent changes as a result of the proposed works.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)? The proposal would occur in a rural area where pedestrian movement is highly infrequent and no pedestrian services such as foot paths are in place.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact trees planted by a community group, Landcare group or by council or a tree that is a memorial or part of a memorial group e.g., has a plaque?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Community consultation
R	C1 Notification will be given to affected community members prior to the works taking place. The notification is to include: <ul style="list-style-type: none"> • details of the proposal • duration of works and working hours • changed traffic or access arrangements • how to lodge a complaint or obtain more information • contact name and details. Notification should be a minimum of 7 calendar days prior to the start of works.
R	C2 All complaints will be recorded on a complaints register and attended to promptly.
R	C3 Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner.
R	C4 The community must be notified of all work outside standard hours which have the potential to impact noise-sensitive receivers. Notification zones must be determined using the <i>Construction and Maintenance Noise Estimator</i> (EMF-NV-TT-0067). Notification requirements must comply with Transport <i>Construction noise and vibration guidelines (for roads and maritime) 2022</i> (EMF-NV-GD-0056).

3.10 Landscape character and visual amenity

Table 3-10: Landscape character and visual amenity

Description of existing environmental and potential impacts		
Is the proposed work over or near an important physical or cultural element or landscape? (For example, heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area? For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? Details of vegetation removal have been provide in Section 3.7 and 3.8. The works would alter the visual appearance of the area due to vegetation removal and road widening however the changes are not expected to be visually intrusive and would not create significant changes to the locality. The clearing would not expose adjoining residence to the roadway or result in the complete removal of a vegetative buffer. Similar vegetation adjoining the site will remain in place.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians? The proposal would involve the stripping, temporarily stockpiling and placement of topsoil within the road corridor. Soil and road material will be reused as fill where possible or disposed at identified spoil sites as required. The character of the existing road corridor will be retained.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Description of existing environmental and potential impacts		
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would any new structures or features to be constructed, or result in over shadowing to adjoining properties or areas?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Visual amenity	
R	V2	Landscaping will be managed in accordance with Transport <i>Landscape design guideline, 2018</i> .
R	V4	Bridge works will be managed in accordance with Transport <i>Bridge Aesthetics Guidelines, 2019</i> .
R	V5	Works will be carried out in accordance with Transport <i>EIA-N04 Guideline for Landscape Character and visual impact assessment 2020</i> .

3.11 Waste

Table 3-11: Waste

Description of existing environmental and potential impacts		
Is the proposal likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)? Waste generated as a result of the proposal will include mulch from the removal of trees, and other general construction waste, such as excess non-contaminated topsoil and general fill. Mulch and spoil will be reused onsite within the road reserve. Material may be stockpiled and spread on road batters at completion of works. No mulch or spoil is to be placed in areas of concentrated flow including waterways and lower creek banks.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Is the proposal likely to require a licence from EPA?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to require the removal of asbestos?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Safeguards

Safeguards to be implemented are:

Applies	Waste management	
R	M1	A Waste Management Plan will be prepared that follows the Transport <i>Waste management guideline (EMF-WM-GD-0055)</i> .
R	M3	Resource management hierarchy principles will be followed: <ul style="list-style-type: none"> avoid unnecessary resource consumption as a priority avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) disposal is undertaken as a last resort. (in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i>).

Applies	Waste management	
R	M4	If vegetation is to be mulched and transported off site for beneficial reuse, it will be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the <u>NSW EPA Mulch Order and Exemption</u> .
R	M5	Bulk project waste (e.g. fill) sent to a site not owned by Transport (excluding EPA licensed landfills and resource recovery facilities) is to have prior formal written approval from the landowner, in accordance with Transport's <i>Waste management guideline</i> (EMF-WM-GD-0055) and templates EMF-WM-TT-0098 and EMF-WM-TT-0127. This includes waste transported for reuse, recycling, disposal or stockpiling.
R	M7	There is to be no disposal or re-use of construction waste on to other land.
R	M8	Waste is not to be burnt on site.
R	M9	Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.
R	M10	Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.

4. Consideration of State and Commonwealth environmental factors

4.1 Environmental Planning and Assessment Regulation 2021 factors

The following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

Table 4-1: Consideration of section 171 of the EP&A Regulation factors

Environmental factor	Impact
<p>a) Any environmental impact on a community?</p> <p>The proposed work may cause minor short-term environmental impacts on the community, such as delays to traffic and noise impacts on residents; however, the potential impacts would be minimised with the implementation of the safeguards as detailed in this REF. The maintenance works would have no long-term environmental impact on a community, and road users would benefit from safer travelling conditions.</p>	Negligible – Short term
<p>b) Any transformation of a locality?</p> <p>The proposed work would not transform the locality, as the works are limited to minor works within the existing road corridor including previously disturbed areas. The works would alter the visual appearance of the area due to vegetation removal and road widening however the changes are not expected to be visually intrusive and would not create significant changes to the locality.</p>	Negligible – Short term
<p>c) Any environmental impact on the ecosystems of a locality?</p> <p>The proposal would have potential environmental impacts on the ecosystems of a locality; however, the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.</p>	Negligible – Short term
<p>d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>It is likely the work would not significantly reduce the aesthetic, recreational, value of the locality, but scientific and environmental impacts are more likely as a result of the removal of threatened fauna habitats. However, the risk of potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.</p>	Negative
<p>e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>Minor impacts on native vegetation will occur however it is not considered that the proposal will significantly impact other values listed above.</p>	Negligible
<p>f) Any impact on habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)?</p> <p>The proposal will impact protected animals as a result of the removal of habitat including koala food trees and habitat trees. Any potential impacts will be minimised through the implementation of the safeguards given in Section 3 of this REF.</p>	Negative
<p>g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The proposal would not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air due to the limited scope of works for the proposed activities and the implementation of the safeguards given in Section 3 of this REF.</p>	None predicted
<p>h) Any long-term effects on the environment?</p>	Positive and negative – Long term

Environmental factor	Impact
<p>The proposal would have positive long-term effects on the environment for surrounding residences and road users due to improved safety and usability for road users. The proposal would contribute to cumulative negative effects on the environment as a result of tree removal and loss of fauna habitat. Safeguards provided in the MWREF aim to mitigate impacts where possible.</p>	
<p>i) Any degradation of the quality of the environment? The proposal would potentially degrade the quality of the environment as a result of tree removal and loss of fauna habitat, however the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.</p>	Negative
<p>j) Any risk to the safety of the environment? The proposal would have minimal risk to the safety of the environment due to the limited scope of works for the maintenance activities covered in this REF, and the potential impacts would be minimised with the implementation of the safeguards given in Section 3 in this REF.</p>	None predicted
<p>k) Any reduction in the range of beneficial uses of the environment? The proposal would cause a minor reduction in the use of the road from lane closures, potentially increasing travel time for road users in the short-term. There would be no long-term reduction in the range of beneficial uses of the environment as a result of the maintenance works.</p>	Negative – Short term
<p>l) Any pollution of the environment? The proposal would potentially cause pollution of the environment, however the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.</p>	None predicted
<p>m) Any environmental problems associated with the disposal of waste? The waste generated during the proposal would be contained and removed for disposal to approved recycling facilities or to licensed landfill in accordance with the safeguards in Section 3 of this REF. No environmental problems are anticipated for the disposal of waste.</p>	Negligible
<p>n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The proposal would not significantly increase demands on resources, which are, or are likely to become, in short supply. Relatively small amounts of materials would be required for the proposed work. The safeguards listed in Section 3 of this REF would be implemented to minimise any impacts.</p>	None predicted
<p>o) Any cumulative environmental effect with other existing or likely future activities? The proposal has the potential to have cumulative environmental effects with other existing or likely future activities, however the effects would be minimal due to the limited scope of works for the activities covered in this REF, and the potential impacts on the environment would be minimised with the implementation of the safeguards given in Section 3 in this REF.</p>	Negative – Minor
<p>p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposal is not located in an area subject to coastal processes and hazards and is not expected to impact on these processes</p>	None predicted
<p>q) Any impact on applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1? Kyogle Council prepared a Local Strategic Planning Statement (LSPS) that incorporates directions contained within the NSW State Government’s <i>North Coast Regional Plan 2036</i> and policies in Council’s <i>Community Strategic Plan</i>. Within the LSPS Kyogle Council outlines specific action that aim to:</p> <ul style="list-style-type: none"> • deliver a greater supply and variety of housing, • deliver more land for residential and industrial uses, • protect our biodiversity, catchments and rivers, 	Positive – Long term

Environmental factor	Impact
<ul style="list-style-type: none"> • address natural hazards and respond to climate change, • improve transport and community facilities, • make our towns and villages great places to live, work and visit, and • grow agriculture and tourism and support existing businesses. <p>Overall the proposal is in line with the aims of Kyogle Council and the above mentioned strategic plans, in the sense it will:</p> <ul style="list-style-type: none"> • support the safe and effective transportation of material to build housing, • protect biodiversity, catchments and rivers from pollution associated with vehicle accidents and degraded roads exposed to erosion, • provide safer travel in the events of natural hazards such as fires, storms and floods, • make rural living more attractive as roads are safer, more efficient, and more enjoyable to travel along and, • aid the growth of agriculture and tourism and support existing businesses creating more efficient movement within the region. 	
<p>r) Any impact on other relevant environmental factors? No other impacts are expected as a result of the proposed works</p>	None predicted

4.2 Matters of National Environmental Significance

Table 4-2: Matters of national environmental significance

Environmental factor	Impact
a) Any impact on a World Heritage property?	Nil
b) Any impact on a National Heritage place?	Nil
c) Any impact on a wetland of international importance (often called 'Ramsar' wetlands)?	Nil
d) Any impact on nationally threatened species, ecological communities or migratory species?	Negligible
e) Any impact on a Commonwealth marine area?	Nil
f) Does the proposal involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on the environment of Commonwealth land?	Nil

5. Summary of safeguards and environmental management measures

This section provides a summary of the site-specific environmental safeguards and management measures identified in described in chapters 3 and 4 of this REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Transport QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 5-1: Summary of site-specific safeguards for proposed work

Factor	Safeguards
Soil	<p>E1 Erosion and sediment control measures will be implemented and maintained to:</p> <ul style="list-style-type: none"> • prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets • reduce water velocity and capture sediment on site • minimise the amount of material transported from site to surrounding pavement surfaces • divert clean water around the site. <p>- (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)).</p> <p>E2 Erosion and sedimentation controls will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.</p> <p>E3 Erosion and sediment control measures will not be removed until the works are complete and areas stabilised.</p> <p>E4 Work areas will be stabilised progressively during the works.</p> <p>E5 A progressive erosion and sediment control plan will be prepared for the works.</p> <p>E6 The maintenance of established stockpile sites will be in accordance with the Transport Stockpile Site Management Guideline (EMS-TG-10) (2015).</p>
Waterways and water quality	<p>W1 No dirty water will be released into drainage lines and/or waterways.</p> <p>W2 Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/slicks) will be undertaken on a regular basis to identify any potential spills or deficient silt curtains or erosion and sediment controls.</p> <p>W3 Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.</p> <p>W4 Measures to control pollutants from stormwater and spills will be investigated and incorporated in the pavement drainage system at locations where it discharges to receiving drainage lines. Measures aimed at reducing flow rates and potential scour during rain events will be incorporated in the design of the pavement drainage system.</p> <p>W5 Excess debris from cleaning and washing will be removed using hand tools.</p> <p>W8 Silt curtains will be installed, monitored and maintained as needed to contain any sediment.</p> <p>R1 All fuels, chemicals and liquids will be stored in an impervious bunded area a minimum of 50 metres away from:</p> <ul style="list-style-type: none"> • rivers, creeks or any areas of concentrated water flow • flooded or poorly drained areas • slopes above 10%. <p>R2 Refueling of plant and equipment will occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways.</p> <p>R4 Cleaning of spray bars (or equivalent equipment) will occur in suitable areas (e.g., not table drains) and not cause water pollution.</p> <p>R5 Vehicle wash down and/or cement truck washout will occur in a designated bunded area.</p>

Factor	Safeguards
	<p>R6 An emergency spill kit will be kept on site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site and personnel inducted in its use.</p> <p>R7 If an incident (e.g., spill) occurs, the Transport Environmental Incident Procedure (EMF-EM-PR-0001) will be followed and the Transport Contract Manager notified as soon as practicable.</p> <p>R8 Emergency contacts will be kept in an easily accessible location on vehicles, vessels, plant and site office. All workers will be advised of these contact details and procedures.</p> <p>R10 All workers will be advised of the location of the spill kit and trained in its use.</p> <p>R11 Vehicles, vessels and plant will be properly maintained and regularly inspected for fluid leaks.</p> <p>Additional: A Dewatering Plan is to be prepared to manage the diversion of waterflow around the site while works are undertaken within any creek channel. The Plan must be submitted to the Environment Officer for approval prior the activity occurring onsite and included in the Construction Environment Management Plan. Dewatering is to be undertaken with a 5mm mesh screen around the pump inlet. Netting and removal of fish/aquatic fauna should be undertaken at the late stages of dewatering. Any fish/aquatic fauna captured via netting should be released unharmed into adjacent waters downstream of the worksite.</p> <p>Additional: On completion of excavation and stabilisation of creek channels the creek bank should be planted with <i>Lomandra longifolia</i> or <i>Carex appressa</i> at a density of 1 plant per m².</p>
Noise and vibration	<p>N1 Works will be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts.</p> <p>N2 Noise impacts will be minimised in accordance with Transport Construction and Maintenance Noise Estimator (EMF-NV-TT-0067) and Transport Construction noise and vibration guidelines (for roads and maritime) 2022 (EMF-NV-GD-0056).</p>
Air quality	<p>A1 Measures (including watering or covering exposed areas) will be used to minimise or prevent air pollution and dust.</p> <p>A2 Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.</p> <p>A3 Vegetation or other materials will not to be burnt on site.</p> <p>A4 Vehicles and vessels transporting waste or other materials that may produce odours or dust will be covered during transportation.</p> <p>A5 Stockpiles or areas that may generate dust will be managed to suppress dust emissions in accordance with the Transport Stockpile Site Management Guideline (EMS-TG-10).</p>
Aboriginal heritage	<p>B1 If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport Aboriginal cultural heritage officer and Senior Manager Environment and Sustainability contacted immediately. Refer to steps in the Transport Unexpected heritage items procedure (EMF-HE-PR-0076) which must be followed.</p>
Non-Aboriginal heritage	<p>H1 Works to be carried out in accordance with the approved Conservation Management Plan for the heritage item (where available).</p> <p>H2 If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport Unexpected heritage items procedure (EMF-HE-PR-0076) must be followed.</p> <p>H3 If an existing heritage item or item identified on the Transport for NSW s.170 register is on site or in the near vicinity of the works, the item will be protected to prevent any damage or disturbance.</p>
Biodiversity	<p>F1 There will be no disturbance or damage to threatened species or areas of outstanding biodiversity value.</p> <p>F2 Works will not harm threatened fauna (including where they inhabit bridges or other structures e.g., timber fence posts or maritime piles).</p>

Factor	Safeguards
	<p>F3 In accordance with the Transport No Net Loss Guidelines (EMF-BD-GD-0011), impacts requiring offsetting or conservation measures will be identified prior to the commencement of works and a Biodiversity Offset Strategy prepared and implemented.</p> <p>F4 In accordance with the Transport Tree and Hollow Replacement Guidelines (EMF-BD-GD-0129), trees and hollows that require replacement will be identified and:</p> <ul style="list-style-type: none"> • a Tree and Hollow Replacement Plan will be prepared to address the impacts prior to the commencement of works (refer to EMF-BD-GD-0219-TT1); OR • payment will be made to the Transport Conservation Fund prior to the commencement of works. <p>F5 If threatened fauna or flora species are discovered unexpectedly, stop works immediately and follow the Transport Unexpected Threatened Species Find Procedure contained in the Transport Biodiversity Guidelines – Guide 1 (Pre-clearing process (EMF-BD-GD-0032)).</p> <p>F7 All pathogens (e.g., Chytrid, Myrtle Rust and Phytophthora) will be managed in accordance with Transport Biodiversity Guidelines - Guide 7 (Pathogen Management) (EMF-BD-GD-0032) and Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (DECC) (for Phytophthora).</p> <p>F8 Priority weeds will be managed according to requirements under the Biosecurity Act 2015 and Transport Biodiversity Guidelines - Guide 6 (Weed Management) (EMF-BD-GD-0032).</p> <p>F9 Works with the potential to directly or indirectly impact potential microbat roosting or breeding habitat such as on bridges and culverts will be carried out in accordance with Transport Microbat Management Guidelines (EMF-BD-GD-0012).</p> <p>F10 Fauna handling must be carried out in accordance with Transport Biodiversity Guidelines - Guide 9 (Fauna Handling) (EMF-BD-GD-0032).</p> <p>F11 Works will not create an ongoing barrier to the movement of wildlife.</p> <p>F12 Pruning of mature trees will be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees.</p> <p>Additional: Clearing supervision should be undertaken by a suitably qualified ecologist or spotter catcher to ensure no direct impacts occur to fauna that may be occupying tree hollows at the time of clearing. Hollow sections should be lowered to the ground in an undamaged state to avoid direct impacts to any species that may be present at the time of removal. Additional: Efforts should be made to avoid removal of these trees and undertake pruning where possible. Where removal is the only feasible options hollow sections of the branches should be retained and modified to create ‘nest boxes’ that can be installed in suitable trees in the surrounding landscape. Alternatively, hollows may be replaced with prefabricated nest boxes or with the creation of hollows using a boring device. Trees identified as nest box locations should be located within the road corridor as far as possible away from the road pavement to avoid future impacts.</p> <p>Additional: Grass Trees (Xanthorrhoea spp) have regenerated at several sites impacted by the works (eg. ch 49485. Once the extent of works has been clearly established/demarcated, an ecologist shall clearly mark all Grass Trees impacted and these shall be translocated into other suitable receiving sites within the road reserve. All Grass Trees salvaged shall be placed in pre-excavated holes and thoroughly watered in and mulched.</p> <p>Additional: If standing water is present during works and dewatering is required, the following approach must be adopted where relevant (consistent with general advice from DPI Fisheries):</p> <ul style="list-style-type: none"> • Dewatering should be undertaken with a pump submerged within a container with maximum 5mm mesh size to prevent the ingress of fish into the pump. Intermediate bulk containers with hundreds of 5mm holes drilled into the sides work well. • Pumped water should be released downstream ensuring that jetting at the hose outlet does not cause scouring of the creek bed or banks. A dissipation device may be required. • During later stages of dewatering when water is turbid, water should be pumped to either a basin or onto vegetated land to prevent fines from entering the waterway. • The remaining pool should be fished out by a qualified and licenced ecologist at the later stages of dewatering to ensure no fish become stranded. <p>Additional: An Interstate Biosecurity Certificate (or equivalent) must accompany ‘fire ant carriers’ that have been procured from a known infested area and brought into NSW. This applies to Transport for NSW staff, contractors and operators.</p>

Factor	Safeguards
Traffic and transport	<p>T1 Where possible, current traffic movements and property accesses will be maintained during the works. Any disturbance will be minimised to prevent unnecessary traffic delays. Refer to the TfNSW Community Engagement Plan for particulars.</p> <p>T3 A traffic guidance scheme will be prepared in accordance with Transport Traffic control at work sites manual (version 6.1, 2022) and Australian Standard 1742.3 Manual of uniform control devices.</p>
Socio-economic	<p>C1 Notification will be given to affected community members prior to the works taking place. The notification is to include:</p> <ul style="list-style-type: none"> • details of the proposal • duration of works and working hours • changed traffic or access arrangements • how to lodge a complaint or obtain more information • contact name and details. <p>Notification should be a minimum of 7 calendar days prior to the start of works.</p> <p>C2 All complaints will be recorded on a complaints register and attended to promptly.</p> <p>C3 Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner.</p> <p>C4 The community must be notified of all work outside standard hours which have the potential to impact noise-sensitive receivers. Notification zones must be determined using the Construction and Maintenance Noise Estimator (EMF-NV-TT-0067). Notification requirements must comply with Transport Construction noise and vibration guidelines (for roads and maritime) 2022 (EMF-NV-GD-0056).</p>
Landscape character and visual amenity	<p>V2 Landscaping will be managed in accordance with Transport Landscape design guideline, 2018.</p> <p>V4 Bridge works will be managed in accordance with Transport Bridge Aesthetics Guidelines, 2019.</p> <p>V5 Works will be carried out in accordance with Transport EIA-N04 Guideline for Landscape Character and visual impact assessment 2020.</p>
Waste	<p>M1 A Waste Management Plan will be prepared that follows the Transport Waste management guideline (EMF-WM-GD-0055).</p> <p>M3 Resource management hierarchy principles will be followed:</p> <ul style="list-style-type: none"> • avoid unnecessary resource consumption as a priority • avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) • disposal is undertaken as a last resort. <p>(in accordance with the Waste Avoidance and Resource Recovery Act 2001).</p> <p>M4 If vegetation is to be mulched and transported off site for beneficial reuse, it will be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the NSW EPA Mulch Order and Exemption.</p> <p>M5 Bulk project waste (e.g. fill) sent to a site not owned by Transport (excluding EPA licensed landfills and resource recovery facilities) is to have prior formal written approval from the landowner, in accordance with Transport's Waste management guideline (EMF-WM-GD-0055) and templates EMF-WM-TT-0098 and EMF-WM-TT-0127. This includes waste transported for reuse, recycling, disposal or stockpiling.</p> <p>M7 There is to be no disposal or re-use of construction waste on to other land.</p> <p>M8 Waste is not to be burnt on site.</p> <p>M9 Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.</p> <p>M10 Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.</p>

5.1 Licensing and approvals

No licences/approvals apply to the project.

6. Certification, review and decision

6.1 Certification

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

Prepared by:



Name: Ian Colvin
Position: Senior Ecologist
Company name: ReconEco
Date: 15/09/2023

Minor Works REF reviewed by:



Name: Laura Day
Position: Ecologist
Company name: ReconEco
Date: 15/09/2023

6.2 Environment staff review

The Minor Works REF has been reviewed and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act. In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the Minor Works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under section 171 of the Environmental Planning and Assessment Regulation 2021.

The proposal described in the Minor Works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguard and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Division 5.2 of the EP&A Act.

The assessment has considered the potential impacts of the activity on areas of outstanding value and on threatened species, ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The proposal described in the Minor Works REF will not affect areas of outstanding value. The activity described in the Minor Works REF will not significantly affect threatened species ecological communities or their habitats. Therefore a species impact statement is not required.

The assessment has also addressed the potential impacts on the activity on matters of national environmental significance and any impacts on the environment of Commonwealth land and concluded that there will be no significant impacts. Therefore there is no need for a referral to be made to the Australian Government Department of Agriculture, Water and the Environment for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Minor Works REF is considered to meet all relevant requirements.

6.3 Environment staff recommendation

It is recommended that the proposal to rehabilitate and widen the pavement on the Bruxner Highway around 48 kilometres west of Casino at Sandilands as described in this Minor Works REF proceed subject to the implementation of all safeguards identified in the Minor Works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations.

The Minor Works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity and established that the activity is not likely to significantly affect the environment or threatened species, ecological communities or their habitats.

The Minor Works REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on the environment of Commonwealth land.

The Minor Works REF determination will remain current for two years until September 2025, at which time it shall lapse if works have not been physically commenced. The pre-construction checklist must be completed prior to the commencement of any works.

Recommended by:

Signature *Lester Piggott*

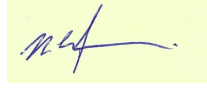
Name: Lester Piggott

Position: Environment and Sustainability Manager North

Date: 20/9/2023

Noted by:

Signature



Name:

Ross Gersekowski

Position:

Project Contract Manager

Date:

18/9/2023

6.4 Determination

In accordance with the above recommendation, I certify that I have reviewed and endorsed the contents of this Minor Works REF, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under Section 170 of the EP&A Regulation, and the information is neither false nor misleading.

I determine that Transport for NSW may:

- [proceed with the activity]

Signature 

Name: David Pattison

Position: Senior Manager Project Services

Date: 21/09/2023

6.5 EP&A Regulation publication requirement

Table 6-1: EP&A Regulation publication requirement

Requirement		
Does this Minor Works REF need to be published under section 171(4) of the EP&A Regulation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>



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