

Central West Orana Renewable Energy Zone – Port to REZ Road Upgrade Program

Minor works review of
environmental factors – Package 5

September 2024

Acknowledgement of Country

Transport for NSW acknowledges Gamilaraay and Wiradjuri people, the traditional custodians of the land on which the Port to Renewable Energy Zone Road Upgrade Program (Package 5) 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.





Approval and authorisation

Approved by	Dimitri Perdikaris – Senior Manager Renewables Transportation
Signed	<i>D Perdikaris</i>
Date	13/09/2024

Table of contents

1.	Introduction	1
2.	The proposal.....	2
2.1	Strategic background	2
2.2	Description.....	4
2.3	Need and options	19
2.4	Statutory and planning framework.....	22
2.5	Community engagement and agency consultation.....	26
3.	Environmental assessment	32
3.1	Soil	32
3.2	Waterways and water quality	38
3.3	Noise and vibration.....	44
3.4	Air quality.....	56
3.5	Aboriginal cultural heritage.....	58
3.6	Non-Aboriginal heritage.....	60
3.7	Biodiversity	65
3.8	Traffic and transport.....	80
3.9	Socio-economic	83
3.10	Landscape character and visual amenity	86
3.11	Waste	89
3.12	Climate change and greenhouse gas emissions	90
3.13	Cumulative impact.....	91
4.	Summary of safeguards and environmental management measures 92	
4.1	Safeguards and environmental management measures	92
4.2	Licensing and approvals.....	95
4.3	Other requirements.....	96
5.	Certification, review and determination.....	97
5.1	Certification.....	97
5.2	Environment and sustainability staff review	98
5.3	Environment and Sustainability staff recommendation	99
5.4	Decision statement.....	99
5.5	EP&A Regulation publication requirement.....	99
6.	Definitions.....	100
7.	References.....	101
	Appendix A: Consideration of State and Commonwealth environmental factors	103

Appendix B: TfNSW Stage 1 PACHCI.....	106
Appendix C: Noise assessment.....	109
Appendix D: Aboriginal Heritage Information Management System Search results	115
Appendix E: Non-Aboriginal Heritage Search Results.....	120
Appendix F: Biodiversity Search Results.....	139

Tables

Table 2-1: Proposal location details.....	4
Table 2-2: Utility adjustments	13
Table 2-3: Indicative construction staging and scope.....	13
Table 2-4: Ancillary facilities.....	18
Table 2-5: Analysis of options	20
Table 2-6: Assessment against design criteria	21
Table 2-7: Warrumbungle LEP 2013 zoning applicable to the proposal.....	23
Table 2-8: Dubbo Regional LEP 2022 zoning applicable to the proposal	24
Table 2-9: Review of other legislation and environmental planning instruments	25
Table 2-10: Consultation required with Council.....	26
Table 2-11: Consultation with other public authorities.....	29
Table 2-12: Notification of council and occupiers of adjoining land.....	30
Table 3-1: Soil	32
Table 3-2: Soils safeguards and management measures	36
Table 3-3: Waterways and water quality	38
Table 3-4: Water bodies within the vicinity of the proposal	38
Table 3-5: Water quality safeguards and management measures.....	43
Table 3-6: Noise and vibration.....	44
Table 3-7: Out-of-hours construction time periods.....	49
Table 3-8: Noise affected distances for residential receivers	50
Table 3-9: Predicted noise impact during standard hours for local road works (with line of sight) – R2 category	51
Table 3-10: Noise affected distances for non-residential receivers.....	53
Table 3-11: Recommended minimum working distances for vibration intensive equipment ...	53
Table 3-12: Noise and vibration safeguards and management measures	54
Table 3-13: Air quality	56
Table 3-14: Air quality safeguards and management measures	56

Table 3-15: Aboriginal cultural heritage.....	58
Table 3-16: Aboriginal cultural heritage safeguards and management measures	59
Table 3-17: Non-Aboriginal heritage.....	60
Table 3-18: Non-Aboriginal heritage items and conservation areas within the vicinity of the proposal	60
Table 3-19: Non-Aboriginal heritage safeguards and management measures.....	64
Table 3-20: Biodiversity	65
Table 3-21: Recorded sightings of species listed	65
Table 3-22: Matters of National Environmental Significance.....	66
Table 3-23: Biodiversity safeguards and management measures	78
Table 3-24: Traffic and transport.....	80
Table 3-25: Bus routes travelling through the proposal areas	81
Table 3-26: Traffic and transport safeguards and management measures	82
Table 3-27: Socio-economic	83
Table 3-28: Socio-economic safeguards and management measures	85
Table 3-29: Landscape character and visual amenity	86
Table 3-30: Landscape character and visual amenity safeguards and management measures	88
Table 3-31: Waste	89
Table 3-32: Waste safeguards and management measures.....	89
Table 3-33: Climate change and greenhouse gas emissions	90
Table 3-34: Cumulative impact.....	91
Table 4-1: Summary of site-specific safeguards for proposed work.....	92
Table 4-2: Summary of licensing and approvals required.....	95
Table 4-3: Other requirements.....	96
Table 5-1: EP&A Regulation publication requirement	99
Table 6-1: Definitions	100

Figures

Figure 2-1: Proposed work and program of intersection upgrades	3
Figure 2-2: The proposal –Golden Highway and Spring Ridge Road intersection (I-015), Cobbora.....	7
Figure 2-3: The proposal -Golden Highway and Saxa Road intersection (I-017), Elong Elong..	8
Figure 2-4: The proposal -Castlereagh Highway and Barneys Reef Road intersection (I-041), Dunedoo (Figure 1 of 2)	9
Figure 2-5: The proposal -Castlereagh Highway and Barneys Reef Road intersection (I-041), Dunedoo (Figure 2 of 2)	10
Figure 2-6: The proposal -Golden Highway and Bolaro Street intersection (H-023), Dunedoo (Figure 1 of 2)	11
Figure 2-7: The proposal –Golden Highway and Bolaro Street intersection (H-023), Dunedoo (Figure 2 of 2).....	12
Figure 2-8: Encroachment of Crown land -Golden Highway and Spring Ridge Road intersection (I-015).....	16

Figure 2-9: Encroachment of Crown land – Castlereagh Highway and Barneys Reef Road intersection (I-041)	17
Figure 3-1: Saline soils within and in proximity to the proposal - Golden Highway and Spring Ridge Road intersection (I-015) and Golden Highway and Saxa Road intersection (I-017)	33
Figure 3-2: Saline soils within and in proximity to the proposal – Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023)	34
Figure 3-3: Water bodies in the vicinity of the proposal – Golden Highway and Spring Ridge Road intersection (I-015)	39
Figure 3-4: Water bodies in the vicinity of the proposal – Golden Highway and Saxa Road intersection (I-017)	40
Figure 3-5: Water bodies in the vicinity of the proposal – Castlereagh Highway and Barneys Reef Road intersection (I-041)	41
Figure 3-6: Water bodies in the vicinity of the proposal – Golden Highway and Bolaro Street intersection (H-023)	42
Figure 3-7: Noise sensitive receivers in proximity to the Golden Highway and Spring Ridge Road intersection (I-015)	45
Figure 3-8: Noise sensitive receivers in proximity to the Golden Highway and Saxa Road intersection (I-017)	46
Figure 3-9: Noise sensitive receivers in proximity to the Castlereagh Highway and Barneys Reef Road intersection (I-041)	47
Figure 3-10: Noise sensitive receivers in proximity to the Golden Highway and Bolaro Street intersection (H-023)	48
Figure 3-11: Noise impact distances during the day-time period (with line of sight) – Golden Highway and Bolaro Street intersection (H-023)	52
Figure 3-12: Non-Aboriginal heritage items within the vicinity of the Golden Highway and Bolaro Street intersection (H-023)	62
Figure 3-13: Non-Aboriginal heritage item within the vicinity of the Castlereagh Highway and Barneys Reef Road intersection	63
Figure 3-14: Local heritage sign within the vicinity of Castlereagh Highway and Barneys Reef Road intersection (I-041)	64
Figure 3-15: PCTs of proposed tree removal and or pruning - Golden Highway and Saxa Road intersection (I-017)	67
Figure 3-16: Tree pruning and/or removal required on Golden Highway	68
Figure 3-17: Proposed tree removal and PCTs – Castlereagh Highway and Barneys Reef Road intersection (I-041)	70
Figure 3-18: Tree removal required on the western side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection (southern end) to accommodate road widening (Google Earth, 2023)	71
Figure 3-19: Tree removal required on the western side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection to accommodate road widening (further north of Figure 3-18) (Google Earth, 2023)	71
Figure 3-20: Tree removal required on western side of Castlereagh Highway, further south of the Castlereagh Highway and Barneys Reef Road intersection to accommodate road widening (further north of Figure 3-19) (Google Earth, 2023)	72
Figure 3-21: Tree removal required on the eastern side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection (southern end) for culvert replacement (Google Earth, 2023)	72

Figure 3-22: Tree removal required on the eastern side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection for culvert replacement (north of Figure 3-21) (Google Earth, 2023)	73
Figure 3-23: Tree removal potentially required on the eastern side of Castlereagh Highway, north of the Castlereagh Highway and Barneys Reef Road intersection for culvert replacement (Google Earth, 2023).....	73
Figure 3-24: Proposed removal of derived native grassland PCT -Golden Highway and Spring Ridge Road intersection (I-015)	75
Figure 3-25: PCTs – Golden Highway and Bolaro Street intersection (H-023)	77

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* (NSW) (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 Strategic background

The NSW Government is leading the development of Renewable Energy Zones (REZ) to deliver renewable energy generation and storage, supported by high voltage transmission infrastructure across NSW. REZs will play a vital role in delivering clean, affordable and reliable electricity for homes, businesses and industry in NSW to help replace the State's existing coal power stations as they come to their scheduled end of operational life.

REZs will group new renewable energy generation infrastructure into locations where it can be efficiently stored and transmitted across NSW. Five regions have been identified for the development of REZs; the Central-West Orana, South-West, New England, Hunter-Central Coast and Illawarra regions of NSW. With some of the best renewable energy resources in the world, NSW is in a unique position to benefit from emerging low-cost technologies like wind, solar, batteries and pumped hydro.

The Central West Orana Renewable Energy Zone (CWO REZ) will unlock at least three gigawatts (GW) of new network capacity by the mid-2020s and the NSW Government is proposing to increase the intended network capacity to six gigawatts. Construction of the transmission infrastructure and generation projects in the CWO REZ will require delivery of large and heavy components, most notably wind turbine components, high-voltage transformers, and synchronous condensers.

The proposed generators will use common routes to transport over-sized and/or over-mass (OSOM) components from the Port of Newcastle to the CWO REZ. Accordingly, the NSW Government has requested that Energy Corporation (EnergyCo) identify and carry out required upgrades to a number of intersections along the State Road Network to facilitate the transportation of OSOM components (Figure 2-1) to the REZ.

The proposed modifications to these intersections will be assessed and delivered as separate packages generally divided by local government area where practicable. This Minor Works Review of Environmental Factors (MWREF) is the fifth package (Package 5) to be delivered and would assess four intersections requiring modifications in the Dubbo Regional and Warrumbungle Shire local government areas (LGA).

The proposal assessed in this report is for the modification of intersections only. The operation of the necessary OSOM vehicle movements will be assessed as part of the planning approval for individual generation project.

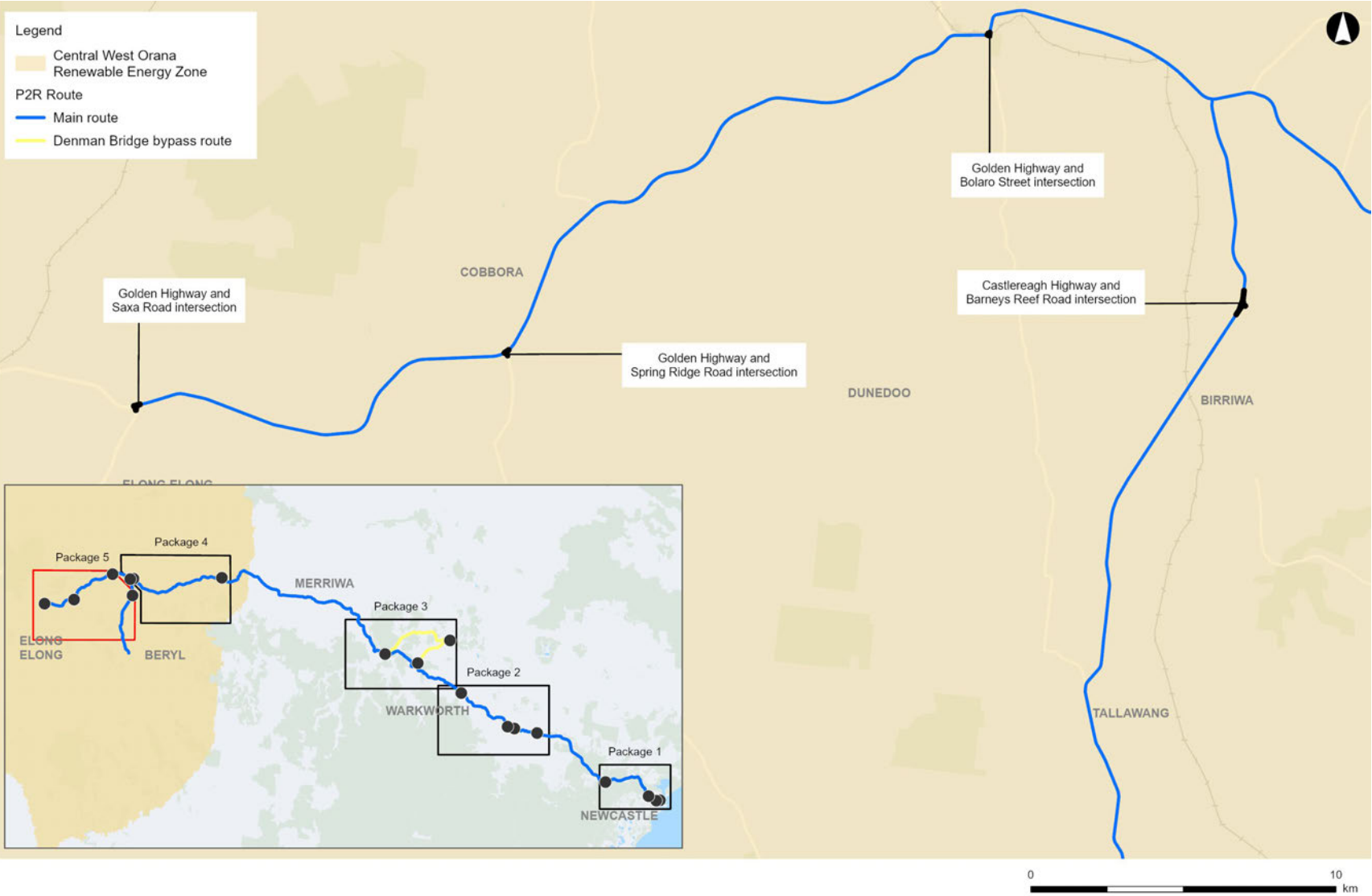


Figure 2-1: Proposed work and program of intersection upgrades

Minor woks review of environmental factors

2.2 Description

2.2.1 Proposal location

Table 2-1: Proposal location details

Location details	
Title	Central West Orana Renewable Energy Zone – Port to REZ Road Upgrade Program. Minor Works Review of Environmental Factors – Package 5
Road name and number	Golden Highway (road number 27), Castlereagh Highway (road number 18) Spring Ridge Road (road number 618), Saxa Road (road number 353), Barneys Reef Road, Bolaro Street
Closest crossroad(s)	Golden Highway, Castlereagh Highway, Spring Ridge Road, Saxa Road, Barneys Reef Road, Bolaro Street
Local government area	Dubbo Regional Local Government Area, Warrumbungle Shire Local Government Area
Transport for NSW region	West

2.2.2 Proposal description

Transport for NSW (Transport), on behalf of EnergyCo, proposes to carry out minor modifications to four intersections in the Dubbo Regional and Warrumbungle Shire LGAs. The existing intersections at these locations cannot currently cater for the size and length of OSOM components proposed to be transport along these routes. The modifications of these existing intersections are necessary to facilitate the transportation of OSOM components consisting of trailers carrying wind turbine blades and transformers from the Port of Newcastle to the CWO REZ. The proposed intersection upgrades will also provide efficiencies for future traffic to access renewable energy project locations. Whilst upgrades are of a minor nature, refinements to minimise impacts further will be considered during detailed design.

Key features of the proposal are described below and shown in Figure 2-2 (Golden Highway and Spring Ridge Road intersection), Figure 2-3 (Golden Highway and Saxa Road intersection), Figure 2-4 and Figure 2-5 (Castlereagh Highway and Barneys Reef Road intersection), and Figure 2-6 and Figure 2-7 (Golden Highway and Bolaro Street intersection).

Golden Highway and Spring Ridge Road intersection, Cobbora (I-015)

- provision of hardstand on the south east corner of the Golden Highway and Spring Ridge Road intersection to accommodate the swept paths of the design vehicles
- provision of hardstand along the western verge of Spring Ridge Road to accommodate the swept paths of the design vehicles
- removal of 'Give way sign' on the eastern verge of Spring Ridge Road to accommodate the swept paths of the design vehicles
- relocation of 'Give way' sign from the western verge of Spring Ridge Road to the south west corner of the Golden Highway and Spring Ridge Road intersection to meet compliance with Australian standards
- relocation of two 'Intersection warning' signs further back from Spring Ridge Road to provide about 8.2 metres of width between the signs on either side of the road.

Golden Highway and Saxa Road intersection, Elong Elong (I-017)

- provision of hardstand on the south east corner of the Golden Highway and Saxa Road intersection to accommodate the swept paths of the design vehicles

- provision of hardstand on the western verge of Saxa Road to accommodate the swept paths of the design vehicles
- realignment of an existing open drain on the south east corner of the Golden Highway and Saxa Road intersection
- extension of an existing culvert by about 2.4 metres including headwall replacement located on Saxa Road
- removal and/or pruning of several trees on the northern side of Golden Highway and about 965 square metres of native grassland mapped as Western Grey Box – cypress pine shrub grass shrub tall woodland (PCT 81)
- relocation of 'Give way' sign on the south west corner of the Golden Highway and Saxa Road intersection further north west to meet compliance with Australian standards
- removal of 'Give way' sign on the south east corner of the Golden Highway and Saxa Road intersection. This 'Give way sign' is not required based on Australian standards.

Castlereagh Highway and Barneys Reef Road intersection, Dunedoo (I-041)

- construction of road widening to provide a new channelised auxiliary right turn lane about 221 metres in length from Castlereagh Highway northbound onto Barneys Reef Road to accommodate the additional traffic induced by the construction and operation of wind and solar farms within the vicinity
- construction of road widening to provide a new auxiliary left turn slip lane about 185 metres in length from Castlereagh Highway southbound onto Barneys Reef Road to accommodate the additional traffic induced by the construction and operation of the wind and solar farms within the vicinity
- provision of steel rail safety barriers along both sides of Castlereagh Highway within the vicinity of the Castlereagh Highway and Barneys Reef Road intersection
- replacement of three existing culverts with three new culverts and associated headwalls under Castlereagh Highway and provision of scour protection. The culverts would be placed in different locations and deeper than the existing culverts, requiring subsequent regrading and deepening of existing informal drainage channels along both the eastern and western sides of Castlereagh Highway to accommodate headwall levels lower than the existing culverts
- removal of nine trees and about 0.35 hectares of Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (PCT 81) located on the eastern and western sides of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection, to accommodate the drainage infrastructure
- reinstatement of guide posts and orange markers along the new edge of pavement on Castlereagh Highway
- relocation of the existing T-junction hazard and wayfinding sign assembly with the road name board 'Castlereagh Highway', intersection direction 'Gulgong 36km, Dunedoo 16km', hazard marker and 'Barneys Reef Road' sign to the Castlereagh Highway northbound verge
- relocation of an advance road name/warning sign to the Castlereagh Highway northbound verge at the start of the proposed channelised right turn lane
- relocation of an advance road name/warning sign to the Castlereagh Highway southbound verge at the start of the proposed auxiliary left turn slip lane
- relocation of a 'Give way' sign to the south east corner of the Castlereagh Highway and Barneys Reef Road intersection
- provision of an intersection warning and advanced 500 metre warning sign to Barneys Reef Road on approach to the intersection with Castlereagh Highway.

Golden Highway and Bolaro Street intersection, Dunedoo (H-023)

- provision of hardstand on the eastern side of the Golden Highway and Wargundy Street intersection to accommodate the swept paths of the design vehicles

- provision of hardstand on the north west and south west corners of the Golden Highway and service road intersection to accommodate the swept paths of the design vehicles
- provision for the removal and set back of a barrier protecting rail signals on Golden Highway south west of the rail crossing
- provision of a footpath from the proposed hardstand to the rail track, along the eastern side of the Golden Highway and Bolaro Street intersection
- provision for existing kerbing on the eastern road verge of the Golden Highway and Bolaro Street intersection to be removed and made mountable
- provision for the removal of a section of the existing median on Wargundy Street to improve safety for pedestrians
- provision for the relocation of an existing light pole back from the road verge on the north west corner of the Golden Highway and service road intersection to accommodate the swept paths of the design vehicles
- provision for two 'Keep left' signs located on the median of Wargundy Street to be made removable to accommodate the blade swing and swept paths of design vehicles using Wargundy Street as an alternative route
- provision for the installation of a 'Give way' sign at the south west corner of the Golden Highway and Bolaro Street intersection to improve traffic safety
- provision for the relocation of a directional sign, a 'rail warning' sign and 'tourism sign' back from the road verge on the northern side of Bolaro Street
- provision for the relocation of an intersection direction sign from the road verge on the eastern side of Bolaro Street
- provision for the relocation of a 'Rest area' sign back from the road verge on the eastern side of Bolaro Street
- provision for the installation of two 'No parking' signs on the southern side of Bolaro Street.

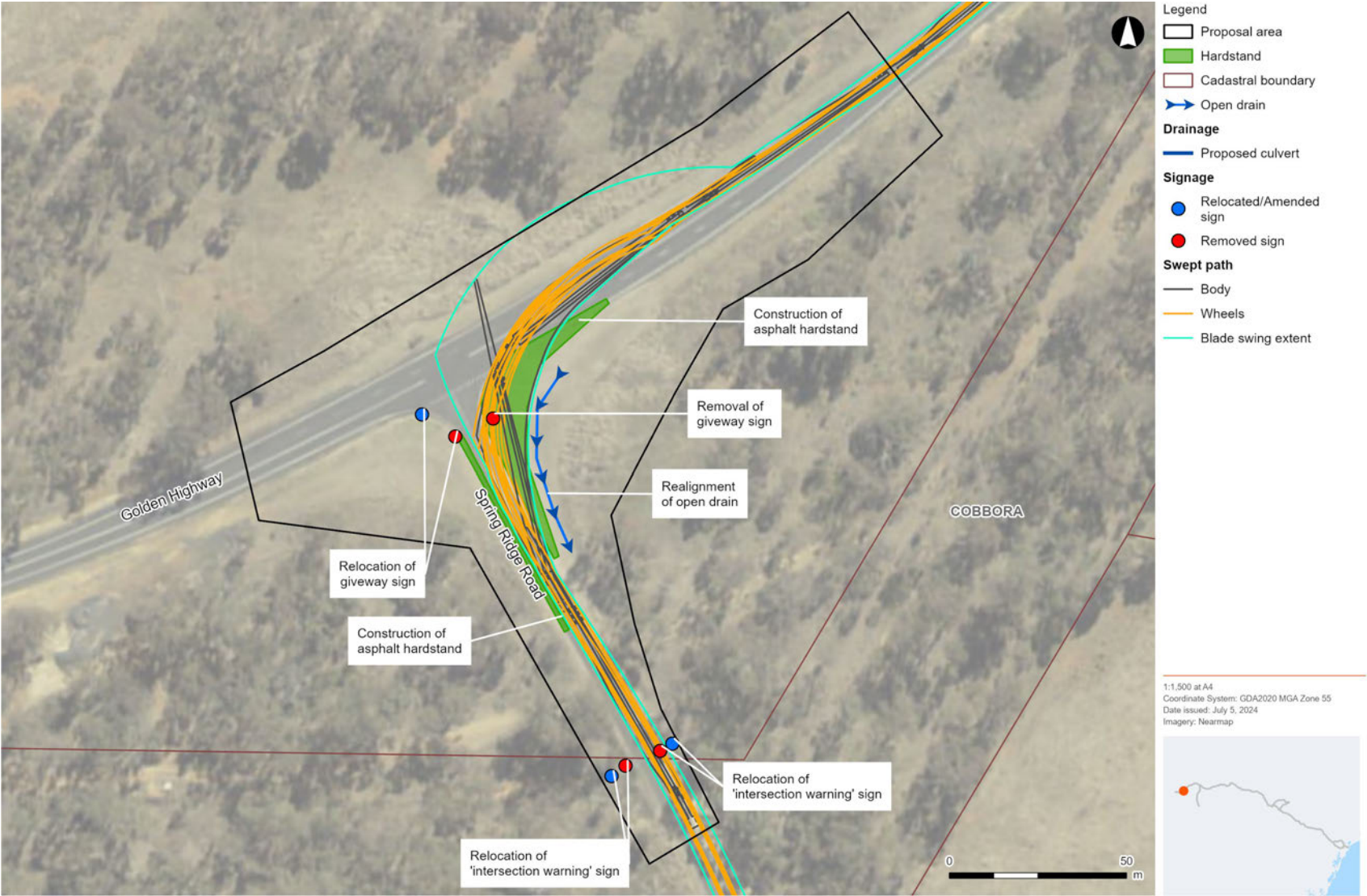


Figure 2-2: The proposal – Golden Highway and Spring Ridge Road intersection (I-015), Cobbora

Minor works review of environmental factors

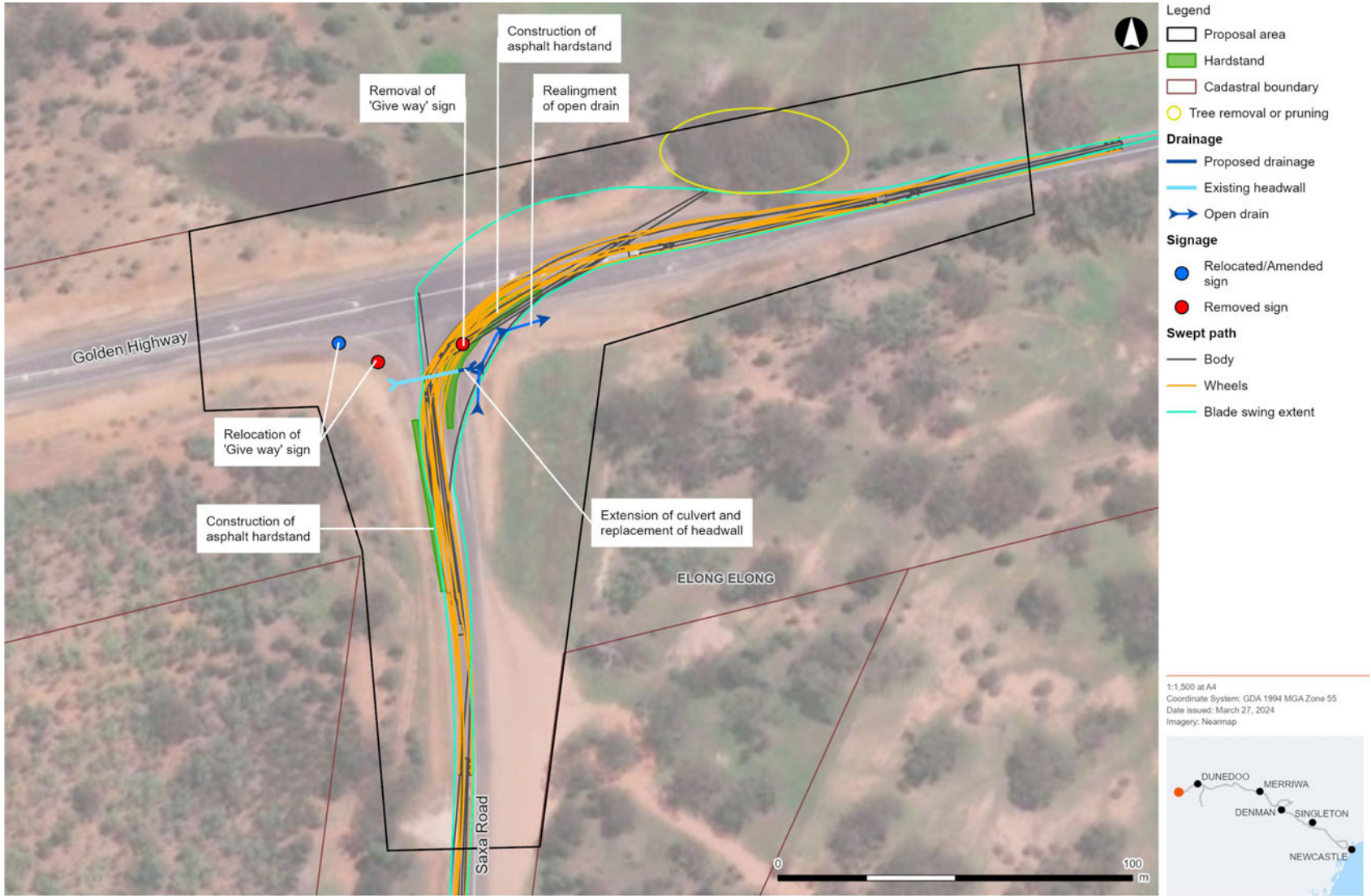


Figure 2-3: The proposal - Golden Highway and Saxa Road intersection (I-017), Elong Elong

Minor works review of environmental factors

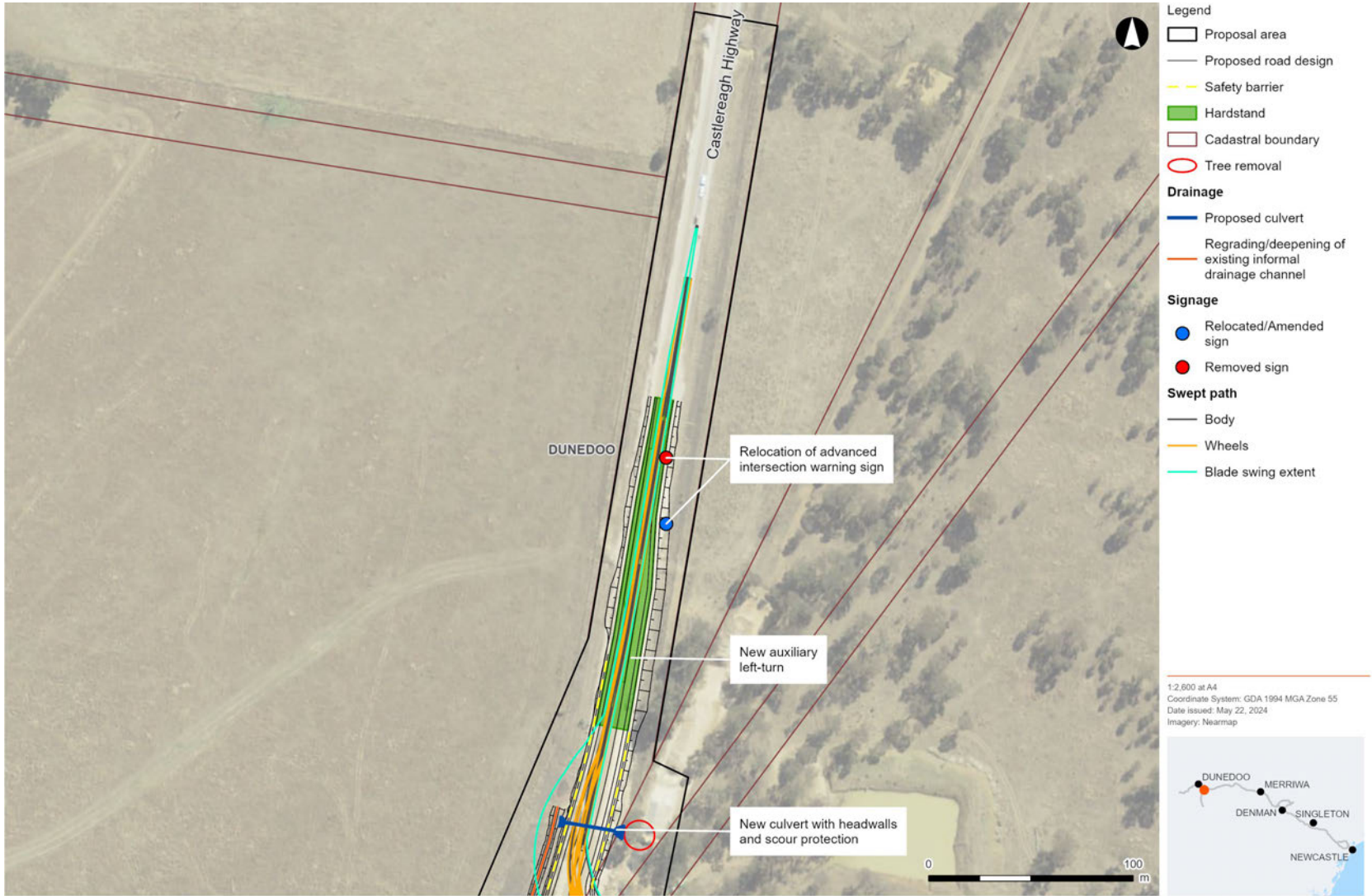


Figure 2-4: The proposal - Castlereagh Highway and Barneys Reef Road intersection (I-041), Dunedoo (Figure 1 of 2)

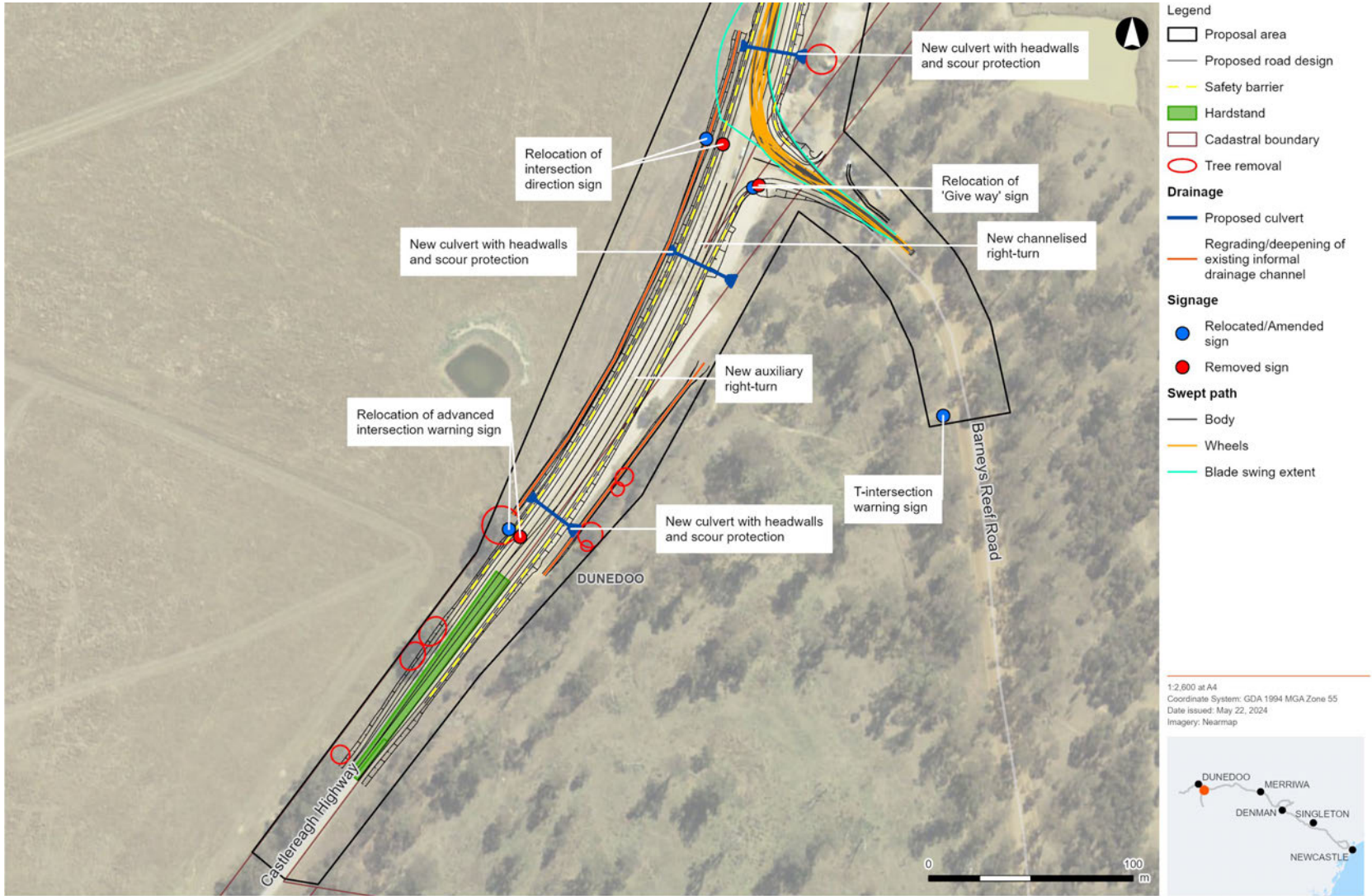


Figure 2-5: The proposal - Castlereagh Highway and Barneys Reef Road intersection (I-041), Dunedoo (Figure 2 of 2)

Minor works review of environmental factors

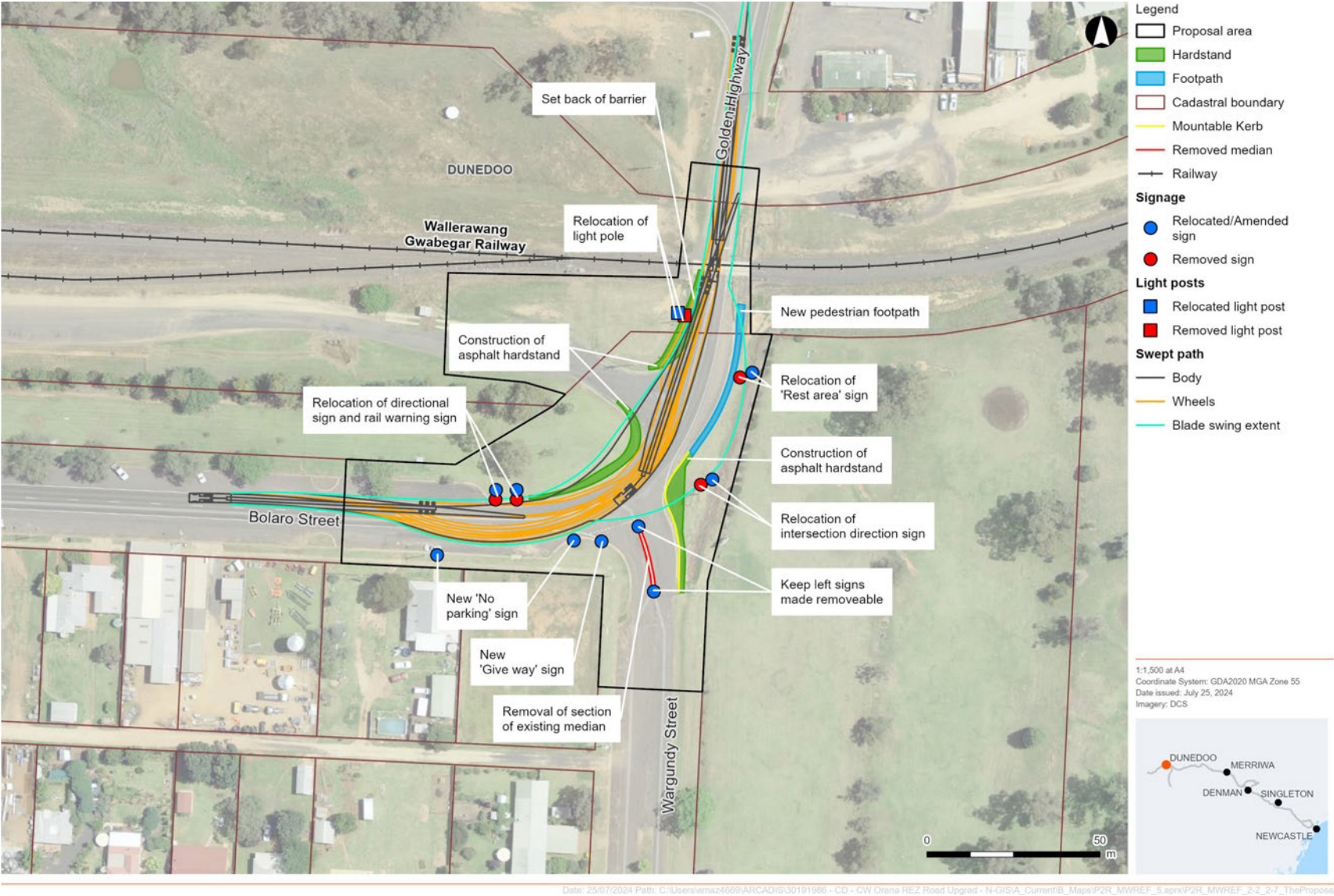


Figure 2-6: The proposal - Golden Highway and Bolaro Street intersection (H-023), Dunedoo (Figure 1 of 2)

Minor works review of environmental factors

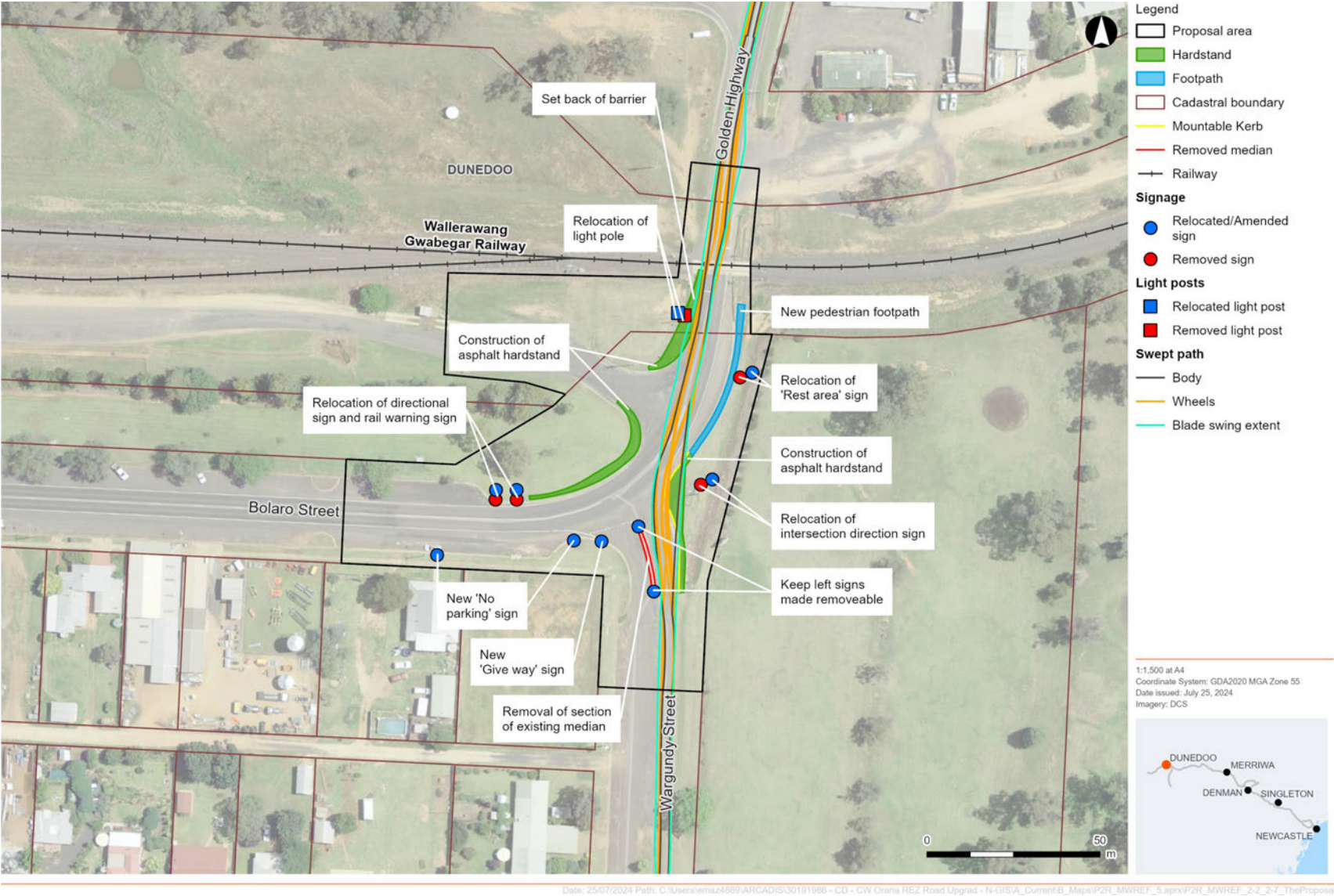


Figure 2-7: The proposal – Golden Highway and Bolaro Street intersection (H-023), Dunedoo (Figure 2 of 2)

Minor works review of environmental factors

Utility adjustments

Several services are in the vicinity of the proposed works and are detailed in Table 2-2.

Utility investigations confirmed that one of the identified existing services require relocation and is shown on Figure 2-6 and Figure 2-7. Utility relocations would meet service provider specifications and be certified as required.

Table 2-2: Utility adjustments

Location	Owner	Asset	Proposed treatment
Golden Highway and Spring Ridge Road intersection (I-015)	Telstra	Communications direct buried underground	No impact
Golden Highway and Saxa Road intersection (I-017)	Telstra	Communications direct buried underground	No impact
Castlereagh Highway and Barneys Reef Road intersection (I-041)	Telstra	Communications direct buried underground	No impact
Golden Highway and Bolaro Street intersection (H-023)	Essential Energy	Overhead distribution	No impact
	Essential Energy	Overhead distribution	No impact
	Essential Energy	Overhead distribution	No impact
	Essential Energy	Street light and circuit	Existing light pole located within hardstand and to be relocated to back of new kerb line
	Telstra	Underground communications	No impact
	Telstra	Communications	No impact
	Singleton Council	Water	No impact

Construction staging and methodology

An indicative construction staging and indicative scope is provided in Table 2-3 with staging to be confirmed during detailed construction planning with the contractor.

Table 2-3: Indicative construction staging and scope

Construction stage	Scope
Enabling works	- traffic redirection, control and management during works, if required - establish environmental controls including exclusion zones, tree protection measures and erosion and sediment controls - designation of parking, storage and laydown areas - utilities protection or adjustments (where required).
Intersection works	- relocation of existing signage and installation of removable signage - saw cutting and removal of sections of existing pavement and - installation and extension of cross drainage lines (where required)

Construction stage	Scope
	- earthworks for pavement widening / hardstand areas, kerbing, pedestrian pavement, and safety rail (where required) - earthworks for road widening at the Castlereagh Highway and Barneys Reef road intersection (I-041) - earthworks and installation of realigned open drains (where required) - placement of asphalt, installation of kerbing, pedestrian pavement and safety rail (where required) - line marking and installation of permanent traffic management features (where required) - tree removal and pruning at Golden Highway and Saxa Road intersection (I-017) and Castlereagh Highway and Barneys Reef Road intersection (I-041).
Finishing works	- remove temporary construction structures, equipment and stockpiles - site cleanup including removal of environmental controls and waste materials - remove any temporary construction traffic control and management restrictions.

Construction traffic access and management

Construction vehicles would access the proposal areas, including the Golden Highway and Spring Ridge Road intersection (I-015), Golden Highway and Saxa Road intersection (I-017), Castlereagh Highway and Barneys Reef Road intersection (I-041), and Golden Highway and Bolaro Street intersection (H-023) via the highway and main roads.

Construction work at the Castlereagh Highway and Barneys Reef Road intersection (I-041) will require altered traffic arrangements that would be confirmed by the construction contractor during detailed design. The likely scenario would involve a contraflow arrangement whereby traffic travelling in both directions alternate use of one lane of the road under traffic control while construction activities are carried out. The alternative arrangement would retain two-way traffic flow but with narrowed lanes, resulting in a potentially longer construction program that would also require nightworks. A hybrid arrangement utilising aspects of both arrangements may also be implemented at different stages of construction, however, any altered traffic conditions would be temporary and not expected for the duration of works. The potential impacts of both arrangements have been considered in this assessment.

Parking and temporary storage of plant and materials to facilitate the upgrade works would occur within the road corridor in the vicinity of each intersection (refer to Section 2.2.4).

Further detail and an assessment of traffic and transport impacts are provided in Section 3.7 (Traffic and transport).

Construction equipment

A range of plant and equipment would be used during construction. The final equipment and plant requirements would be determined by the construction contractor. An indicative list of plant and equipment is provided below:

- hand tools
- excavators
- concrete vibrator
- road trucks
- vacuum truck
- dump truck
- concrete truck
- jackhammer
- pneumatic hammer
- concrete saw
- backhoe
- plate compactor
- light vehicles
- asphalt paver
- kerb machine
- power generator
- truck compressor
- vibratory roller
- pavement laying machine
- asphalt truck and sprayer
- smooth drum roller

Construction hours

Construction work for the proposal would be prioritised during standard construction hours as follows:

- Monday to Friday: 7:00 am to 6:00 pm
- Saturday: 8:00 am to 1:00 pm
- Sunday and public holidays: No work.

Any work with impulsive or tonal noise emissions, as well as any work required outside of standard construction hours, will be carried out in accordance with the Construction Noise and Vibration Guideline (Roads) (Transport for NSW, 2023) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009).

The community would be kept informed of proposed upcoming work and contact information. Any impacted residents or businesses would be consulted regarding the proposed construction hours at least five working days prior to commencement of work.

Property adjustments

No impact to private properties is expected. However, the existing Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) encroach on land owned by NSW Department of Planning and Environment (Crown land). This is shown on Figure 2-8 and Figure 2-9. However, this appears to reflect an administrative error that was not amended when the roads were gazetted as classified roads in accordance with the *Roads Act 1993* (NSW).

Part 5 of the *Roads Act 1993* (NSW) grants the Minister powers to declare any public road, highways and or freeways a main road where Transport for NSW becomes the roads authority. As roads authority, Transport for NSW has powers under Part 6 of the *Roads Act 1993* (NSW) to make decisions in relation to road works. Such declarations by the Minister bind the Crown as stipulated by Section 262 of the *Roads Act 1993* (NSW).

In relation to the proposal, the Golden Highway and Spring Ridge Road intersection (I-015) forms part of classified State Road #27, as per most recent gazette GG134 22/11/96, and the Castlereagh Highway and Barneys Reef Road intersection (I-041) forms part of classified State Road #18, as per most recent gazette GG107 3/10/97.

The proposed works within Crown Land requires clearing and trimming of vegetation for the upgrade of existing drainage infrastructure supporting the road pavement and hardstand placement located outside of Crown Land. No further widening of road corridor within Crown Land is proposed. As defined in the *Roads Act 1993* (NSW), a road includes its surface (including air and soil below) and structures that forms part of the road. Such structures would reasonably include existing furniture, verge, batters and drainage.

As Transport for NSW has the exclusive function to approve the proposed works on State Highways and determine the works under Division 5.1 of the EP&A Act, approval from Crown Lands is not required. However, the need to amend the cadastral boundaries along these corridors may be discussed at a later date and as such, safeguard G1 in Table 4-1 recommends that Transport for NSW and Crown land to consider and amend the cadastral boundaries at these locations, as necessary in accordance with relevant statutory provisions.



Figure 2-8: Encroachment of Crown land -Golden Highway and Spring Ridge Road intersection (I-015)



Figure 2-9: Encroachment of Crown land – Castlereagh Highway and Barneys Reef Road intersection (I-041)

2.2.3 Proposal objectives and design criteria

The objective of the proposal is to facilitate the safe delivery of OSOM components for individual generation projects from the Port of Newcastle to the Central West Orana Renewable Energy Zone.

The design criteria for the proposal include:

- minimise constructability impacts including utilities and services
- minimise property acquisition
- minimise environmental and social impacts.

2.2.4 Ancillary facilities

Table 2-4: Ancillary facilities

Ancillary facilities		
Will the proposal require the use or installation of a compound site? Given the minor works proposed, installation of a compound site would not be required for the proposal. Equipment laydown, workforce parking and small-scale worker amenities would be located adjacent to the proposed intersection works within the road reserve or in areas of cleared land. Potential locations of these laydown areas include: • Golden Highway and Spring Ridge Road intersection (I-015): grassed area on the southwestern and corner of the intersection • Golden Highway and Saxa Road intersection (I-017): grassed area on the southwestern corner of the intersection • Castlereagh Highway and Barneys Reef Road intersection (I-041): grassed area on the eastern side of Castlereagh Highway • Golden Highway and Bolaro Street intersection (H-023): grassed area surrounded by the rail line, Sullivan Street and the service road. The areas above are indicative only and would be confirmed by the construction contractor. All potential laydown areas would be required to meet the criteria outlined in response to last query in this table below.	Yes ☐	No ☒
Will the proposal require the use or installation of a stockpile site? Any stockpiling required for the proposal would be carried out at nominated laydown areas above or on the road verge adjacent to the proposed works. Given the nature of the proposed works, any stockpiles will be relatively small and short-lived.	Yes ☒	No ☐
Are any other ancillary facilities required (e.g. temporary plants, parking areas, access tracks)? Where possible, equipment laydown and workforce parking would be located within road reserve areas adjacent to each of the proposed intersection works. Construction compound and stockpile areas would be confirmed by the Construction Contractor prior to construction, but would be required to demonstrate compliance with the following criteria: • located in the road corridor • no vegetation removal • obvious previous disturbance • no ground disturbance required • 50 metres from a permanent watercourse • within existing PACHCI clearance letter footprint (about 50 metres from the proposal area) • away from sensitive receivers. Compliance with these criteria must be demonstrated in accordance with Safeguard G2 in Table 4-1, otherwise further assessment may be required.	Yes ☒	No ☐

2.2.5 Proposed date of commencement

Subject to funding approval, construction is expected to commence in quarter 3 of 2024.

2.2.6 Estimated length of construction period

Construction at each intersection, weather permitting, is expected to take about:

- Golden Highway and Spring Ridge Road intersection (I-015) – two months
- Golden Highway and Saxa Road intersection (I-017) – two months
- Castlereagh Highway and Barneys Reef Road intersection (I-041) – 14 months
- Golden Highway and Bolaro Street intersection (H-023) – five months.

2.3 Need and options

2.3.1 Strategic need

The existing intersections along the state road network between Port of Newcastle to the CWO REZ have space constraints on the safe manoeuvring of the OSOM vehicles including potential conflict with signage and roadside vegetation:

- Golden Highway and Spring Ridge Road intersection (I-015) – limited space on the southeastern corner of the intersection to accommodate the swept paths of OSOM vehicles. Existing signage at the intersection are within the turn paths of OSOM vehicles.
- Golden Highway and Saxa Road intersection (I-017) – limited space on the southeastern corner of the intersection to accommodate the swept paths of OSOM vehicles. Existing drainage infrastructure, signage and trees are within the turn paths of OSOM vehicles.
- Castlereagh Highway and Barneys Reef Road intersection (I-041) – increased traffic expected to occur as a result of vehicle access to the Birrawa Solar and Battery Farm, the Tallawang Solar Farm, Barneys Reef Wind Farm and Bellambi Heights Solar Farm within the vicinity. Existing road configuration on Castlereagh Highway within the vicinity of the intersection includes one northbound and one southbound lane. Limited space is also available on the Castlereagh Highway to accommodate the movement of OSOM vehicles through this intersection.
- Golden Highway and Bolaro Street intersection (H-023) – limited space on the eastern side of the intersection to accommodate the swept paths of OSOM vehicles. Existing kerbing and signage are within the turn paths of OSOM vehicles.

The proposal would provide additional hardstand, mountable kerb, safety barriers, pedestrian access upgrades, relocate signage and utilities, remove and prune trees to facilitate the safe delivery of OSOM components from the Port of Newcastle to the CWO REZ. The proposal would align with the objectives of the following local strategic plans:

- Towards 2040 Community Strategic Plan (Dubbo Regional Council, 2023)
- Community Strategic Plan 2022/2037 (Warrumbungle Shire Council, 2022).

Towards 2040 Community Strategic Plan

The Towards 2040 Community Strategic Plan (Dubbo Regional Council, 2023) identifies the main aspirations and priorities for the region through to 2040. One key objective identified under 'Theme 2 – Infrastructure' is to ensure the road transportation network is safe, convenient, and efficient (Objective 2.1). Under 'Theme 6 – Environmental Sustainability', the Plan identifies that *"We recognise, plan for, and respond to impacts of climate change"* (Objective 6.1).

The proposal supports Objective 2.1 and Objective 6.1 of the Towards 2040 Community Strategic Plan (Dubbo Regional Council, 2023) by upgrading intersections within the local government area to support OSOM movements for future renewable energy generation projects along the state road network from the Port of Newcastle to the CWO REZ. The proposal is required from a safety perspective as the existing intersections identified along the state road network have been identified as having space constraints for the delivery of OSOM components. The proposal would provide sufficient space for OSOM vehicles to manoeuvre through the identified intersections, ensuring that the OSOM components are delivered safely from the Port of Newcastle

to the CWO REZ. Minor, negative impacts to the community are anticipated as a result of the proposed works, though the impact would be positive in the long-term from a safety standpoint.

Community Strategic Plan 2022/2037

The Community Strategic Plan 2022/2037 (Warrumbungle Shire Council, 2022) outlines the key objectives that guide the community strategic planning processes and service delivery in the Warrumbungle Shire. One key goal identified is to provide a strong and sustainable economy for the community with localised employment opportunities and ease of access to markets, goods and services. One objective under this goal is to identify and develop opportunities to realise the local government area's potential as a location for the production of renewable energies (Objective LE3.1).

The proposal supports Objective LE3.1 of the Community Strategy Plan 2022/2037 (Warrumbungle Shire Council, 2022) by upgrading key intersections within the local government area to support OSOM movements for future renewable generation projects along the state road network from the Port of Newcastle to the CWO REZ. The proposal would provide sufficient space for OSOM vehicles to manoeuvre through the identified intersections, ensuring that the OSOM components are delivered safely from the Port of Newcastle to the CWO REZ.

2.3.2 Assessment background

A Traffic Impact Study and route assessment was carried out by AECOM (2023), on behalf of EnergyCo, to determine the preferred route to transport components to the wind farm development sites. The report concluded that the most efficient and minimal environmental impact route for the transportation of components from Port of Newcastle to CWO REZ would be via the State Highway network, specifically the route shown in Figure 2-1. The study also identified intersections likely to require modification works and provided recommendations for further design development.

The four intersections assessed in this report (Package 5) were identified as requiring modification works.

2.3.3 Options considered

Options considered, and the advantages and disadvantages associated with each, are identified below and summarised in Table 2-5.

- **Option 1 'Do nothing':** Undertake no modifications at intersections between the Port of Newcastle and CWO REZ.
- **Option 2 'The proposal':** Undertake program of intersection upgrades as outlined in Section 2.2.2.

Table 2-5: Analysis of options

Objectives	Option 1 'Do nothing'	Option 2 'The proposal'
To facilitate safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ	Option 1 would involve not undertaking any modifications to the intersections along the proposed transport route between the Port of Newcastle and the CWO REZ. By not undertaking intersection modifications, transport of components required for the development of renewable projects would be delayed or cancelled. This option would not facilitate the safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ. Does not meet objective.	Option 2 would provide additional space for OSOM vehicles to manoeuvre through the three intersections while minimising disruption to the general traffic network and broader community. Upgrading of intersections along the existing State Highway network is the most efficient and cost-effective way to meet timeframes for transportation of components for renewable energy projects in CWO. This option meets the objective to facilitate safe delivery of OSOM components from the Port of Newcastle to the CWO REZ. Meets objective.

2.3.4 Design refinements

Consideration was given to minimising impacts to property, existing infrastructure (including road, bridges, rail), utilities, and native vegetation.

Design refinements were able to reduce the following impacts from initial concept design:

- Golden Highway and Spring Ridge Road intersection (I-015) – reduction in swept path footprint, removal of hardstand required along northern verge of Golden Highway
- Golden Highway and Saxa Road intersection (I-017) – provision of additional hardstand to allow for additional room for vehicle movements, allowing the blade movement to avoid trees located on Golden Highway
- Castlereagh Highway and Barneys Reef Road intersection (I-041) – provision of barriers along Castlereagh Highway to improve safety
- Golden Highway and Bolaro Street intersection (H-023) – reduction in swept path footprint, removal of two hardstand south west of the level crossing.

2.3.5 Preferred option

Option 2 is the preferred option as it meets the proposal objective while Option 1 does not.

The preferred option has also been considered against the design criteria listed in Section 2.2.3. This is provided in Table 2-6.

Table 2-6: Assessment against design criteria

Design criteria	Option 2 'The proposal'
Constructability including impacts to utilities and services	There is potential for the proposal to impact existing water mains at the Castlereagh Highway and Barneys Reef Road intersection (I-041), however, any impact would be temporary in nature and reinstated during construction. There are no other impacts anticipated for the proposal. Meets criteria.
Minimise land use and community impacts	The proposal would be carried out within the road reserve for Golden Highway and Saxa Road intersection (I-017) and Golden Highway and Bolaro Street intersection (H-023). While no private property acquisition is required, the proposal would encroach upon land which is mapped as Crown land for works carried out at the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041). Access to properties within the vicinity would be maintained throughout construction. Meets criteria.
Minimise property acquisition	No private property acquisition is proposed. However, the proposal would encroach upon land which is mapped as Crown land for works carried out at the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041). As outlined in Section 2.2.2, the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) are declared as State Highways, and safeguard G1 in Table 4 1 recommends that Transport for NSW and Crown Land to consider amending the cadastral boundary at these two locations. Meets criteria.

Minimise environmental and social impacts.	Environmental impacts are expected from the proposal, such as traffic, noise, air quality, tree removal and trimming, and erosion and runoff. With the implementation of safeguards listed in Table 4 1, the environmental impacts would be minor. The proposal would be carried out primarily within the road reserve. Traffic diversion around construction works would potentially be required, including a contraflow arrangement at the Castlereagh Highway and Barneys Reef Road intersection (I-041), however detours and full lane closures are not proposed. Access to properties within the vicinity would be maintained throughout construction. As noted above, no private property acquisition is proposed. The removal and/or pruning of several trees is proposed at the Golden Highway and Saxa Road intersection (I-017) to allow for the swept path of heavy vehicles manoeuvring around bends. To accommodate the construction of Castlereagh Highway and Barneys Reef Road (I-041), nine trees would be removed for road widening and drainage upgrades. Long term negative social impacts are not anticipated, as the proposal would support the development of renewable energy projects by providing additional space for OSOM vehicles to manoeuvre through the intersections requiring upgrades and carried out both efficiently and safely. Meets criteria.
--	--

2.3.6 Justification for the proposal

The proposal is required to facilitate the transportation of OSOM components from Port of Newcastle to the CWO REZ. The existing intersections along the project route are not designed for the transport of these components, hence the need for the proposed intersection works to support the development of renewable energy generation projects. The proposal would minimise disruption to traffic and the general community by providing sufficient space for the safe passage of these OSOM vehicles through the intersections. In addition, modification of the intersection at the Castlereagh Highway and Barneys Reef Road has also considered increased traffic expected to occur due to this intersection being the main access off the highway network to the Birrawa Solar and Battery Farm, the Tallawang Solar Farm, Barneys Reef Wind Farm and Bellambi Heights Solar Farm.

Design of the proposal has considered minimisation of impacts to existing infrastructure, utilities, property, and native vegetation. Residual impacts can be managed through the implementation of nominated safeguards.

2.4 Statutory and planning framework

2.4.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the state. This includes roads and road infrastructure facilities, and port, wharf or boating facilities.

Section 2.109 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
- State Environmental Planning Policy (Planning Systems) 2021.

2.4.2 Other relevant legislation and environmental planning instruments

As described above, Section 2.109 of the Transport and Infrastructure SEPP permits Transport to carry out development for the purpose of road without consent. As a result, while development for roads would be permissible in the above land zones, consent from Warrumbungle Shire Council is not required for the proposal.

Notwithstanding this, the objectives of the land use zones and the proposal's consistency with these objectives listed in each of the Warrumbungle and Dubbo Local Environmental Plans (LEPs) are described below.

Warrumbungle Local Environmental Plan 2013

The following intersections are located in the Warrumbungle Shire LGA, which is subject to the *Warrumbungle Local Environmental Plan 2013* (Warrumbungle LEP):

- Golden Highway and Spring Ridge Road intersection (I-015)
- Castlereagh Highway and Barneys Reef Road intersection (I-041)
- Golden Highway and Bolaro Street intersection (H-023).

The proposal area is zoned as SP2 infrastructure, RU1 Primary Production, and RE2 Private Recreation under the Warrumbungle LEP. Table 2-7 outlines the zoning applicable to land zoned under Warrumbungle LEP.

Table 2-7: Warrumbungle LEP 2013 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Golden Highway and Spring Ridge Road intersection (I-015) Castlereagh Highway and Barneys Reef Road intersection (I-041) Golden Highway and Bolaro Street intersection (H-023)	• to provide for infrastructure and related uses • to prevent development that is not compatible with or that may detract from the provision of infrastructure.	The proposal proposes to upgrade the Golden Highway and Spring Ridge, Castlereagh Highway and Barneys Reef Road, and Golden Highway and Bolaro Street intersections. This is consistent with the objectives of SP2 Infrastructure.
RU1 Primary Production	Golden Highway and Spring Ridge Road intersection (H-023) Castlereagh Highway and	• 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	The proposal will not impact upon the function of the zoning area and will remain consistent with the objectives of RU1 Primary Production.

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
	Barneys Reef Road intersection (I-041)	to minimise conflict between land uses within this zone and land uses within adjoining zones	
RE2 Private Recreation	Golden Highway and Bolaro Street intersection (H-023)	- to enable land to be used for private open space or recreational purposes - to provide a range of recreational settings and activities and compatible land uses - to protect and enhance the natural environment for recreational purposes.	The zoning is partly located over the road corridor south of the intersection on Wargundy Street, however, it is understood zoning was not amended to reflect the full road corridor at the time it was last gazetted. Notwithstanding this, the proposal is limited to the road corridor and will not impact upon the function of the zoning area. The proposal will not impact upon the function of the zoning area.

Dubbo Regional Local Environmental Plan 2022

The Golden Highway and Saxa Road intersection (I-017) is located in the Dubbo Regional LGA, which is subject to Dubbo Regional LEP 2022 (Dubbo LEP 2022). The proposal area is zoned as SP2 Infrastructure and RU1 Primary Production under the Dubbo LEP 2022. Table 2-8 outlines the zoning applicable to land zoned under the Dubbo LEP 2022.

Table 2-8: Dubbo Regional LEP 2022 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Golden Highway and Saxa Road intersection (I-017)	- to provide for infrastructure and related uses - to prevent development that is not compatible with or that may detract from the provision of infrastructure.	The proposal proposes to upgrade the Golden Highway and Saxa Road intersection. This is consistent with the objectives of SP2 Infrastructure.
RU1 Primary Production	Golden Highway and Saxa Road intersection (I-017)	- to encourage sustainable primary industry production by maintaining and enhancing the natural resource base - to encourage diversity in primary industry enterprises and systems appropriate for the area - to minimise the fragmentation and alienation of resource lands. - to minimise conflict between land uses within this zone and land uses within adjoining zones - to encourage a range of development for the purposes of tourism that supports the agricultural industry.	The proposal will not impact upon the function of the zoning area and will remain consistent with the objectives of RU1 Primary Production.

The application of Warrumbungle LEP 2013 and Dubbo LEP 2022, and other relevant legislation and environmental planning instruments is considered in Table 2-9.

Table 2-9: Review of other legislation and environmental planning instruments

Legislation	Overview	Approval required?
NSW Legislation		
<i>Roads Act 1993</i>	Under this Act, state authorities such as Transport are given the ability to carry out activities such as construction and upgrades on roads in NSW. Section 138 provides that consent from the appropriate roads authority is required for road work and other work within a road corridor. Consent is typically provided in the form of a Road Occupancy Licence obtained by the construction contractor prior to work beginning. This may include temporary closures of roads and regulation of traffic to ensure construction can be completed. As well, this Act permits Transport to acquire land for the purposes of road work, in line with the Land Acquisition (Just Terms Compensation) Act 1991.	Yes A Road Occupancy Licence (ROL) would need to be obtained by the construction contractor before beginning any work that requires road possession and or closures. Transport for NSW is the relevant road authority for works on Golden Highway, Spring Ridge Road, Castlereagh Highway, and Saxa Road, whereas Warrumbungle Shire Council is the authority for all works on Barneys Reef Road and Bolaro Street.
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	Under this Act, activities specified in 'scheduled activities' under Schedule 1 of the POEO Act require an Environment Protection Licence issued by the Environmental Protection Authority (EPA).	No The proposal does not involve a 'scheduled activity' under Schedule 1 of the POEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the Proposal.
<i>National Parks and Wildlife Act 1974 (NPW Act)</i>	This Act provides for the conservation and management of nature and objects, places and features of cultural value. It is the primary legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of the NPW Act provides protection for all Aboriginal objects and Aboriginal places in NSW. Under Section 90 of the Act, where harm to an Aboriginal object or Aboriginal place cannot be avoided, an Aboriginal Heritage Impact Permit is required before the disturbance of Aboriginal objects or places.	No The proposal is unlikely to disturb any objects of Aboriginal cultural heritage significance (refer to Section 3.5 (Aboriginal cultural heritage)). The Transport Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Transport for NSW, 2011) was followed. A Stage 1 PACHCI assessment was carried out for the proposal by a Transport Aboriginal cultural heritage advisor and is provided in Appendix C. The assessment concludes that the proposal is unlikely to have an impact on Aboriginal cultural heritage and may proceed in accordance with the environmental assessment.
<i>Heritage Act 1977 (Heritage Act)</i>	This Act provides for the conservation of buildings, work, relics and places that are of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance to the state. Matters protected under the Heritage Act include items subject to an Interim Heritage Order and items listed on the State Heritage Register, the heritage schedules of local council LEPs, and the heritage and conservation registers established under Section 170 of the Heritage Act by NSW state government agencies (Section 170 Registers). The Heritage Act also provides	No The proposal is unlikely to impact any Non-Aboriginal heritage items (refer to Section 3.5 (Non-Aboriginal heritage)). There is one local heritage item, Dunedoo Courthouse, and one conservation area, Dunedoo Heritage Conservation Area, within the vicinity of the Golden Highway and Bolaro Street intersection (H-023). However, the proposal is not anticipated to impact the conservation area due to the distance from excavation (about 75 metres west

Legislation	Overview	Approval required?
	for the protection of archaeological 'relics', being any deposit, object or material evidence that relates to the non-Aboriginal settlement of NSW and is of State or local heritage significance.	of the Golden Highway and Bolaro Street intersection (H-023)), limited scope of work, and minimal vibration intensive activities. Similarly, the proposal would not impact the heritage-listed item located about 270 metres south west of the intersection.
<i>Crown Lands Management Act 2016 (CLM Act)</i>	This Act provides a provides a streamlined framework from Crown land administration and management in NSW. The objectives of the Crown Land Management Act include: • providing for the ownership, use and management of the Crown land • requirements that environmental, social, cultural heritage and economic considerations be taken into account in decision-making about Crown land facilitating the use of Crown land by the Aboriginal people of NSW • providing for the management of Crown land whilst having regard to the principles of 'Crown land management'.	No The existing Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) are partly located on Crown land (refer to Figure 2-8 and Figure 2-9). As further widening and encroachment on Crown Land is not required, as detailed in Section 2.2, no further approval is required. However, as these roads are currently operating as public roads, the need to amend the cadastral boundaries along these corridors may be discussed at a later date between Transport and the NSW Department of Planning and Environment (Crown land) and in accordance with the requirements of the <i>Crown Land Management Act 2016</i> (NSW).
Environmental planning instruments		
<i>Warrumbungle Local Environmental Plan 2013</i> <i>Dubbo Regional Local Environmental Plan 2022</i>	The relevant land zones and objectives apply to the proposal: • SP2 – Infrastructure • RU1 – Primary Production • RE2 – Private Recreation.	No Road development by public authorities does not require development consent (refer to Section 2.4.1).

2.5 Community engagement and agency consultation

2.5.1 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. The Part 2.2 of the Transport and Infrastructure SEPP requirements and assessment on whether the proposal is required to consult is provided in Table 2-10, Table 2-11 and Table 2-12 below.

Table 2-10: 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? This proposal does not impact existing stormwater management services provided by Warrumbungle Shire Council or Dubbo Regional Council.	Yes ☐	No ☒

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 generate traffic to an extent that will strain the capacity of the existing road system in a local government area? The intersection upgrades proposed are minor in scale and as such, substantial traffic impacts during construction are not anticipated. The proposed works at the Castlereagh Highway and Barneys Reef Road intersection (I-041) would support the expected growth to occur as a result of access to the Birrawa Solar and Battery Farm, the Tallawang Solar Farm, Barneys Reef Wind Farm and Bellambi Heights Solar Farm. The proposal would not generate traffic, but rather support the predicted increase in traffic volumes at this intersection. The traffic capacity of the existing road network would not undergo strain during the operation of the proposal.	Yes ☐	No ☒
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 ☐	No ☒
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? Water usage would be required on site during construction activities such as the construction of hardstand, temporary bathrooms, dust suppression, fill compaction, and spray downs of the proposal areas. Water utilised for construction would be transported to the proposal areas when required. All water required for the proposal including but not limited to dust suppression and fill compaction would be sourced from potable town water.	Yes ☐	No ☒
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? Temporary structures would not be required for the proposal. All construction works would be carried out primarily within the road reserve or existing cleared areas, not within land under local council management or control. Where appropriate, ancillary activities including car parking, equipment laydown and small-scale worker amenities would be located out adjacent to, or within, the road reserve. This is unlikely to cause more than a minor or inconsequential disruption to pedestrian or vehicular flow, or access to existing residences.	Yes ☐	No ☒
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? Transport for NSW is the relevant road authority for works on Golden Highway, Spring Ridge Road, Castlereagh Highway, and Saxa Road, whereas Warrumbungle Shire Council is the authority for all works on Barneys Reef Road and Bolaro Street. The proposed works would primarily be limited to the road reserve. While excavation of roads is proposed to allow for the construction of hardstand, works proposed are not expected to be consequential. Therefore, formal consultation with Warrumbungle Shire Council and Dubbo Regional Council are not required in accordance with Clause 2.10 of the TISEPP 2021 but will be carried out as a courtesy.	Yes ☐	No ☒
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? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential? The Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) encroaches upon land mapped as Travelling Stock Reserves (TSR), parcels of Crown land reserved under legislation. The TSRs are categorised as a Category 2 and Category 3 TSR respectively, which is used for travelling stock, emergency management or biosecurity purposes and is of medium conservation value. As outlined in Section 2.2.2, the existing roads that traverse mapped Crown land, and as an extension TSRs, including the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road (I-041) have been declared State Highways under the <i>Roads Act 1993</i>. As such, Transport has the exclusive function to approve the proposed works to occur on State Highways and	Yes ☐	No ☒

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
determine the work under Division 5.1 of the EP&A Act, with approval from Crown Lands not required. The need to amend cadastral boundaries to reflect the gazetted road corridor(s) would be discussed between Transport and the NSW Department of Planning and Environment (Crown land) and in accordance with the requirements of the <i>Crown Land Management Act 2016</i> (NSW). Work proposed at these intersections within Crown Land are limited to the upgrade of existing infrastructure to support the existing road, placed hardstand and signage relocation works. As such, the proposal is not anticipated to have more than a minor impact on the TSRs. There are no heritage items within the other three intersections. The nearest local heritage-listed item is the Dunedoo Courthouse, located about 270 metres southwest of the Golden Highway and Bolaro Street intersection (H-023). The Dunedoo Heritage Conservation Area is also located within the vicinity, about 75 metres west of the same intersection. The heritage assessment carried out in Section 3.6 (non-Aboriginal heritage) has indicated that impacts to this heritage item are not anticipated.		
Is the proposal within the coastal vulnerability area and inconsistent with a certified coastal management program applying to that land? As per Clause 6 (3) of SEPP (Coastal Management) 2018, a coastal vulnerability area is identified by a Coastal Vulnerability Map, however as per this clause, none were adopted at commencement of this instrument. Since commencement of this SEPP, no coastal vulnerability areas have been mapped in the vicinity of the proposal as per the interactive map at Coastal management – (nsw.gov.au).	Yes ☐	No ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au). The assessment carried out in Section 3.2 (Waterways and water quality) has indicated that there is a lack of publicly accessible flood data and reports for areas in and within the vicinity of the proposal. As such, it remains unknown whether the proposal areas are located in flood prone areas. Whilst flood prone areas could not be confirmed, the following conservative assumptions were made based on the information available for each intersection: • Golden Highway and Spring Ridge Road intersection (I-015) is located 70 metres from the upper reaches of Flyblowers Creek, which leads to the Talbragar River approximately 3.5 km to the west. Given the distance, it is unlikely that this intersection is within a flood prone area and as the scope of work proposed is minor in nature, it is unlikely to alter floodprone storage at this location. • The Golden Highway and Saxa Road intersection (I-017) is likely to be located within the Talbragar River floodplain given its proximity of about 190 metres to Talbragar River and assumed to be at high risk of flooding for the purpose of this assessment. However, the scope of work proposed at I-017 is minor in nature and unlikely to alter floodplain storage at this location. • The Castlereagh Highway and Barneys Reef Road intersection (I-041) is located 640 metres from Bulliroy Creek, which leads to the Talbragar River approximately 3 km to the north east. Whilst widening of Castlereagh Highway is required to accommodate a dedicated right turn lane into Barnes Reef Road, given the distance to Talbragar River, it is unlikely that this intersection is within a flood prone area and unlikely to alter flood prone storage. • The Golden Highway and Bolaro Street intersection (H-023) is located 650 metres from Talbragar River to the north. Given the distance, it is unlikely that this intersection is within a flood prone area and as the scope of work proposed is minor in nature, it is unlikely to alter floodprone storage at this location. Given the proposal is not expected to change flooding patterns, consultation with Dubbo Regional Council or Warrumbungle Shire Council is not required regarding works on flood liable land in accordance with the Transport and Infrastructure SEPP.	Yes ☐	No ☒

Table 2-11: 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) If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the <u>Floodplain Development Manual: the management of flood liable land (nsw.gov.au)</u>. Refer to response against previous query in Table 2-10.	Yes ☐	No ☒
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 ☐	No ☒
Are the works on land in Zone C1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes ☐	No ☒
Do the works include a fixed or floating structure in or over navigable waters?	Yes ☐	No ☒
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 ☐	No ☒
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? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory) The proposal is located within the dark sky region, about 90 kilometres south from the Siding Spring Observatory. While day works are proposed for the Golden Highway and Spring Ridge Road intersection (I-015) and Golden Highway and Saxa Road intersection (I-017), night works would be required at the Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023). A consultation letter was issued to the Director of the Siding Spring Observatory seeking comment on the proposal prior to the commencement of works and at the time of writing this MWREF, no response has been received. The letter seeking feedback outlined the nature of the works being undertaken and that lighting would be required for night works at specific intersections, which may temporarily increase the amount of artificial light in the night sky during construction activities. The proposal would have no impact on the dark sky region during the operational phase. Further assessment on potential light pollution is provided in Section 3.10 (Landscape character and visual amenity).	Yes ☒	No ☐
Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	Yes ☐	No ☒
Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i>?	Yes ☐	No ☒
Are the works on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region Work Heritage Property?	Yes ☐	No ☒
Are the works within a Western City operational area specified in Schedule 2 of the <i>Western Parkland City Authority Act 2018</i> with a capital value of \$30 million or more?	Yes ☐	No ☒

Table 2-12: Notification of council and occupiers of adjoining land

Do Council and occupiers of adjoining land need to be notified under section 2.111 of the SEPP (Transport and Infrastructure)?		
Does the proposal include a car park intended for the use by commuters using regular bus services?	Yes ☐	No ☒
Does the proposal include a bus depot?	Yes ☐	No ☒
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 ☐	No ☒

Consultation with Warrumbungle Shire Council and Dubbo Regional Council

Warrumbungle Shire Council and Dubbo Regional Council will be consulted as necessary on the proposed upgrades, particularly those relating to proposed parking restrictions within the vicinity of the Golden Highway and Bolaro Street intersection (H-023).

2.5.2 Other agency and community engagement

Department of Planning, Industry and Environment - Crown Lands

Tree removal would likely be required within land mapped as Crown land at the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) as part of the requirement to reconstruct and upgrade the existing drainage line. In accordance with the *Crown Land Management Act 2016* (NSW), any proposed tree clearing within Crown land is subject to the conditions of the Crown land lease, licence or permit. However, as outlined in Section 2.2.2, the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road (I-041) intersection encroach on Crown Land. However, as no further widening or encroachment on Crown Land is required approval from Crown Land is not required as Transport for NSW has the authority to approve the proposed road works under the *Roads Act 1993* (NSW).

The need to amend cadastral boundaries to reflect the gazetted road corridor(s) would be considered between Transport for NSW and the NSW Department of Planning and Environment (Crown land) in accordance with the requirements of the *Crown Land Management Act 2016* (NSW).

ARTC

A barrier requires removal and setback at the Golden Highway and Bolaro Street intersection (H-023), which is located south west of the rail crossing on Golden Highway. Whilst located within the road corridor, purpose of the barrier is to protect a rail signal, an ARTC asset, from incidental damage from motorists using the Golden Highway. To relocate the barrier, consultation and acceptance of the design proposal is required with ARTC and is being progressed as part of the detailed design process.

Ongoing or future consultation

Council(s) would be notified of the proposal closer to commencement of works and consulted on particular aspects, as necessary, as detailed design of the intersections progress.

Broad community engagement activities were not carried out with the local community due to the minor scope of work and short duration of activities. However, prior to the commencement of works, Transport would communicate potential traffic and noise impacts to the local community within the area surrounding the proposal. Suitable signage would be installed to inform road users of any changes to traffic conditions prior to, and during, construction.

Prior to the commencement of works, Transport would communicate with the community via the following communication methods:

- Transport's website
- update to livetraffic NSW
- subscribers to regular emails on upcoming road closures.

3. Environmental assessment

This chapter 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 s171 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 Appendix A. Site-specific safeguards are provided to ameliorate the identified potential impacts.

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? A review of the Australian Soil Resource Information System's (ASRIS, 2018) online Acid Sulfate Soil risk map was carried out on 12 December 2023. The search indicates that the proposal is located in areas of low acid sulfate soil probability, with the surrounding Dubbo Regional LGA and Warrumbungle Shire LGA ranging between low and extremely low probability of occurrence. Nevertheless, any potential or actual acid sulfate soils would be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials 2005</i>. A review of the eSpade Map Viewer (Office of Environment and Heritage, 2023) was carried out on 15 December 2023. The search indicates the proposal is located in areas mapped with saline soils: • Golden Highway and Spring Ridge Road intersection (I-015) – very high salinity hazard • Golden Highway and Saxa Road intersection (I-017) – very high salinity hazard • Castlereagh Highway and Barneys Reef Road intersection (I-041) – moderate salinity hazard • Golden Highway and Bolaro Street intersection (H-023) – high salinity hazard. These areas are identified in Figure 3-1 and Figure 3-2. Soil salinity management will be carried out in accordance with the NSW Department of Primary Industries (2014) <i>Salinity Training Handbook</i>.	Yes ☒	No ☐

Description of existing environmental and potential impacts

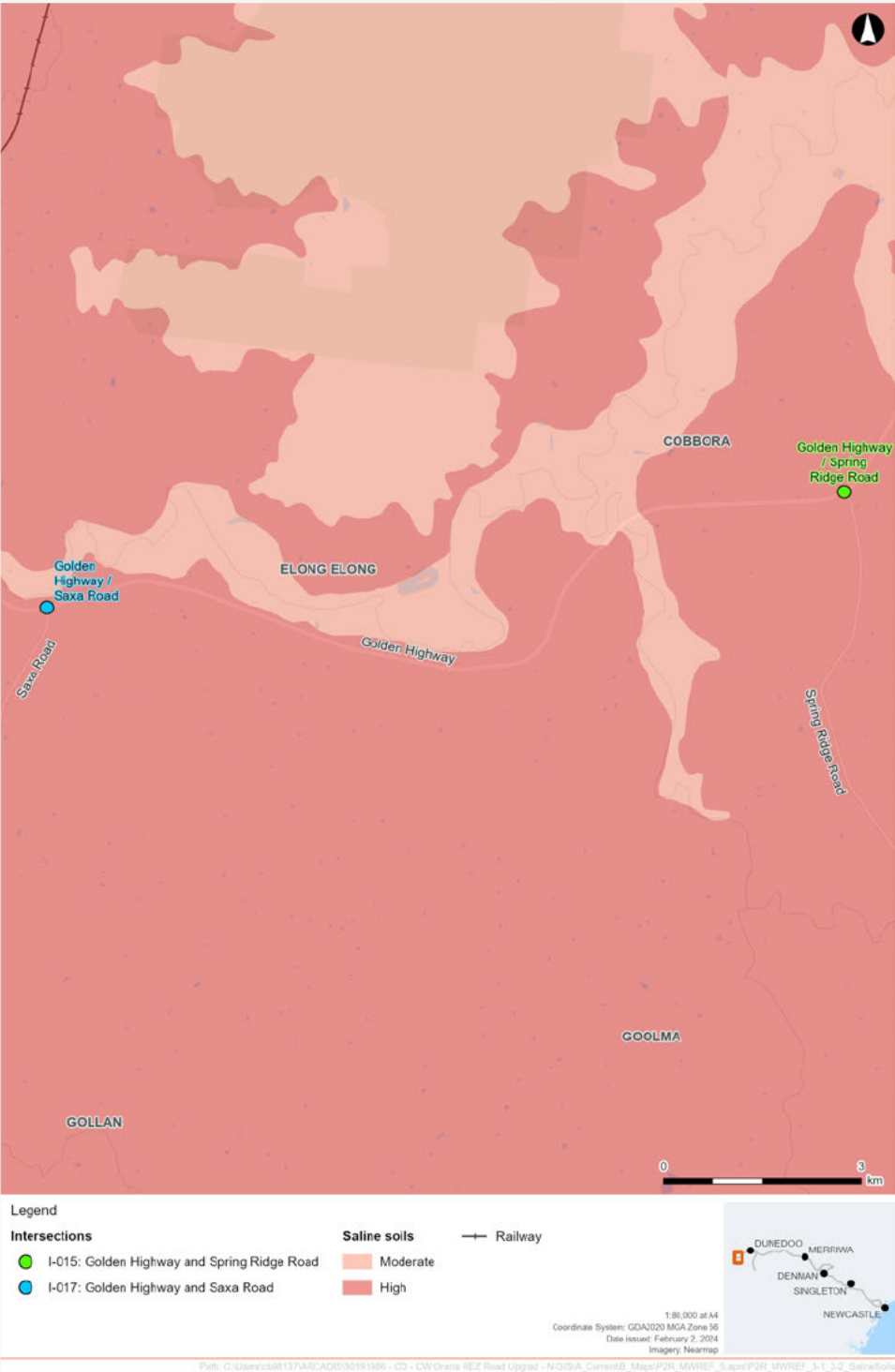


Figure 3-1: Saline soils within and in proximity to the proposal - Golden Highway and Spring Ridge Road intersection (I-015) and Golden Highway and Saxa Road intersection (I-017)

Description of existing environmental and potential impacts

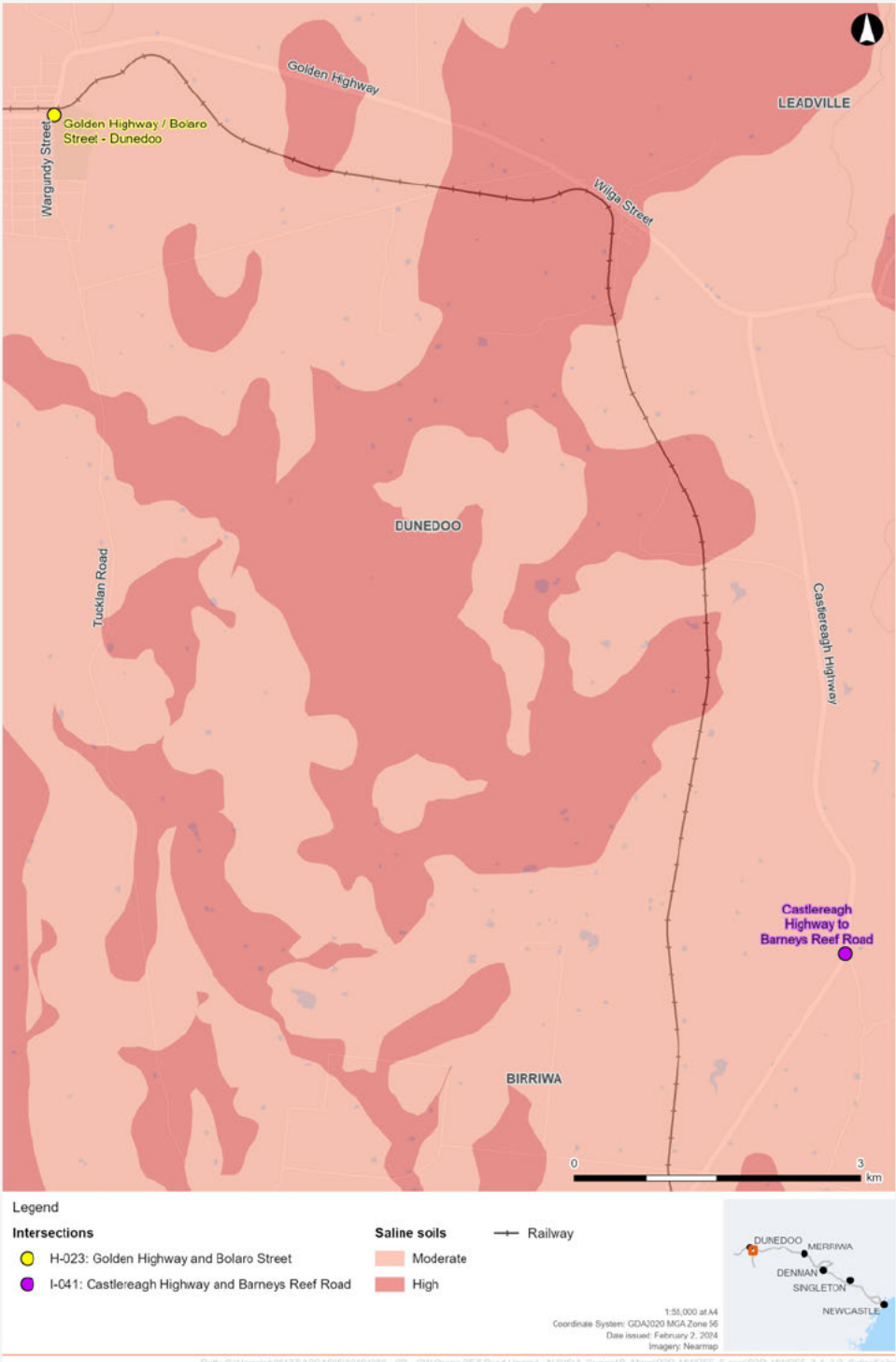


Figure 3-2: Saline soils within and in proximity to the proposal – Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023)

Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks?

The proposal would require exposure of about 23,755 square metres (2.38 hectares) of soils to carry out the asphalt pavement widening, utility adjustments (if required), drainage works and installation of batter slopes (where required). The most substantial earthworks would be required for road widening and the construction of road batters at the Castlereagh Highway and Barneys Reef Road intersection (I-041), which would require about 2.2 hectares of earthworks.

Yes ☒ No ☐

Description of existing environmental and potential impacts		
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? Works proposed at Castlereagh Highway and Barneys Reef Road intersection (I-041), is anticipated to pose moderate erosion and sediment risks or constraints due to the greater extent of earthworks required for the construction of road widening and road batters. The proposed intersection works at the other three intersections generally pose negligible erosion sediment risks or constraints due to it being carried out on relatively flat topography and limited earthworks required. The site elevation ranges between: • 388 and 384 metres AHD north to south at the Golden Highway and Spring Ridge Road intersection (I-015) • 335 and 338 metres AHD north to south at the Golden Highway and Saxa Road intersection (I-017) • 417 and 420 metres AHD north to south at the Castlereagh Highway and Barneys Reef Road intersection (I-041) • 389 and 391 metres AHD north to south at the Golden Highway and Bolaro Street intersection (H-023). While the work locations are within narrow corridors, the extent of exposed soils at each of the four sites poses no substantial impediment for the installation of appropriate erosion and sediment controls to adequately manage risk.	Yes ☐	No ☒
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). The nearest sensitive receiving environments in the vicinity of the proposal areas include: • Golden Highway and Spring Ridge Road intersection (I-015): Sandy Creek is located about 3.3 kilometres west of the intersection • Golden Highway and Saxa Road intersection (I-017): Talbragar River is located about 190 metres south of the intersection • Castlereagh Highway and Barneys Reef Road intersection (I-041): Talbragar River located about three kilometres north of the intersection • Golden Highway and Bolaro Street intersection (H-023): Talbragar River located about 730 metres north of the intersection. The proposed widening at the Castlereagh Highway and Barneys Reef Road intersection (I-041) would increase the impervious pavement to about 4000 square metres, which would reduce infiltration and increase stormwater runoff. The proposed replacement of three culverts along Castlereagh Highway and regrading of existing drainage channels along the western and eastern sides of Castlereagh Highway would mimic the existing drainage and flooding conditions. As such, modifications to drainage at this intersection would not significantly alter existing surface water flows. Construction of the intersection widening works at the other three intersections would include additional hardstand. The increased pavement areas would be minor in the context of the overall hydrology and as such, would be unlikely to have any substantial impact on surface water flows within the catchments. Further, the small extent and temporary and short-lived nature of any ground disturbance likely at each site means that there is negligible risk of impacts to water quality in the receiving waters due to the proposal. Erosion and sediment control measures, as outlined in safeguard E1, would be implemented during construction to minimise sediment moving off the construction site and entering water bodies within the vicinity.	Yes ☐	No ☒
Is there any evidence within or nearby the likely footprint of potential contamination? A search of the NSW Environment Protection Authority (EPA) Contaminated Land Register (NSW EPA, 2023a) was carried out on 13 December 2023 for contaminated	Yes ☐	No ☒

Description of existing environmental and potential impacts		
sites regulated by the EPA under the <i>Contaminated Land Management Act 1997</i> or the <i>Environmentally Hazardous Chemicals Act 1985</i>. Based on the search result, 12 records within the Dubbo Regional LGA and no records within the Warrumbungle Shire LGA were found. None of these records were found within 500 metres of the proposal areas. Earthworks is required to an anticipated excavation of up to a metre below existing ground level. Safeguard E9, included in this minor works REF, requires unexpected finds of potential or actual contaminated soils are to be managed in accordance with Transport's <i>QA Specification G36 Section 4.2 2022</i>. With the implementation of this safeguard, potential environmental and or human health risk to construction and maintenance staff from a contamination perspective is considered low.		
Is the likely proposal footprint in or nearby highly sloping landform?	Yes ☐	No ☒
Is the proposal likely to result in more than 2.5ha (area) of exposed soil? Soil disturbance quantities at each intersection are detailed below: - Golden Highway and Spring Ridge Road intersection (I-015): 0.049 hectares for the construction of hardstand - Golden Highway and Saxa Road intersection (I-017): 0.048 hectares for the construction of hardstand - Castlereagh Highway and Barneys Reef Road intersection (I-041): 2.2 hectares for the road widening, road batters and drainage work - Golden Highway and Bolaro Street (H-023): 0.081 hectares for the construction of hardstand. The proposal would require exposure of about 23,755 square metres (2.38 hectares) of soils.	Yes ☐	No ☒
Additional information pertaining to soil and contamination risk. A desktop database search and review of publicly available information was undertaken to identify the potential for soil impacts. The sources consulted included: - The Australian Soil Resource Information System (ASRIS) maps (2023) - eSPADE (Office of Environment and Heritage, 2023). Construction activities would involve movement and use of vehicles across exposed earth, and transport of materials to and from the proposal areas. There is potential for soil erosion to occur across the proposal footprint. Safeguards would be in place to minimise the potential for soil erosion impacts.		

Safeguards

Table 3-2: Soils safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E1	Soils	Erosion and sediment control measures are to be implemented (in accordance with the Landcom/Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)) and maintained to: - minimise 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.	Contractor	Construction
E2	Soils	All erosion and sedimentation controls implemented will be checked and maintained on a regular basis (including clearing of sediment	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E3		from behind barriers) and records kept and provided on request.		
	Soils	Work areas will be stabilised progressively during the works.	Contractor	Construction
E4	Soils	The maintenance of established stockpile sites will be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10).	Contractor	Pre-construction and Construction
E5	Soils	Potential or actual acid sulfate soils will be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005.	Contractor	Construction
E6	Soils	Any saline soils will be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i> .	Contractor	Construction
E7	Soils	An unexpected find procedure for potential or actual contaminated soils will be included in the construction environmental management documentation.	Contractor	Construction
E8	Soils	A progressive erosion and sediment control plan will be prepared for the works.	Contractor	Pre-construction and construction
E9	Soils	Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised.	Contractor	Construction

3.2 Waterways and water quality

Table 3-3: Waterways and water quality

Description of existing environmental and potential impacts																											
Is the proposal located within, adjacent to or near a waterway? The proposal is located in the Macquarie-Bogan catchment (NSW EPA, 2006) and is within the vicinity of several water bodies. These water bodies and their location from the proposal areas are summarised in Table 3-4 and shown in Figure 3-3 to Figure 3-6. Table 3-4: Water bodies within the vicinity of the proposal <table> <tr> <th>Proposal area</th><th>Name of water body</th><th>Location from the proposal (approximate)</th></tr> <tr> <td rowspan="3">Golden Highway and Spring Ridge Road intersection (I-015)</td><td>Black Gully Creek</td><td>230 metres northwest</td></tr> <tr> <td>Flyblowers Creek</td><td>400 metres west</td></tr> <tr> <td>Outflow of Flyblowers Creek</td><td>70 metres south</td></tr> <tr> <td rowspan="3">Golden Highway and Saxa Road intersection (I-017)</td><td>Talbragar River</td><td>190 metres north</td></tr> <tr> <td>Four Mile Creek</td><td>270 metres east</td></tr> <tr> <td>Unnamed water body (located in private property)</td><td>30 metres north</td></tr> <tr> <td>Castlereagh Highway and Barneys Reef Road intersection (I-041)</td><td>Outflow of Bulliroy Creek</td><td>640 metres northwest</td></tr> <tr> <td rowspan="2">Golden Highway and Bolaro Street intersection (H-023)</td><td>Unnamed water body (located in the Dunedoo Golf Course)</td><td>210 metres southeast</td></tr> <tr> <td>Talbragar River</td><td>650 metres north</td></tr> </table> Minor drainage lines across flat to gently undulating farmland on floodplains separate the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041). The Golden Highway and Bolaro Street intersection (H-023) is separated from Talbragar River by residential buildings, a railway and vegetation, whilst the Golden Highway and Saxa Road intersection (I-017) is separated from Talbragar River by minor vegetation and cleared land. Land between these two intersections and Talbragar River is flat to gently undulating. In comparison to ground disturbance proposed at the other three intersections, greater ground disturbance would be required at the Castlereagh Highway and Barneys Reef Road intersection (I-041). This is required to accommodate the road widening, culvert installation and drainage, and construction of road batters along Castlereagh Highway and Barneys Reef Road. However, given the earthworks would be required to an anticipated excavation of up to a metre for the placement of asphalt, erosion and sedimentation risks or constraints would be moderate for this proposal. Due to the small extent of ground disturbance at the other three intersections and the flat topography the potential for any substantial sediment transport to the rivers, and sedimentation and associated water quality impacts, is negligible. Any impact to drainage lines will be temporary and short lived, as well as staged and or managed in accordance with safeguards detailed in this minor works REF to minimise potential for sediment and erosion runoff.		Proposal area	Name of water body	Location from the proposal (approximate)	Golden Highway and Spring Ridge Road intersection (I-015)	Black Gully Creek	230 metres northwest	Flyblowers Creek	400 metres west	Outflow of Flyblowers Creek	70 metres south	Golden Highway and Saxa Road intersection (I-017)	Talbragar River	190 metres north	Four Mile Creek	270 metres east	Unnamed water body (located in private property)	30 metres north	Castlereagh Highway and Barneys Reef Road intersection (I-041)	Outflow of Bulliroy Creek	640 metres northwest	Golden Highway and Bolaro Street intersection (H-023)	Unnamed water body (located in the Dunedoo Golf Course)	210 metres southeast	Talbragar River	650 metres north	Yes ☒ No ☐
Proposal area	Name of water body	Location from the proposal (approximate)																									
Golden Highway and Spring Ridge Road intersection (I-015)	Black Gully Creek	230 metres northwest																									
	Flyblowers Creek	400 metres west																									
	Outflow of Flyblowers Creek	70 metres south																									
Golden Highway and Saxa Road intersection (I-017)	Talbragar River	190 metres north																									
	Four Mile Creek	270 metres east																									
	Unnamed water body (located in private property)	30 metres north																									
Castlereagh Highway and Barneys Reef Road intersection (I-041)	Outflow of Bulliroy Creek	640 metres northwest																									
Golden Highway and Bolaro Street intersection (H-023)	Unnamed water body (located in the Dunedoo Golf Course)	210 metres southeast																									
	Talbragar River	650 metres north																									

Description of existing environmental and potential impacts



Figure 3-3: Water bodies in the vicinity of the proposal – Golden Highway and Spring Ridge Road intersection (I-015)

Description of existing environmental and potential impacts



Figure 3-4: Water bodies in the vicinity of the proposal – Golden Highway and Saxa Road intersection (I-017)

Description of existing environmental and potential impacts



Figure 3-5: Water bodies in the vicinity of the proposal – Castlereagh Highway and Barney's Reef Road intersection (I-041)

Description of existing environmental and potential impacts



Figure 3-6: Water bodies in the vicinity of the proposal – Golden Highway and Bolaro Street intersection (H-023)

Is the location known to flood or be prone to water logging?
Searches of the Dubbo LEP 2022 and Warrumbungle LEP 2013 were carried out on 15 December 2023. There is a lack of publicly accessible flood data and reports for areas in and within the vicinity of the proposal. As such, it remains unknown whether the proposal areas are located in flood prone areas. However, given the proximity of about 190 metres to Talbragar River, the Golden Highway and Saxa Road intersection (I-017) is likely to be located within the Talbragar River floodplain.
Weather forecasts would be monitored prior to and throughout the works.

Yes
☒

No
☐

Description of existing environmental and potential impacts		
Is the proposal located within a regulated catchments covered by chapter 6 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation))? The proposal areas are not located within any regulated catchments. https://www.planningportal.nsw.gov.au/publications/environmental-planning-instruments/state-environmental-planning-policy-biodiversity-and-conservation-2021. The nearest regulated catchment to the proposal areas is Hawkesbury Nepean Catchment, located about 15 kilometres southeast of the Castlereagh Highway and Barney Reef Road intersection (I-041).	Yes ☐	No ☒
Would the proposal be undertaken on a bridge or ferry?	Yes ☐	No ☒
Is the proposal likely to require the extraction of water from a local water course (not mains)? All water required for the proposal including but not limited to dust suppression and fill compaction would be sourced from potable town water.	Yes ☐	No ☒

Safeguards

Table 3-5: Water quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
W1	Water quality	An emergency spill kit will be kept onsite at all times during works. All staff are to be made aware of the location of the spill kit and trained in its use.	Contractor	Construction
W2	Water quality	If a spill occurs, Transport's Environmental Incident Procedure 2023 will be followed, and the Transport Project Manager notified as soon as practicable.	Contractor	Construction
W3	Water quality	The Bureau of Meteorology flood forecasting and warning service is to be monitored for the duration of works for possible flooding to Talbragar River. In the event a flood warning is issued where flooding could occur at the work site(s), then the site(s) would be stabilised to minimise erosion extent and sediment runoff, plant and mobile equipment moved to higher ground where possible, and any remaining equipment on site stabilised to mitigate risk of floating offsite. Measures to remain until flooding has subsided and warnings cancelled.	Contractor	Construction
W4	Water quality	Where possible, siting of laydown areas in higher elevated locations will be prioritised to minimise any potential impacts due to localised flooding.	Contractor	Construction

3.3 Noise and vibration

Table 3-6: Noise and vibration

Description of existing environmental and potential impacts		
Are there any 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)? The location of existing noise sensitive receivers is shown in Figure 3-7 to Figure 3-10. The proposal is surrounded by the following sensitive receivers that may be impacted during construction. These are detailed below. - Golden Highway and Spring Ridge Road intersection (I-015): The surrounding land is zoned as infrastructure (SP2) and primary production (RU1). The proposal is surrounded by rural land, with the nearest residential property located about about 790 metres southeast of the intersection (refer to Figure 3-7). - Golden Highway and Saxa Road intersection (I-017): The surrounding land is zoned as infrastructure (SP2) and primary production (RU1). The proposal is surrounded by rural land, with the nearest residential property located about about 680 metres southeast of the intersection (refer to Figure 3-8). - Castlereagh Highway and Barneys Reef Road intersection (I-041): The surrounding land is zoned as infrastructure (SP2) and primary production (RU1). The proposal is surrounded by rural land, with the nearest residential property located about about 970 metres southeast of the intersection (refer to Figure 3-9). - Golden Highway and Bolaro Street intersection (H-023): The surrounding land is zoned as infrastructure (SP2), primary production (RU1), private recreation (RE2), local centre (E1) and general residential (R1). The nearest residential property is about 30 metres southwest to the intersection and the nearest church is Coolah Dunedoo Anglican Parish, located about 700 metres from the intersection (refer to Figure 3-10). The nearest hospital is Dubbo Private Hospital, located about 47 kilometres from the Golden Highway and Saxa Road intersection, and Gulgong District Hospital, located about 30 kilometres south of the Castlereagh Highway and Barneys Reef Road intersection (I-041).	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-7: Noise sensitive receivers in proximity to the Golden Highway and Spring Ridge Road intersection (I-015)

Description of existing environmental and potential impacts



Figure 3-8: Noise sensitive receivers in proximity to the Golden Highway and Saxa Road intersection (I-017)

Description of existing environmental and potential impacts



Figure 3-9: Noise sensitive receivers in proximity to the Castlereagh Highway and Barneys Reef Road intersection (I-041)

Description of existing environmental and potential impacts



Figure 3-10: Noise sensitive receivers in proximity to the Golden Highway and Bolaro Street intersection (H-023)

Is the proposal going to be undertaken only during standard working hours?

Standard working hours

- Monday-Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- Sunday and Public Holidays: no work.

Yes ☐ No ☒

Description of existing environmental and potential impacts

Construction works would be prioritised during standard construction time periods (daytime), however, may be required outside of standard working hours to comply with any issued ROLs to manage potential worker safety and traffic impacts.

To minimise traffic impacts, construction works at the Castlereagh Highway and Barneys Reef Road intersection (I-041) would likely be carried out during out-of-hours construction time periods (evening and night) as identified in Table 3-7 (indicative only). Where required, these hours would be in line with the window of time permitted under ROLs. This is also to provide safe work conditions, as work would be required next to live traffic.

Any work with impulsive or tonal noise emissions will be carried out in accordance with the Construction Noise and Vibration Guideline (Roads) (Transport for NSW, 2023) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009).

Table 3-7: Out-of-hours construction time periods

Period	Monday-Friday	Saturday	Sunday
Out-of-hours (day)	-	7 am – 8 am 1 pm – 6 pm	8 am – 6 pm
Out-of-hours (evening)	6 pm – 10 pm	6 pm – 10 pm	6 pm – 10 pm
Out-of-hours (night)	10 pm – 7 am	10 pm – 8 am	6 pm – 7 am

Is any explosive blasting required for the proposal?

Yes ☐

No ☒

Would construction noise or vibration from the proposal affect sensitive receivers? The Transport Construction Noise Estimator tool (Transport noise tool) has been used to assess construction noise and vibration impacts for the proposal. This assessment has been carried out to consider the impacts from proposed works. The results of the assessment are shown in [Appendix C](#).

Yes ☒

No ☐

The R0 category from the Transport noise tool was selected to represent the following proposal areas based on the proximity of sensitive receivers within the vicinity:
Golden Highway and Spring Ridge Road intersection (I-015)
Golden Highway and Saxa Road intersection (I-017)
Castlereagh Highway and Barneys Reef Road intersection (I-041).

The R0 category is representative of an area where isolated residences are located about 500 to 800 metres from a highway within a rural area, with the background noise environment influenced by distant noise traffic. There is no line of sight to the proposal from the nearest sensitive receivers.

The R2 category was selected for the Golden Highway and Bolaro Street intersection (H-023). The R2 category is most representative of an area with residences adjacent to a road with posted 50 kilometre per hour speed limit. There is line of sight to the proposal area from the nearest sensitive receiver.

Construction noise assessment

A distance based (scenario) assessment was selected for all intersections, with either 'local road works' or 'pavement/asphalting' selected as the applicable construction scenarios for the intersections:

Golden Highway and Spring Ridge Road intersection (I-015): Pavement / asphalting (standard hours)

Golden Highway and Saxa Road intersection (I-017): Local road works (standard hours)

Castlereagh Highway and Barneys Reef Road intersection (I-041): Local road works (out of hours)

Golden Highway and Bolaro Street intersection (H-023): Local road works (standard hours).

The predicted noise levels at each receiver are conservative, as they are based on modelling the noise source at the edge of the proposal area at the closest point to the

Description of existing environmental and potential impacts

receiver. In reality, the noise source would be further away in most cases, at the location where the pavement works are actually occurring within the proposal area.

All residential and non-residential sensitive receivers likely to be affected by noise impacts from the proposal would be notified at least five business days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. Potential noise impacts at these receivers would be managed per the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023), including respite (if required).

Residential receivers

Residential receivers located within noise affected distances have the potential to experience construction noise levels above the construction noise management levels (NMLs). Noise affected distances for local road works are provided in Table 3-8 for each assessment time period and noise area category. Undeveloped green fields, rural areas with isolated dwellings, has been assumed in estimating construction impacts for R0 category, whilst developed settlements (urban and suburban) has been assumed in estimating construction noise impacts for the R2 category.

Table 3-8: Noise affected distances for residential receivers

Noise area category and scenario		Noise affected distances (metres)				
		Standard hours (Day)	Out of hours (Day)	Out of hours (Evening)	Out of hours (Night)	Highly affected distance
R0 (Pavement / asphalting)	Without line of sight	335	485	485	485	10
R0 (Local road works)	Without line of sight	565	815	815	815	25
R2 (Local road works)	With line of sight	330	500	740	1085	45
	Without line of sight	215	330	500	740	25

Based on Table 3-8, the following impacts are expected for R0 category receivers without line of sight to the proposed work:
during pavement / asphalting activities in the standard hours, those within 335 metres of the proposal area have the potential to experience levels above the NML
during local road works in the night period, those within 815 metres of the proposal area have the potential to experience levels above the NML.

Based on Table 3-8, the following impacts are expected for R2 category receivers with and without line of sight to the proposed work:
line of sight:
during local road works in standard hours, those within 330 metres of the proposal area have the potential to experience levels above the NML
without line of sight:
during local road works in standard hours, those within 215 metres of the proposal area have the potential to experience levels above the NML.

Golden Highway and Spring Ridge Road intersection (I-015)

The nearest residential receiver to the Golden Highway and Spring Ridge Road intersection (I-015) is located about 790 metres southeast of the intersection and the receiver is not within line of sight of the proposal area. This residential receiver is located beyond the 335-metre range where potential noise levels above the NML would be experienced (refer to Table 3-8). Therefore, this receiver is not likely to be affected by the proposed construction work during daytime hours and no additional mitigation measures would be implemented for this receiver.

Description of existing environmental and potential impacts

Golden Highway and Saxa Road intersection (I-017)

The nearest residential receiver to the Golden Highway and Saxa Road intersection (I-017) is about 680 metres southeast of the intersection and the receiver is not within line of sight of the proposal area. This residential receiver is located beyond the 565-metre range where potential noise levels above the NML would be experienced (refer to Table 3-8). Therefore, this receiver is not likely to be affected by the proposed construction work during daytime hours and no additional mitigation measures would be implemented for this receiver.

Castlereagh Highway and Barneys Reef Road intersection (I-041)

The nearest residential receiver to the Castlereagh and Barneys Reef Road intersection (I-041) is located about 970 metres southeast of the intersection and the receiver is not within line of sight to the proposal area. The residential receivers are located beyond the 565-metre range (day-time) and 815-metre range (night-time) where potential noise levels above the NML would be experienced (refer to Table 3-8). Therefore, these receivers are not likely to be affected by the proposed construction work during daytime hours and no additional mitigation measures would be implemented for these receivers.

Golden Highway and Bolaro Street intersection (H-023)

Table 3-9 is based on the predicted construction noise impacts during the day-time period for developed settlements (urban and suburban). Figure 3-11 shows the impact distances for each perception level of the Golden Highway and Bolaro Street intersection (H-023).

Table 3-9: Predicted noise impact during standard hours for local road works (with line of sight) – R2 category

Perception	Noise management level, $L_{Aeq}(15 \text{ min})$ dBA			
	NML, dBA	Predicted noise level, dBA	Impact distance (metres)	Recommended additional mitigation measure
Noticeable		-	-	-
Clearly audible		-	-	-
Moderately intrusive		65	140	N
Highly intrusive		75	45	N, PC, RO
Highly noise affected		75	45	N, PC, RO

N=Notification, PC=Phone calls, RO=Respite offer

The nearest residential receiver with a line of sight to the Golden Highway and Bolaro Street intersection (H-023) is located about 30 metres southwest of the intersection, which is within the 330-metre range where potential noise levels above the NML would be experienced (refer to Table 3-8). This receiver is within the highly noise affected distance of 45 metres and is therefore likely to be noise-affected due to the proposed construction work during daytime hours. This receiver would only be highly noise affected when the modelled pavement / asphaltting work are occurring immediately adjacent to the residence. Construction noise levels would vary with work location within the proposal area and would more likely be moderately intrusive or clearly audible based on the proposed pavement works locations (refer to Figure 2-6 and Figure 2-7). Elevated construction noise levels at this intersection would be temporary and short-lived.

All sensitive receivers likely to be affected by noise impacts from the proposal would be notified at least five business days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. Potential noise impacts at these receivers would be managed per the Construction Noise and Vibration Guideline (Transport for NSW, 2023), including respite (if required).

Description of existing environmental and potential impacts

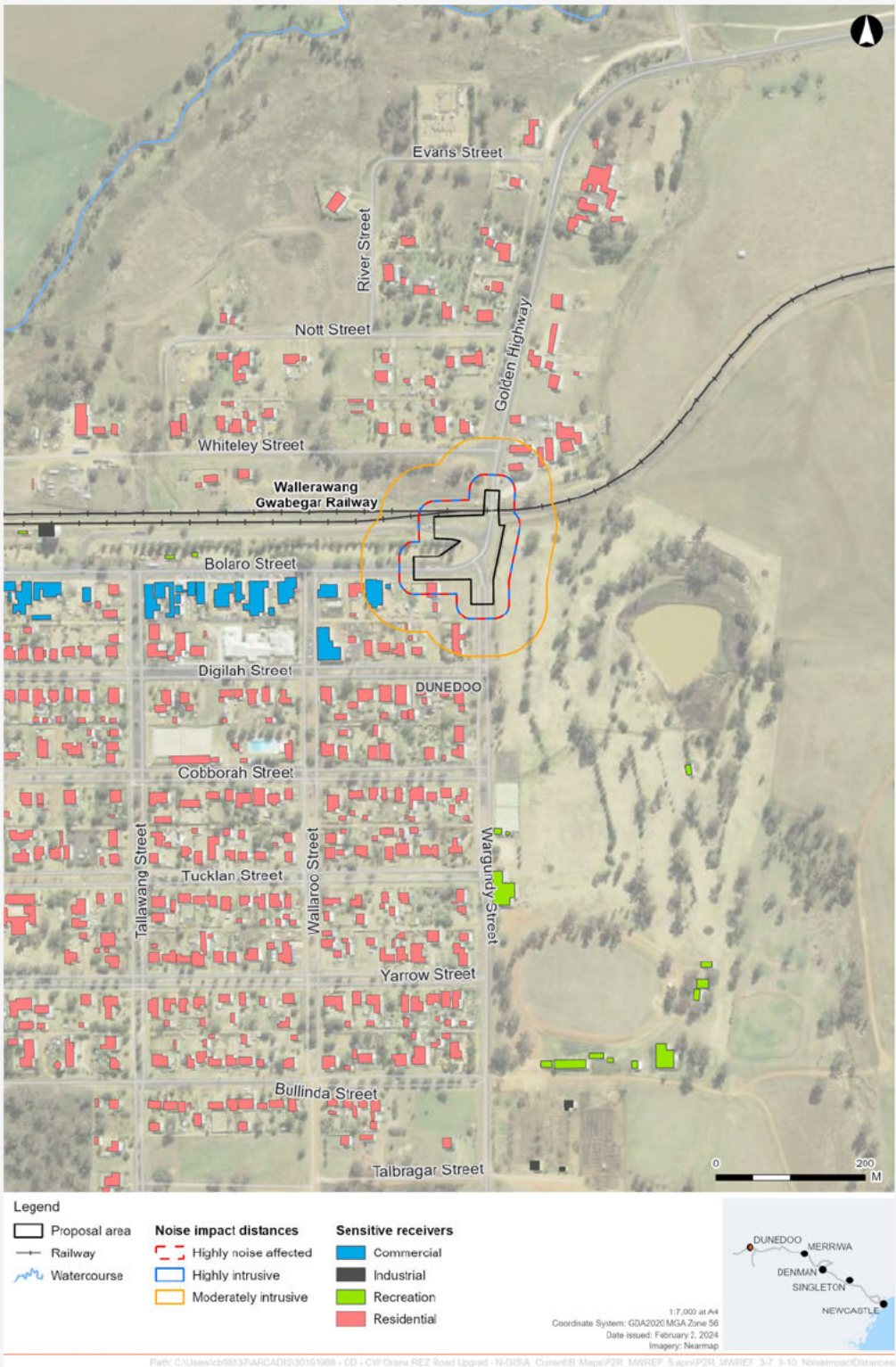


Figure 3-11: Noise impact distances during the day-time period (with line of sight) – Golden Highway and Bolaro Street intersection (H-023)

Non-residential receivers
The noise affected distances for non-residential receivers all assume direct line of sight to the proposal areas and the construction noise impacts on non-residential receivers would only apply when the premises are in use. Only within the vicinity of the Golden Highway and Bolaro Street intersection (H-023) are non-residential receivers present and operational during the day-time period. As such,

Description of existing environmental and potential impacts

noise impacts would be limited to standard construction hours. Noise affected distances for non-residential receivers, based on the R2 category, are outlined in Table 3-10.

Table 3-10: Noise affected distances for non-residential receivers

Scenario	Noise affected distance (metres)			
	Industrial Premise	Offices, retail outlets	Place of Worship	Active recreation
Local road works	45	85	330	140

The northern side of the Dunedoo Golf Club's golf course is adjacent to the construction of hardstand proposed at the Golden Highway and Bolaro Street intersection (H-023), falling within the noise affected distance of 140 metres for active recreation. In addition, retail premises are located west of the proposal along Golden Highway with the closest being around 40 metres from the works and within the noise affected distance of 85 metres for offices and retail outlets. Therefore, both retail outlets and recreational users of the golf course have the potential to be noise affected by construction work carried out during daytime hours. However, elevated construction noise levels at this intersection would be temporary and short-lived.

Construction vibration assessment

Recommended minimum working distances for vibration intensive equipment from sensitive receivers have been sourced from the Transport noise tool for the proposal. Vibration intensive equipment, including jackhammers, vibratory roller, and asphalt paver, would likely be utilised during construction. Table 3-11 below identifies the minimum working distances expected for the cosmetic damage of light-framed structures and annoyance for human comfort.

Table 3-11: Recommended minimum working distances for vibration intensive equipment

Plant item	Rating / Description	Minimum working distance		
		Cosmetic damage		Human Response
		Light-framed structure (BS 7385)	Heritage and other sensitive structures (DIN 4150)	EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	14 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	54 m	100 m
	> 300 kN (> 18 tonnes)	25 m	68 m	100 m
Jackhammer	Hand held	1 m (nominal)	2 m	3 m
Asphalt Paver	Vogele Super 1800-3	1 m	-	-

Based on Table 3-11, cosmetic damage to residential receivers located in close proximity to the Golden Highway and Bolaro Street intersection (H-023) is unlikely, as the nearest receiver is around 40 metres from the closest proposed pavement works, however, exceedance of human comfort levels could be experienced by receivers located within minimum working distances depending on the vibratory roller used as shown in Table 3-11.

The nearest heritage buildings within the Dunedoo Heritage Conservation area are located about 75 metres west of the Golden Highway and Bolaro Street intersection (H-023) and another building located about 270 metres southwest of the same intersection.

Description of existing environmental and potential impacts		
Neither of these buildings fall within the minimum working distances for cosmetic damage, however, the nearest heritage building is within the human comfort level depending on the plant used as shown in Table 3-11.		
Whilst structures within the vicinity of the proposal areas are not anticipated to sustain structural damage, any potential vibration impacts including exceedance of human comfort levels at nearby receivers would be effectively managed through the environmental safeguards outlined in Table 3-12.		
Would operation of the proposal alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, adding extra lanes, increasing traffic volume, increasing the number of heavy vehicles, removing obstacles that provide shielding including changing the angle of view of the traffic, changing the type of pavement, increasing traffic speeds by more than 10 kilometres per hour or installing audio-tactile line markings. The operational noise environment at Castlereagh Highway and Barneys Reef Road intersection (I-041) may be slightly altered by the addition of a channelised right turn lane from Castlereagh Highway northbound onto Barneys Reef Road and an auxiliary left lane from Castlereagh Highway southbound onto Barneys Reef Road. However, sensitive receivers are unlikely to be impacted given the nearest residential receiver is located about 970 metres southeast of the intersection. There are no anticipated operational impacts associated with the other three intersections and will be considered to remain at the background noise levels. Any noise impacts from OSOM movements for individual generator projects using the proposed upgrades will be assessed and approved as part of their consent requirements.	Yes ☐	No ☒
Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation? The proposal would not result in operational vibration impacts as the scope of work is limited to the construction phase.	Yes ☐	No ☒

Safeguards

Table 3-12: Noise and vibration safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
NV1	Noise and vibration	Construction noise and vibration will be managed in accordance with the <i>Construction Noise and Vibration Guideline</i> (CNVG) (Transport for NSW, 2023) and <i>Interim Construction Noise Guideline</i> (ICNG) (DECC, 2009).	Contractor	Construction
NV2	Noise and vibration	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.	Contractor	Construction
NV3	Noise and vibration	All sensitive receivers (e.g., schools and local residents) likely to be affected will be notified at least five working days prior to commencement of any works associated with the activity that may have an adverse noise impact. The notification will provide details of: - the project - the construction period and construction hours - impacts and mitigation measures - contact information for project management staff - complaint and incident reporting - how to obtain further information.	Contractor	Pre-construction Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
NV4	Noise and vibration	Any work with impulsive or tonal noise emissions will be carried out in accordance with the Construction Noise and Vibration Guideline (Roads) (Transport for NSW, 2023) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009).	Contractor	Construction
NV5	Noise and vibration	Additional noise mitigation measures will be incorporated into the Contractors Environmental Management Plan where appropriate, as identified in Table 3-9	Contractor	Pre-construction Construction

3.4 Air quality

Table 3-13: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils? The proposal would require exposure of about 23,755 square metres (2.38 hectares) of soils to carry out the asphalt pavement widening, utility adjustments (if required), drainage works and installation of batter slopes (where required). The most substantial earthworks would be required for road widening and the construction of road batters at the Castlereagh Highway and Barneys Reef Road intersection (I-041), which would require about 2.2 hectares of earthworks. Safeguards are provided below which would be used to manage potential air quality impacts near the proposed works area.	Yes ☒	No ☐
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period? The nearest dust-sensitive receiver is a residential property located about 30 metres southwest of the Golden Highway and Bolaro Street intersection (H-023). Local businesses are located further west of these properties on Bolaro Street from around 40 metres, and one business is located on Wargundy Street about 75 metres south of the intersection. Whereas, the following intersections are surrounded by rural land with no dust-sensitive receivers located within 500 metres of: • Golden Highway and Spring Ridge Road intersection (I-015) • Golden Highway and Saxa Road intersection (I-017) • Castlereagh Highway and Barneys Reef Road intersection (I-041). The primary dust-generating activities during construction include earthworks at all proposed intersections. The 2.2 hectares of earthworks proposed at the Castlereagh Highway and Barneys Reef Road intersection (I-041) for the construction of road widening and road batters, and drainage work would generate the greatest amount of dust. However, as noted, no dust-sensitive receivers are located within 500 metres of this intersection. Air quality impacts are also expected from works proposed at other intersections, however, are considered minor given the scale and nature of excavation works. Potential dust emissions would be managed through the implementation of environmental management measures during construction. These include, but are not limited to, covering vehicles transporting waste or other materials, avoiding works that could generate dust during strong winds or unfavourable weather conditions.	Yes ☒	No ☐
Is there likely to be an emission to air during construction? Emissions from plant and equipment would be generated during construction. This is not expected to be discernible from the existing vehicle emissions on the roads.	Yes ☒	No ☐

Safeguards

Table 3-14: Air quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
A1	Air quality	Vehicles transporting waste or other materials that have a potential to produce odours or dust will be covered during transportation.	Contractor	Construction
A2	Air quality	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 on sensitive receivers, motorist visibility and or worker safety are likely.	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
A3	Air quality	Plant, vehicles and equipment will be maintained in good condition and in accordance with manufacturer's specifications.	Contractor	Construction
A4	Air quality	Plant and machinery will be turned off when not in use.	Contractor	Construction
A5	Air quality	Visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention.	Contractor	Construction
A6	Air quality	Work activities with potential for impact on nearby receivers, workers and or motorists will be reprogrammed if the management measures are not adequately restricting dust generation.	Contractor	Construction

3.5 Aboriginal cultural heritage

Table 3-15: Aboriginal cultural heritage

Description of existing environmental and potential impacts		
Would the proposal involve disturbance in any area that has not been subject to previous ground disturbances? The proposal is located on existing developed land used as a roadway and all works would primarily be limited to the existing road corridor. The widening proposed on Castlereagh Highway southbound, associated earthworks and culvert extension along the highway would encroach upon mapped Crown land southwest of the Castlereagh Highway and Barneys Reef Road intersection (I-041) (refer to Section 2.2.2 (Proposal description)). The desktop assessment and ecology surveys indicate that this area has been previously disturbed and as such, impacts to Aboriginal heritage are considered unlikely. Similarly, the other proposal areas have been previously disturbed and impacts to Aboriginal heritage are considered unlikely.	Yes ☐	No ☒
Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed? AHIMS searches were carried out on 23 November 2023 (refer to Appendix D). These searches confirmed that there are no registered Aboriginal sites within a 500-metre radius of the proposal areas. As such, no registered Aboriginal heritage items would be impacted by the proposal.	Yes ☒	No ☐
Is there potential for the proposal to impact on any items of Aboriginal cultural heritage? A review of the National Native Title Tribunal was reviewed on 19 June 2024. It was confirmed that the Castlereagh Highway and Barneys Reef Road intersection (I-041) and the Golden Highway and Bolaro Street intersection (H-023) are located within the Warrabinga-Wiradjuri #7 Native Claim 2018/002. Whilst these two intersections are located within the area before the National Native Title Tribunal, the proposed works are primarily within the road reserve and not require further acquisition for the purpose of construction activities As outlined above, AHIMS searches carried out on 23 November 2023 (refer to Appendix D) indicate that there are no Aboriginal heritage items within a 500-metre radius of the proposal areas. Therefore, no impacts to registered Aboriginal heritage items are anticipated. Further, as the works are proposed in locations previously disturbed during road construction, the potential for encountering any intact and previously unknown objects or features of Aboriginal archaeological or cultural heritage significance is low. The Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> will be followed if Aboriginal heritage is encountered during construction.	Yes ☐	No ☒
Would the proposal involve the removal of mature native trees? The removal and/or pruning of several trees is proposed at the Golden Highway and Saxa Road intersection (I-017) to accommodate the swept paths of OSOM vehicles. These trees are a mixture of juvenile and mature native trees located on the northern side of Golden Highway (refer to Figure 3-15 and Figure 3-16). These trees are mapped as Blakelys Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277). Removal of about 0.350 hectares of juvenile and mature native trees (<i>Eucalyptus melliodora</i>) is also proposed on the northern side of Castlereagh Highway, west of the Castlereagh Highway and Barneys Reef Road intersection (I-041). These trees are mapped as Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (PCT 81).	Yes ☒	No ☐

Description of existing environmental and potential impacts		
No tree removal is proposed at the Golden Highway and Spring Ridge Road intersection (I-015) or Golden Highway and Bolaro Street intersection (H-023).		
Further assessment of potential tree impacts is provided in Section 3.7 (Biodiversity).		
Is the proposal consistent with the requirements of Transport’s Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI)? A Procedure for Aboriginal Cultural Heritage Investigation (PACHCI) was carried out for the proposal in March 2024. The proposal was assessed as being unlikely to have an impact on Aboriginal cultural heritage based on the following considerations: - the project is unlikely to harm known Aboriginal objects or places - the AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area - the study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage’s <i>Due diligence Code of Practice for the Protection of Aboriginal objects in NSW</i> and the Roads and Maritime Services’ procedure - the cultural heritage potential of the study area appears to be reduced due to past disturbance. The Stage 1 PACHCI assessment is provided in Appendix B.	Yes ☒	No ☐

Safeguards

Table 3-16: Aboriginal cultural heritage safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
AH1	Aboriginal cultural heritage	If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. The Transport’s <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed.	Contractor	Construction

3.6 Non-Aboriginal heritage

Table 3-17: Non-Aboriginal heritage

Description of existing environmental and potential impacts							
Have online heritage database searches been completed? • 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) • Maritime heritage database • Australian Heritage Places Inventory • Warrumbungle LEP 2013 • Dubbo Regional LEP 2022. The above searches were completed on 14 December 2023 and are attached in Appendix E.						Yes ☒	No ☐
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? The results of the database searches indicate that there is one non-Aboriginal heritage item and one conservation area within the vicinity of the proposal. These sites are summarised in Table 3-18 and shown on Figure 3-12. Table 3-18: Non-Aboriginal heritage items and conservation areas within the vicinity of the proposal						Yes ☒	No ☐
Item	Heritage significance	Description	Address	Listing	Location (approximate)		
Dunedoo Heritage Conservation Area	Local	Comprised of several heritage buildings currently operating as local businesses	Bolaro Street, Dunedoo NSW	Warrumbungle LEP listing C5	Located about 75 metres west of the Golden Highway and Bolaro Street intersection (H-023)		
Dunedoo Courthouse	Local	Heritage building currently operating as a court house	24 Digilah Street, Dunedoo NSW	Warrumbungle LEP listing I26	Located about 270 metres southwest of the Golden Highway and Bolaro Street intersection (H-023)		
Dunedoo Railway Station and yard group	State	Heritage railway station and yard	Wallerawang-Gwabegar railway, Dunedoo NSW	State Heritage Register 01134	Located about 160 metres northwest of the Golden Highway and Bolaro Street intersection (H-023)		
Travelling Stock Reserve (TSR)	Category 2 TSR/ Medium conservation value	TSRs, which are corridors (ranging from 60 metres to two kilometres wide) that connect smaller watering and	Golden Highway, Cobbora	<i>Crown Land Management Act 2016</i> (NSW)	Located along the northern corridor of the Golden Highway and overlapping the intersection with Spring Ridge Road as shown in Figure 2-8 (TSR aligns		

Description of existing environmental and potential impacts

		camping reserves, generally spaced 10 to 20 kilometres apart (based on a day's walk for cattle or sheep).			with Crown land).
	Category 3 TSR/ Medium conservation value		Castlereagh Highway, Dunedoo		Located along the eastern corridor of the Castlereagh Highway and overlapping the intersection with Barneys Reef Road as shown in Figure 2-9 (TSR aligns with Crown land).

The Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) encroaches upon land mapped as Travelling Stock Reserve (TSR), a parcel of Crown land reserved under legislation. The TSRs are categorised as a Category 2 and Category 3 TSR respectively, which is used for travelling stock, emergency management or biosecurity purposes and is of medium conservation value.

As outlined in Section 2.2.2, the existing roads that traverse mapped Crown land, and as an extension TSRs, including the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road (I-041), have been declared State Highways under the *Roads Act 1993* (NSW). The work proposed at these intersections within Crown Land requires clearing to facilitate the regrading of existing drainage infrastructure to support road pavement including additional hardstand placed outside of Crown Land. Therefore, the works within Crown Land are mostly temporary and not anticipated to have more than a minor impact on the TSR. The need to amend cadastral boundaries to reflect the gazetted road corridor(s) would be discussed between Transport and the NSW Department of Planning and Environment (Crown land) in accordance with the requirements of the *Crown Land Management Act 2016* (NSW).

The nearest heritage building within the Dunedoo Heritage Conservation area is located about three metres from the road reserve on Bolaro Street (refer to Figure 3-12) and around 75 metres west of the proposed works. Further, the scope of works at the Golden Highway and Bolaro Street intersection (H-023) is primarily limited to the road reserve and minor in nature.

Due to the distance, limited works, and minimal vibration intensive activities, the proposal is not anticipated to impact the heritage buildings located within the Dunedoo Heritage Conservation area. Further assessment on potential vibration impacts is provided in Section 1.1 (Noise and vibration).

Similarly, due to the distance to the Dunedoo Courthouse (about 270 metres southwest of the intersection) and the Dunedoo Railway Station and yard group (about 160 metres northwest of the intersection), as well as the limited works, these heritage items are unlikely to be impacted by the proposal.

Description of existing environmental and potential impacts

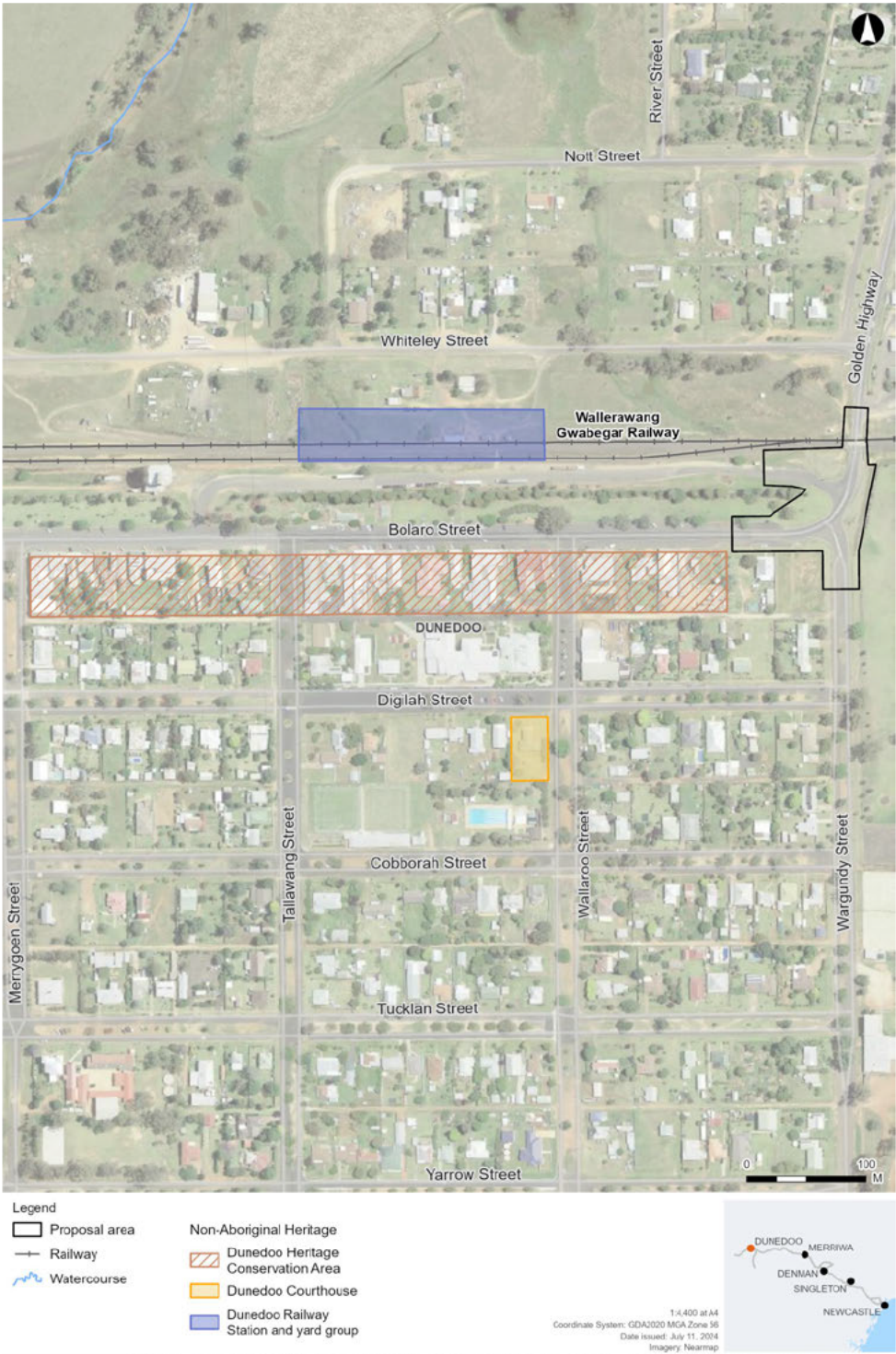


Figure 3-12: Non-Aboriginal heritage items within the vicinity of the Golden Highway and Bolaro Street intersection (H-023)

On-site surveys have identified the presence of a heritage sign located about 30 metres east of the Castlereagh Highway and Barneys Reef Road intersection (I-041) (refer to Figure 3-13 and Figure 3-14). This heritage sign notes a historic incident which has occurred in the local area. The proposal would not impact this heritage sign as the sign is set back several metres from the existing road verges of Castlereagh Highway and Bolaro Street.

Description of existing environmental and potential impacts



Description of existing environmental and potential impacts



Figure 3-14: Local heritage sign within the vicinity of Castlereagh Highway and Barneys Reef Road intersection (I-041)

Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?

Nominated trees for removal or pruning as part of the proposal do not form part of a heritage listing or have other heritage value.

Further assessment of potential impacts to trees is provided in Section 3.7 (Biodiversity).

Yes
☐

No
☒

Is the proposal likely to occur in or near features that indicate potential archaeological remains?

The proposal is located within a rural area, adjacent to cleared and grassed land. There is the potential for archaeological remains to be found, though this is considered low. Nevertheless, an unexpected heritage finds protocol would be included in the construction management document in the event that a heritage item is discovered.

Yes
☐

No
☒

Safeguards

Table 3-19: Non-Aboriginal heritage safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
H1	Non-Aboriginal heritage	If unexpected archaeological remains are uncovered during the works, all works are to cease in the vicinity of the material/find and the steps in Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed. Transport for NSW Senior Environment Specialist – Heritage is to be contacted immediately.	Contractor	Construction
H2	Non-Aboriginal heritage	If any items defined as relics under the <i>NSW Heritage Act 1977</i> are uncovered during the works, all works are to cease in the vicinity of the find and the Transport for NSW Senior Environment Specialist – Heritage contacted immediately.	Contractor	Construction
H3	Non-Aboriginal heritage	<i>The existing local heritage sign located near site I-041 will be protected to prevent any damage or disturbance during construction activities.</i>	Contractor	Construction

3.7 Biodiversity

Table 3-20: Biodiversity

Description of existing environmental and potential impacts																	
Have relevant database searches been carried out? - BioNet threatened species records within the locality (e.g. 10km radius) - Regional vegetation mapping and BioNet Vegetation Classification database (including a search by the relevant CMA/s to identify potential TECs present) - NSW WeedWise (DPI) website - Commonwealth EPBC Act Protected Matters Search Tool (PMST) - NSW State Vegetation Type Map (DPE, 2023). A search of the above databases was carried out on 14 December 2023 and are attached in Appendix F. Field surveys were carried out by an ecologist on 20 and 21 November 2023, and 31 January to 2 February 2024.	Yes ☒	No ☐															
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? Both Commonwealth and State listed matters must be considered. A review of threatened species databases records within 10 kilometres of the proposal areas using NSW OEH BioNet Wildlife search identified threatened fauna species as occurring or having potential to occur within 10 kilometres of the proposal areas (refer to Appendix F). Habitat preferences and distribution was reviewed for these species and the following assessments were made for each proposal area: - Golden Highway and Spring Ridge Road intersection (I-015): 94 potential threatened fauna species present under the BC Act and three threatened fauna species present under the EPBC Act - Golden Highway and Saxa Road intersection (I-017): 13 potential threatened fauna species present under the BC Act and no threatened fauna species present under the EPBC Act - Castlereagh Highway and Barneys Reef Road intersection (I-041): 56 potential threatened fauna species present under the BC Act and no threatened fauna species present under the EPBC Act - Golden Highway and Bolaro Street intersection (H-023): Seven potential threatened fauna species present under the BC Act and no threatened fauna species present under the EPBC Act. The nearest recorded sightings of fauna species (within a one-kilometre radius) to the proposal areas are summarised in Table 3-21. Table 3-21: Recorded sightings of species listed <table><tr><th>Scientific and common name</th><th>Status *</th><th>Type of listing (BC Act or EPBC Act)</th><th>Distance from works (approximate)</th><th>Potential impacts</th></tr><tr><td>Black Falcon (<i>Falco subniger</i>)</td><td>V</td><td>BC Act</td><td>0.67 kilometres north of the Golden Highway and Bolaro Street intersection</td><td>None anticipated</td></tr><tr><td>Turquoise Parrot (<i>Neophema pulchella</i>)</td><td>V</td><td>BC Act</td><td>0.6 kilometres south, and 1 kilometre southwest, of the Golden Highway and Spring Ridge Road intersection</td><td>None anticipated</td></tr></table> *V= vulnerable, E = endangered, CE = critically endangered, VEC = vulnerable ecological community EEC = endangered ecological community, CEEC = critically endangered ecological community M = Migratory The EPBC PMST identified the following Matters of National Environmental Significance within a one-kilometre radius of the proposal areas, detailed in Table 3-22. The PMST search results details the TECs, threatened species and migratory species	Scientific and common name	Status *	Type of listing (BC Act or EPBC Act)	Distance from works (approximate)	Potential impacts	Black Falcon (<i>Falco subniger</i>)	V	BC Act	0.67 kilometres north of the Golden Highway and Bolaro Street intersection	None anticipated	Turquoise Parrot (<i>Neophema pulchella</i>)	V	BC Act	0.6 kilometres south, and 1 kilometre southwest, of the Golden Highway and Spring Ridge Road intersection	None anticipated	Yes ☒	No ☐
Scientific and common name	Status *	Type of listing (BC Act or EPBC Act)	Distance from works (approximate)	Potential impacts													
Black Falcon (<i>Falco subniger</i>)	V	BC Act	0.67 kilometres north of the Golden Highway and Bolaro Street intersection	None anticipated													
Turquoise Parrot (<i>Neophema pulchella</i>)	V	BC Act	0.6 kilometres south, and 1 kilometre southwest, of the Golden Highway and Spring Ridge Road intersection	None anticipated													

Description of existing environmental and potential impacts

with the potential to occur in the proposal area, as well as wetlands of international importance (Ramsar).

Table 3-22: Matters of National Environmental Significance

Intersection	Wetlands of international importance (Ramsar)	Threatened ecological community	Threatened species	Migratory species
Golden Highway and Spring Ridge Road intersection (I-015)	None	6	41	9
Golden Highway and Saxa Road intersection (I-017)	None	6	40	9
Castlereagh Highway and Barneys Reef Road intersection (I-041)	None	3	35	9
Golden Highway and Bolaro Street intersection (H-023)	None	5	40	10

The TECs and listed migratory species within a one-kilometre radius of the proposal areas are unlikely to be affected. This is due to the highly constrained proposal boundary, limited duration and extent of works, and the restriction of most activities to the road reserve.

In the unlikely event that unexpected threatened fauna or flora species are discovered during construction, works would be stopped and Transport's *Unexpected Threatened Species Find Procedure* would be followed.

Does the proposal involve pruning, trimming or removal of any tree/s?

Native vegetation mapping shown in figures within this section is based on mapping obtained from the NSW State Vegetation Type Map (DPE, 2023). Ground truthing carried out during the ecology surveys confirmed the presence of PCTs as shown in Figure 3-15, Figure 3-17, Figure 3-24, and Figure 3-25. A description of PCTs within the vicinity of the proposal areas is provided below.

Golden Highway and Saxa Road intersection (I-017)

The removal and/or pruning of several trees is proposed at the Golden Highway and Saxa Road intersection (I-017) to accommodate the swept paths of OSOM vehicles. These trees are a mixture of juvenile and mature *Eucalyptus melliodora* (Yellow Box) and *Callitris sp.* (Native Cypress) trees located on the northern side of Golden Highway (refer to Figure 3-15 and Figure 3-16). These trees are mapped as Blakelys Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277).

PCT 277 corresponds with the following TECs:

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions, listed as Critically Endangered under the BC Act
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, listed as Critically Endangered under the EPBC Act.

Yes ☒

No ☐

Description of existing environmental and potential impacts



Figure 3-15: PCTs of proposed tree removal and or pruning - Golden Highway and Saxa Road intersection (I-017)

Description of existing environmental and potential impacts



Figure 3-16: Tree pruning and/or removal required on Golden Highway

Castlereagh Highway and Barneys Reef Road intersection (I-041) (refer to Figure 3 17)

Four native and mature trees that are located on the western side of Castlereagh Highway, south of Barneys Reef Road, would likely require removal to accommodate the road widening proposed. This includes one *Eucalyptus melliodora* with two small hollows (refer to Figure 3-18), two *Eucalyptus mollucana* (refer to Figure 3-19), and one *Eucalyptus melliodora* (refer to Figure 3-20). The tree with hollows serves as potential habitat for small hollow-depending species including mammals, birds and owls. However, no signs of occupation were observed during the field surveys. As per safeguard B1, if unexpected threatened fauna or flora species are discovered during construction, works would be stopped and Transport's *Unexpected Threatened Species Find Procedure* would be followed. These trees are mapped as Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (PCT 81).

On the eastern side of Castlereagh Highway, south of Barneys Reef Road, four trees would potentially require removal to accommodate the new culverts, headwalls, and regrading of the existing drainage channel. In addition, there is one mature and one juvenile tree of the same native species (*Eucalyptus melliodora*) at the southern end, as shown on Figure 3-21. To the north of these trees is one dead tree with a rejuvenating sapling and one juvenile tree of the same native species (*Eucalyptus melliodora*), as shown in Figure 3-22. These trees are mapped as PCT 81. PCT 81 corresponds with the following TECs:

- Inland Grey Box Woodlan in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions, listed as Endangered under the BC Act
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia, listed as Endangered under the EPBC Act.

Excavation required for the existing informal drainage channel associated with the deeper headwall levels on the eastern side of Castlereagh Highway has the potential to impact the tree roots of other trees either side of the existing drainage channel. A qualified arborist would be engaged during construction to assess the likely impact on these trees and also assess the potential to retain any trees identified above for removal due to the culvert works.

Description of existing environmental and potential impacts		
One other tree located north of Barneys Reef Road would potentially require removal to accommodate the construction of a new culvert and headwall at this section of Castlereagh Highway. This tree is a native species (<i>Eucalyptus mollucana</i>), mapped as Western Grey Box tall grassy woodland on alluvial loam and clay soils (PCT 76) (refer to Figure 3-17). An image of this tree is shown in Figure 3-23. PCT 76 corresponds to the following TECs: • Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions, listed as Endangered under the BC Act • Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia, listed as Endangered under the EPBC Act. The trees identified above could potentially serve as a habitat for foraging bird species. However, foraging habitat resources within the site would not be critical to the survival of these species in the locality, given the small area and disturbed nature of the proposal; the loss of such would be considered to have a negligible impact. The works are exempt from providing biodiversity offsets under the <i>TfNSW No Net Loss Guidelines</i> (2023) and/or the <i>TfNSW Tree and Hollow Replacement Guideline</i> (2023), as the trees requiring removal are within the disturbed zone of the existing road (extends to the outside of the table drain). As identified in Section 3.5 (Aboriginal cultural heritage) and Section 3.6 (Non-Aboriginal heritage), trees impacted by the proposal are not heritage-listed.		

Description of existing environmental and potential impacts

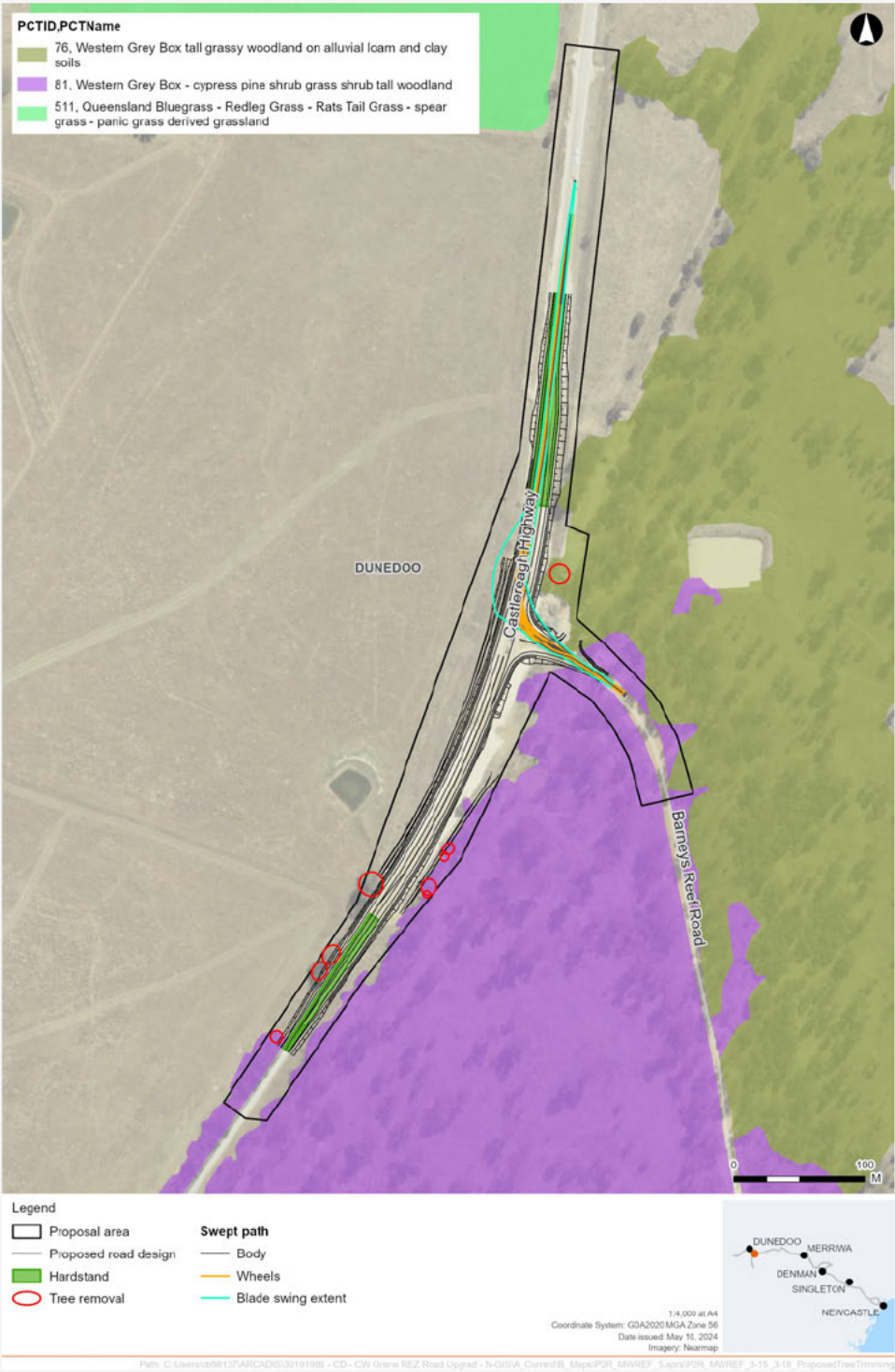


Figure 3-17: Proposed tree removal and PCTs – Castlereagh Highway and Barneys Reef Road intersection (I-041)

Description of existing environmental and potential impacts



Figure 3-18: Tree removal required on the western side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection (southern end) to accommodate road widening (Google Earth, 2023)



Figure 3-19: Tree removal required on the western side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection to accommodate road widening (further north of Figure 3-18) (Google Earth, 2023)

Description of existing environmental and potential impacts



Figure 3-20: Tree removal required on western side of Castlereagh Highway, further south of the Castlereagh Highway and Barneys Reef Road intersection to accommodate road widening (further north of Figure 3-19) (Google Earth, 2023)



Figure 3-21: Tree removal required on the eastern side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection (southern end) for culvert replacement (Google Earth, 2023)

Description of existing environmental and potential impacts



Figure 3-22: Tree removal required on the eastern side of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection for culvert replacement (north of Figure 3-21) (Google Earth, 2023)



Figure 3-23: Tree removal potentially required on the eastern side of Castlereagh Highway, north of the Castlereagh Highway and Barneys Reef Road intersection for culvert replacement (Google Earth, 2023)

Description of existing environmental and potential impacts		
No tree removal is proposed at Golden Highway and Spring Ridge Road intersection (I-015) and Golden Highway and Bolaro Street intersection (H-023). Construction personnel would be informed of the locations of PCTs within and in the vicinity of the proposal areas. All ancillary facilities would be located away from existing PCTs, within previously disturbed land.		
Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species?	Yes ☒	No ☐
Would the proposal require the removal of any other vegetation? Golden Highway and Spring Ridge Road intersection (I-015) At the Golden Highway and Spring Ridge Road intersection (I-015), the proposal would require the removal of native grassland mapped as: • White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, BBS Bioregion (PCT 433) • Queensland Bluegrass - Redleg Grass - Rats Tail Grass - spear grass - panic grass derived grassland of the Nandewar Bioregion and Brigalow Belt South Bioregion (PCT 511) • Western Grey Box – cypress pine shrub grass shrub tall woodland (PCT 81). This would be required to accommodate the proposed hardstand on the south east corner of the Golden Highway and Spring Ridge Road intersection (I-015) and the western verge of Spring Ridge Road (refer to Figure 3-24). Species present include <i>Dichanthium sericeum</i> subsp. <i>sericeum</i> (Queensland Bluegrass), <i>Sporobolus creber</i> (Slender Rat's Tail Grass), and <i>Bothriochloa macra</i> (Redleg), and some exotic species including <i>Paspalum</i> sp., <i>Foeniculum vulgare</i> , <i>Eragrostis curvula</i> , <i>Verbena</i> sp., <i>Arrhenatherum</i> sp, and <i>Hyparrhenia hirta</i> . PCT 433 corresponds with the following TECs: • White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions, listed as Critically Endangered under the BC Act • White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, listed as Critically Endangered under the EPBC Act. PCT 511 also partly corresponds with the above TECs. PCT 81 corresponds with the following TECs: • Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions, listed as Endangered under the BC Act • Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia, listed as Endangered under the EPBC Act.	Yes ☒	No ☐

Description of existing environmental and potential impacts

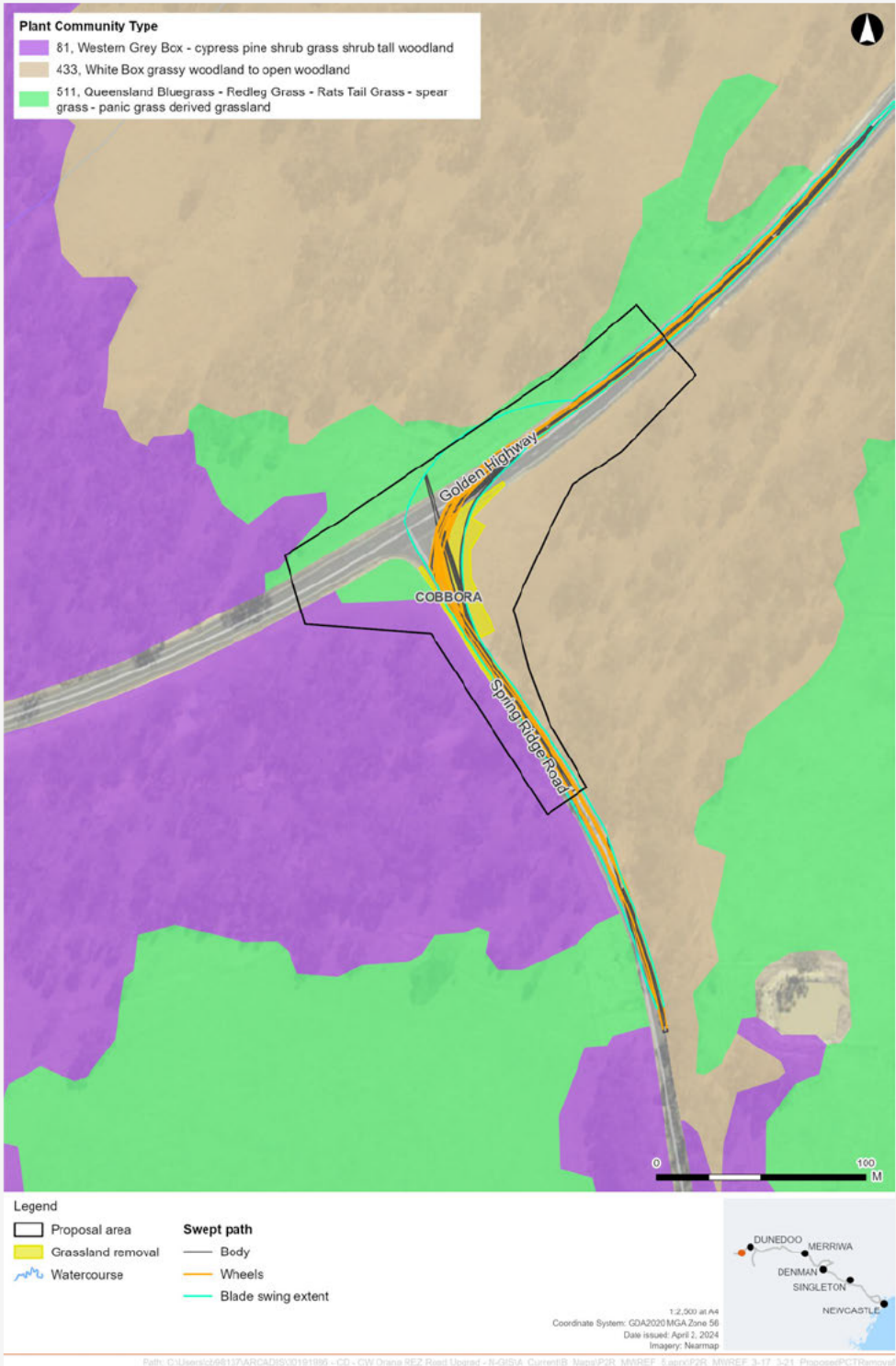


Figure 3-24: Proposed removal of derived native grassland PCT - Golden Highway and Spring Ridge Road intersection (I-015)

Golden Highway and Saxa Road intersection (I-017)

The proposal would require the removal of about 965 square metres of native grassland mapped as Western Grey Box – cypress pine shrub grass shrub tall woodland (PCT 81). This is to accommodate the construction of hardstand on the south east corner of the Golden Highway and Saxa Road intersection (I-017), and western verge of Saxa Road (refer to Figure 3-15).

PCT 81 corresponds with two TECs stated above that are listed as Endangered under the BC Act and EPBC Act.

Description of existing environmental and potential impacts

Castlereagh Highway and Barneys Reef Road intersection (I-041)

The proposal would require the removal up to a total of 0.35 hectares of native and exotic grassland on both sides of Castlereagh Highway and Barneys Reef Road within the proposal area to accommodate the construction of road widening, culvert installation, drainage channel regrading and road batters.

On the eastern side of Castlereagh Highway, ecology surveys have observed the presence of native grasses (*Themeda trianda*, *Sporobolus spp.*, *Austrostipa spp.*, *Panicum simile*, *Wahlenbergia*, *Dichanthium*, *Rytidosperma*), mapped as PCT 81. As noted above, PCT 81 corresponds with two TECs and is listed as Endangered under the BC Act and EPBC Act.

Golden Highway and Bolaro Street intersection (H-023)

The Golden Highway and Bolaro Street intersection (H-023) does not contain any mapped PCT within the proposal area and the nearest PCT, as shown in Figure 3-25, is mapped approximately 100 metres to its east within the adjoining golf course. Whilst impact to exotic grassland is likely during earthworks and hardstand construction, no native vegetation is expected to be impacted by the proposal.

Description of existing environmental and potential impacts

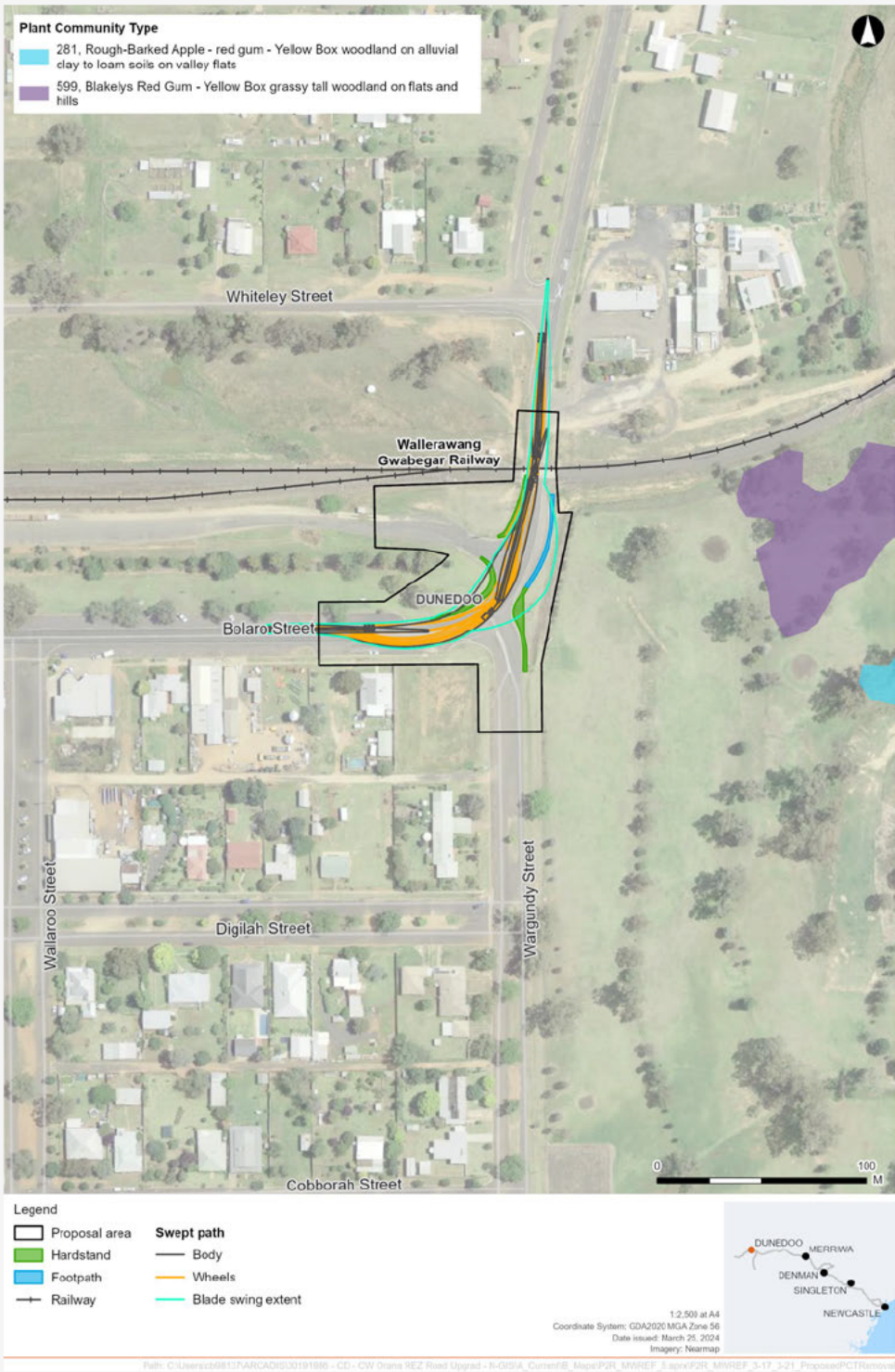


Figure 3-25: PCTs – Golden Highway and Bolaro Street intersection (H-023)

Would the proposal require the removal of any tree hollows?

Five trees located on the eastern side of Castlereagh Highway south of the Castlereagh Highway and Barneys Reef Road intersection (I-041) were identified during ecology surveys as having small to medium hollows. Removal of these trees would be required to accommodate drainage works proposed along the eastern side of Castlereagh Highway. In accordance with Transport's *Tree and hollow replacement guidelines* (EMF-BD-GD-0129), the proposed work is excluded from having to comply with nominated

Yes ☒ No ☐

Description of existing environmental and potential impacts		
tree and hollow replacement ratios in the Transport for NSW Biodiversity Policy (August 2022).		
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? The proposal areas are not located within areas mapped as 'littoral rainforest' or 'coastal wetland'. The nearest mapped littoral rainforest is located on Hansells Hill, located about 0.9 kilometres southwest of the Castlereagh Highway and Barneys Reef Road intersection. Woodberry Swamp is the nearest mapped coastal wetland, located about 215 kilometres southeast of the Castlereagh Highway and Barneys Reef Road intersection. Given the minor works proposed and the distance, the proposal would not impact this littoral rainforest or wetland.	Yes ☐	No ☒
Would the proposal provide any additional barriers to the movement of wildlife?	Yes ☐	No ☒
Would the proposal disturb any natural waterways or aquatic habitat? As outlined in Section 3.1 (Soil), the proposed intersection works would be carried out on generally flat to undulating topography within an existing road and verge. The proposed widening at the Castlereagh Highway and Barneys Reef Road intersection (I-041) would increase the impervious pavement to 4000 square metres, which would reduce infiltration and increase stormwater runoff. The proposed replacement of three culverts along Castlereagh Highway and regrading of existing drainage channels along the western and eastern sides of Castlereagh Highway would mimic the existing drainage and flooding conditions. As such, modifications to drainage at this intersection would not impact existing surface water flows. The increased pavement areas at the other three intersections would be minor in the context of the overall hydrology and as such, would be unlikely to have any substantial impact on surface water flows within the catchments. Further, the small extent and temporary and short-lived nature of any ground disturbance likely at each site means that there is negligible risk of impacts to water quality in the receiving waters due to the proposal. As outlined in Section 3.2 (Waterways and water quality), there is low to negligible potential for any sedimentation and associated water quality impacts to the Talbragar River located within the vicinity of the intersections. With the implementation of erosion and sediment safeguards (refer to Section 3.2 (Waterways and water quality)), these impacts would be minimised and there would be negligible impacts to surrounding water bodies. No other waterways or aquatic habitat are expected to be impacted due to the minor scope of works proposed.	Yes ☐	No ☒
Would the proposal impact (directly or indirectly) any potential microbat roosting or breeding habitat such as on bridges and culverts? The scope of works is limited to minor upgrades to existing intersections. Though there is the potential for culverts to serve as microbat roosting or breeding habitats, there was no evidence of microbat roosting or suitable habitat observed during ecologist survey in November 2023 and January 2024 at the existing culverts located at the Golden Highway and Saxa Road intersection (I-017) or within the vicinity of the Castlereagh Highway and Barneys Reef Road intersection (H-023). In accordance with safeguard B1, if unexpected, threatened fauna species are discovered, works will be stopped immediately and follow the Transport's <i>Unexpected Threatened Species Find Procedure</i>.	Yes ☐	No ☒

Safeguards

Table 3-23: Biodiversity safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
B1	Biodiversity	If unexpected, threatened fauna or flora species are discovered, works will	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
		be stopped immediately and follow the Transport's <i>Unexpected Threatened Species Find Procedure</i> in Transport's <i>Biodiversity Management Guidelines (Transport for NSW 2024) – Guide 1</i> (Pre-clearing process).		
B2	Biodiversity	All construction work will be undertaken in accordance with Transport's <i>Biodiversity Management Guidelines (Transport for NSW 2024)</i>	Contractor	Construction
B3	Biodiversity	The location and extent of all works will be clearly demarcated and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks.	Contractor	Construction
B4	Biodiversity	Vegetation to be retained at risk of impact from the works is to be protected in accordance with AS 4970-2009 – <i>Protection of trees on development sites</i> , and may require exclusion fencing of the Tree Protection Zones.	Contractor	Pre construction and construction
B5	Trees	Any tree trimming shall be no more than 20% of the canopy cover for each tree.	Contractor	Construction
B6	Trees	Any additional impact to trees from that identified in this MWREF may require further assessment.	Contractor	Pre construction and construction
B7	Trees	Tree removal, pruning and any impact to tree roots will be undertaken by a suitably qualified arborist.	Contractor	Pre-construction
B8	Trees	The hollow-bearing tree to be removed at the Castlereagh Highway and Barneys Reef Road (I-041) will be inspected for the presence of fauna immediately prior to planned removal. If present, the fauna will be removed and relocated by a suitably qualified and experienced fauna handler prior to tree removal.	Contractor	Construction

3.8 Traffic and transport

Table 3-24: Traffic and transport

Description of existing environmental and potential impacts		
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction? <u>Vehicular access and movement</u> Detours and or disruptions to traffic flow during the construction phase is likely, however, any disruption is subject to the requirements of a road occupancy licence (ROL) to manage minor and temporary disruptions to traffic flow including possible contraflow arrangements to maintain motorist and worker safety. A contraflow arrangement is expected to be required during construction works at the Castlereagh Highway and Barneys Reef Road intersection (I-041). This is a temporary traffic arrangement wherein traffic travelling in both directions use one lane of Golden Highway while construction activities are carried out in the other lane. The use of temporary traffic controls would be implemented for the duration of the contraflow arrangement and may be supplemented by the use of temporary traffic control signals at each end of the works area. This arrangement would be temporary and would not extend for the full duration of the proposed 12-month construction period for the Castlereagh Highway and Barneys Reef Road intersection (I-041). Access to local residences within the vicinity of the proposal areas would be maintained throughout construction. During the operational phase these intersections will form part of the overall road network and the objective of the proposed upgrades is to facilitate the transportation of OSOM components from Port of Newcastle to the CWO REZ. <u>Cyclist and pedestrian access and movement</u> There is an existing pedestrian footpath extending west on Bolaro Street and south on Wargundy Street from the Golden Highway and Bolaro Street intersection (H-023). New signage is proposed on the south west corner, and further west, of this intersection (refer to Figure 2-6 and Figure 2-7). Disruptions to pedestrian flow along Bolaro Street from this intersection could occur during the installation of signage; however, these impacts would be temporary to the construction phase only. A section of the existing median on Wargundy Street is also proposed to be removed as part of the proposal to improve safety for pedestrians crossing Wargundy Street. This would tie into the new paved footpath proposed on the eastern side of Bolaro Street. Given the absence of a paved footpath on the eastern side of Bolaro Street, pedestrian movements along this side of the street would be considered unformalised. Nevertheless, construction activities relating to the construction of hardstand and amendments to the existing median would prevent pedestrians from accessing the eastern side of Bolaro Street during the construction period. As above, these impacts would be temporary to the construction phase only. Temporary signage would be in place to safely redirect pedestrians from the construction works as per safeguard T3. There is no existing or proposed cycling infrastructure at the Golden Highway and Bolaro Street intersection (H-023). Similarly, there are no cyclist or pedestrian infrastructure within, or in the vicinity of, the other proposal areas.	Yes ☒	No ☐
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation? The proposed right turn lane from Castlereagh Highway northbound, and left turn lane from Castlereagh Highway southbound, to Barneys Reef Road would minimally change operational traffic flow. The proposed changes at the Castlereagh Highway and Barneys Reef Road intersection (I-041) would support the expected growth in heavy vehicles travelling through this intersection to access the Birriwa Solar and Battery	Yes ☒	No ☒

Description of existing environmental and potential impacts

Farm, the Tallawang Solar Farm, Barneys Reef Wing Farm and Bellambi Heights Solar Farm. However, the proposed design would not result in operational detours.

The proposal involves the installation of a paved footpath along the eastern side of the Golden Highway and Bolaro Street intersection (H-023). The footpath would tie into the proposed hardstand and extend to the rail track (refer to Figure 2-6 and Figure 2-7). A section of the existing median on Wargundy Street is also proposed to be removed as part of the proposal to improve safety for pedestrians crossing Wargundy Street. This amendment would allow pedestrians to stop at the median before crossing the southbound lane on Wargundy Street.

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?

Yes ☐

No ☒

Several regional coach routes travel through the Golden Highway and Bolaro Street intersection (H-023) and Castlereagh Highway and Barneys Reef Road intersection (I-041), as summarised in Table 3-25. During construction, it is unlikely the proposal would cause delays to these services and otherwise would be detoured around construction works.

Operation of the proposal would not result in detours or disruptions to traffic flow.

Table 3-25: Bus routes travelling through the proposal areas

Bus route number	Route	Bus stop closest to the intersection	Potential impacts
539, 540, 545, 546, 547, and 549	539, 545, 547 and 549 (Lithgow to Coonabarabran) 540 and 546 (Coonabarabran to Lithgow) Travels through the Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023)	One Dunedoo Coach stop (Bus stop ID 28441), located on the southern side of the Bolaro Street service road. This stop is about 400 metres west of the Golden Highway and Bolaro Street intersection (H-023)	None identified
573 and 574	573 (Lithgow to Baradine) 574 (Baradine to Lithgow) Travels through the Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023)	One Dunedoo Coach stop (Bus stop ID 28441), located on the southern side of the Bolaro Street service road. This stop is about 400 metres west of the Golden Highway and Bolaro Street intersection (H-023)	None identified

There is an existing railway that intersects Castlereagh Highway about 55 metres north of the Castlereagh Highway and Bolaro Street intersection (H-023). The scope of works proposed at this intersection include the construction of hardstands and a footpath, a kerb replacement, removal and set back of safety barrier protecting rail signals, median removal and the installation and relocation of signage. With the exception of a barrier to be relocated in consultation with ARTC as per Section 2/5/2. the proposal would not impact the operation of this railway.

Additional information pertaining to traffic and transport risk.

There is potential for the relocation and installation of signage at the Castlereagh Highway and Bolaro Street intersection (H-023) to temporarily impact street parking along either side of Bolaro Street. These impacts would be minor and would be during the signage installation only.

Description of existing environmental and potential impacts

There are no existing parking restrictions and signage available on the southern side of Bolaro Street for about 200 metres east of the Castlereagh Highway and Bolaro Street intersection (H-023). It is not evident through the desktop assessment whether this area of Bolaro Street, where driveways are not obstructed, is utilised for informal car parking. The proposal would involve the installation of two 'No parking' signs on the southern side of Bolaro Street, formalising the 'No parking' restrictions for about 40 metres on Bolaro Street, east of the Castlereagh Highway and Bolaro Street intersection (H-023). Consultation with Warrumbungle Shire Council would be required due to the proposed changes in parking restrictions. No street parking is currently available across the other proposal areas.

Safeguards

Table 3-26: Traffic and transport safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
T1	Traffic and transport	A Traffic Management Plan shall be prepared by the Contractor and approved by Transport prior to any changes to road user movements, controls or access. The plan shall include controls and procedures to address potential traffic impacts on road users and the environment, with specific regard to local traffic movement requirements and peak traffic volumes during construction.	Contractor	Construction
T2	Traffic and transport	Private property accesses will be maintained during the works.	Contractor	Construction
T3	Traffic and transport	Where works would affect the free flow of traffic, an ROL will be obtained and a Traffic Guidance Scheme as part of the Traffic Management Plan will be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual</i> .	Contractor	Construction
T4	Traffic and transport	Appropriate signage (such as variable message signs) and supervision will be provided at all times to ensure that all construction work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas.	Contractor	Construction
T5	Traffic and transport	Designated work areas within any road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity.	Contractor	Construction
T6	Traffic and transport	Pedestrian access around the intersection works will be maintained at all times. Where this cannot be achieved a safe diversion for pedestrians should be provided.	Contractor	Construction

3.9 Socio-economic

Table 3-27: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business? The nearest businesses to the Golden Highway and Bolaro Street intersection (H-023) include: • Dunedoo Golf Course, located about eight metres east of the proposal, however, access to the golf course is approximately 500m away from the proposal.: • Redbank Gums Bed and Breakfast, located about 50 metres south of the intersection on Wargundy Street • Leigh Stoddart and Company, located about 80 metres west of the intersection on Bolaro Street • other businesses located further west on Bolaro Street including Jackson's Treasures, Ampol Dunedoo, Hotel Dunedoo, and SPAR Dunedoo. Day, and potentially night, time construction work is proposed at the Golden Highway and Bolaro Street intersection (H-023). As outlined in Section 3.3 (Noise and vibration), recreational users of the golf course have the potential to be noise affected by construction work carried out during daytime hours. However, elevated construction noise levels at this intersection would be temporary and short-lived. All residential and non-residential sensitive receivers likely to be affected by noise impacts from the proposal would be notified at least five business days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. Potential noise impacts at these receivers would be managed per the <i>Construction Noise and Vibration Guideline</i> (Transport for NSW, 2023), including respite (if required). Traffic diversion around construction works would potentially be required, however, the proposal would not require any road closures or detours. Access to all businesses and residential properties within the vicinity of the proposal would be maintained throughout construction. There are no local businesses within a 500-metre radius of the other proposal areas.	Yes ☐	No ☒
Is the proposal likely to require any property acquisition? No impact to private properties is expected. However, as detailed in Section 2.2.2 (Proposal description), the existing routes at Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041) encroach upon Crown land (refer to Figure 2-8 and Figure 2-9). The proposed works within Crown Land is upgrade of existing infrastructure supporting the road and no further encroachment for permanent works is proposed. As per safeguard G1, Transport for NSW and the NSW Department of Planning and Environment (Crown land) will consider amendment of cadastral boundaries at a later date.	Yes ☒	No ☐
Is the proposal likely to alter any access for properties (either temporarily or permanently)? Access to all local businesses and residential properties would be maintained throughout construction. No permanent impacts to access would occur as a result of the proposal.	Yes ☐	No ☒
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)? As outlined in Section 1.1 (Traffic and transport), there is the potential for the relocation and installation of signage at Castlereagh Highway and Bolaro Street intersection (H-023) to temporarily impact street parking along either side of Bolaro Street. These impacts would be minor and would be during the signage installation only. The proposal would also involve the installation of two 'No parking' signs on the southern side of Bolaro Street, formalising the 'No parking' restrictions for about 40	Yes ☒	No ☐

Description of existing environmental and potential impacts		
metres on Bolaro street, east of the Castlereagh Highway and Bolaro Street intersection (H-023). This is a permanent impact to parking on Bolaro Street.		
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)? As outlined in Section 1.1 (Traffic and transport), there is potential for pedestrian flow to be temporarily impacted along Bolaro Street due to the relocation and installation of signage. Construction activities relating to the construction of hardstand and amendments to the existing median would also prevent pedestrians from accessing the eastern side of Bolaro Street during the construction period. This impact would be temporary to the construction phase only. Temporary signage would be in place to safely redirect pedestrians from the construction works as per Safeguard T3. The proposal involves the installation of a paved footpath along the eastern side of the Golden Highway and Bolaro Street intersection (H-023). The footpath would tie into the proposed hardstand and extend to the rail track (refer to Figure 2-6 and Figure 2-7). A section of the existing median on Wargundy Street is also proposed to be removed as part of the proposal to improve safety for pedestrians crossing Wargundy Street. This amendment would allow pedestrians to stop at the median before crossing the southbound lane on Wargundy Street.	Yes ☒	No ☐
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)? Coolah Dunedoo Anglican Parish is the nearest place of worship, located about 700 metres southwest of the Golden Highway and Bolaro Street intersection (H-023). The scope of work proposed at this intersection is limited to earthworks, construction of hardstand and the installation and relocation of signage. Given the limited works proposed and the distance from the intersection, no impacts to Coolah Dunedoo Anglican Parish are anticipated. Access to Dunedoo Golf Club and Dunedoo Sports Club would not be impacted by construction. Recreational users of the golf course have the potential to be noise affected by construction work at the Golden Highway and Bolaro Street intersection (H-023) carried out during daytime hours due to its location within the noise affected distance of 140 metres. However, any impacts to users due to construction noise levels at this intersection would be temporary to the 3-month construction period and short-lived. There are no places of social value within the vicinity of the other proposal areas that would be impacted by the proposal during construction or operation.	Yes ☒	No ☐
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)? Temporary visual amenity changes may occur for businesses and farming surrounding the proposal areas during construction. This would include temporary construction barriers and temporary fencing, and plant and equipment. Due to the nature and duration of the works, it is unlikely to cause long-term impacts to businesses, farms, tourist attractions.	Yes ☒	No ☐
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? Section 3.7 (Biodiversity) identifies the proposed tree removal and pruning for the proposal. The removal and/or pruning of several trees is proposed at the Golden Highway and Saxa Road intersection (I-017) to accommodate the swept paths of OSOM vehicles. These trees are juvenile and mature native trees located within mapped Crown land, likely to be endemic to the area and are unlikely to be a memorial or part of a memorial group.	Yes ☐	No ☒

Description of existing environmental and potential impacts		
The proposal also includes the removal of about 0.350 hectares of juvenile and mature native trees (<i>Eucalyptus melliodora</i>) trees located on the eastern and western sides of Castlereagh Highway, south of the Castlereagh Highway and Barneys Reef Road intersection (I-041). These trees are located within mapped Crown land, likely to have been endemic to the area and are unlikely to be a memorial or part of a memorial group.		
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting? As outlined above, trees impacted by the proposal area likely to be endemic to the area.	Yes ☐	No ☒

Safeguards

Table 3-28: Socio-economic safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
C1	Socio-economic	Notification will be given to affected community members prior to the works taking place. The notification is to include: • 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.	Contractor	Construction
C2	Socio-economic	Complaints received will be recorded and attended to promptly in accordance with the <i>Community Involvement Practice Notes and Resource Manual</i> (RTA, 1998).	Contractor	Construction
C3	Socio-economic	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.	Contractor	Construction
C4	Socio-economic	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).	Contractor	Construction

3.10 Landscape character and visual amenity

Table 3-29: 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.) As outlined in Section 3.6 (Non-Aboriginal heritage), Dunedoo Heritage Conservation area is located about 75 metres west of the Golden Highway and Bolaro Street intersection (H-023). This conservation area is comprised of several heritage buildings currently operating as local businesses. Dunedoo Courthouse is also located within the vicinity, about 270 metres southwest of the intersection. Both the conservation area and courthouse are heritage-listed under the Warrumbungle LEP 2013. Heritage buildings within the Dunedoo Heritage Conservation area and the Dunedoo Courthouse are unlikely to be impacted by the proposal due to the distance between the intersection and heritage items, limited scope of works and minimal vibration intensive activities proposed. Further assessment on potential vibration impacts is provided in Section 1.1 (Noise and vibration). There is one local heritage sign located east of the Castlereagh Highway and Barneys Reef Road intersection (I-041). The proposal would not impact upon this sign.	Yes ☒	No ☐
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) There are no known significant landmarks at the proposal areas. The extent of work would be primarily limited to the existing road reserve and would not cause major visual impacts during construction. Minor visual impacts would be caused by plant and equipment associated with the utility adjustment and asphaltting, including temporary fencing, signage and construction machinery. This would have the potential to result in visual clutter in the streetscape during construction. Visual changes made to the intersections during operation would be in line with the existing landscape for all intersections given that works are proposed within an existing road reserve. The key visual impact at Castlereagh Highway and Barneys Reef Road intersection (I-041) would be the construction of road batters and fencing on both sides of Castlereagh Highway and Barneys Reef Road.	Yes ☐	No ☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? The removal and/or pruning of several trees is proposed at the Golden Highway and Saxa Road intersection (I-017) to accommodate the swept paths of OSOM vehicles. These trees are a mixture of juvenile and mature native trees located on the northern side of Golden Highway (refer to Figure 3-15 and Figure 3-16). These trees are mapped as Blakelys Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277). Removal of about 0.350 hectares of juvenile and mature native trees (<i>Eucalyptus melliodora</i>) is also proposed on the northern side of Castlereagh Highway, west of the Castlereagh Highway and Barneys Reef Road intersection (I-041). These trees are mapped as Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (PCT 81). No tree removal is proposed at the Golden Highway and Spring Ridge Road intersection (I-015) or Golden Highway and Bolaro Street intersection (H-023). Further assessment on tree impacts is provided in Section 3.7 (Biodiversity).	Yes ☒	No ☐

Description of existing environmental and potential impacts		
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	Yes ☐	No ☒
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes ☐	No ☒
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians? The total area required for construction would be 9.73 hectares, of which only a limited area would involve soil disturbance. Soil disturbance quantities at each intersection are detailed below: • Golden Highway and Spring Ridge Road intersection (I-015): 0.049 hectares for the construction of hardstand • Golden Highway and Saxa Road intersection (I-017): 0.048 hectares for the construction of hardstand • Castlereagh Highway and Barneys Reef Road intersection (I-041): 2.2 hectares for the road widening, road batters and drainage work • Golden Highway and Bolaro Street (H-023): 0.081 hectares for the construction of hardstand. The proposed works are relatively minor and would not impact large areas of the existing road corridor or landscape.	Yes ☐	No ☒
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? No work on existing bridges is proposed.	Yes ☐	No ☒
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)? In compliance with specific ROL requirements, there may be a need to carry out certain activities at night for worker and motorist safety. Night works are proposed to be carried out for Castlereagh Highway and Barneys Reef Road (I-041) and Golden Highway and Bolaro Street intersection (H-023). Residential receivers within the vicinity to the Golden Highway and Bolaro Street intersection (H-023) have direct line of sight to the construction works proposed. During night works, lighting would be directed away from sensitive receivers as outlined in Table 3-30. An existing light pole at the intersection would be relocated back from the verge on the north west corner of the Golden Highway and service road intersection to accommodate the swept paths of the design vehicles. While night works in response to ROL requirements might be required at the remaining three intersections where there are no lines of sight to the nearest residential receiver. Therefore, the risk of unwanted light spillage on residential properties is negligible to non-existent during construction. An existing light pole located within the proposal area of the Golden Highway and Bolaro Street intersection (H-023) would be impacted by the proposal to accommodate the swept paths of the design vehicles. This light pole would be relocated from the road verge on the north west corner of the Golden Highway and service road intersection to the back of the new road verge. This impact would be limited to a relocation only, and the light spill would remain as existing. No other lighting requirements are proposed for operation of the proposal.	Yes ☐	No ☒
Would any new structures or features to be constructed, result in over shadowing to adjoining properties or areas? The proposed works are not anticipated to cause overshadowing.	Yes ☐	No ☒
Additional information pertaining to landscape character and visual amenity risk. The proposal is located within the dark sky region (within 200 kilometres of the Siding Spring Observatory), about 90 kilometres south from the Siding Spring Observatory. While day works are proposed for the Golden Highway and Spring Ridge Road intersection (I-015) and Golden Highway and Saxa Road intersection (I-017), night works		

Description of existing environmental and potential impacts

would be required at the Castlereagh Highway and Barneys Reef Road intersection (I-041) and Golden Highway and Bolaro Street intersection (H-023).
Lighting would be required for night works at this intersection, temporarily increasing the amount of artificial light in the night sky.
To minimise lighting impacts during construction, all lighting used during night works would comply with the *Dark Sky Planning Guideline* (NSW Department of Planning and Environment, 2023) as per Safeguard L2.

Safeguards

Table 3-30: Landscape character and visual amenity safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
L1	Lighting	Any task lighting required for construction works will be directed away from sensitive receivers.	Contractor	Construction
L2	Lighting	Any temporary construction lighting required for works during the night-time period will comply with the <i>Dark Sky Planning Guideline</i> (NSW Department of Planning and Environment, 2023).	Contractor	Construction

3.11 Waste

Table 3-31: 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)? The proposal would require excavation of about 2.38 hectares of soils across the four intersections to accommodate the construction of hardstand, road widening, utility adjustments and drainage works. It is anticipated that >200 tonnes of waste material including concrete, asphalt, green waste and other waste types would be generated from the proposed works. This material is not likely to consist of contaminated material. All waste material will be disposed of at appropriately licensed waste facilities.	Yes ☒	No ☐
Is the proposal likely to require a licence from EPA? The proposal does not include any activities listed under Schedule 1 of the <i>Protection of the Environment Operations Act 1997</i> . An EPL is not required for this proposal.	Yes ☐	No ☒
Is the proposal likely to require the removal of asbestos?	Yes ☐	No ☒

Safeguards

Table 3-32: Waste safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
M1	Waste	Waste management measures will follow Transport's <i>Technical Guide: Management of road construction and maintenance waste</i> .	Contractor	Pre-construction
M2	Waste	The resource management hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be adopted, namely avoid unnecessary consumption; resource recovery; disposal as a last resort.	Contractor	Construction
M3	Waste	All waste will be treated in accordance with Transport's <i>Waste Minimisation and Management Guidelines</i> (RTA, 1998).	Contractor	Construction
M4	Waste	Waste material will not to be left on site once the works have been completed.	Contractor	Construction
M5	Waste	Prior to disposal, all wastes will be identified and classified with the NSW EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Contractor	Construction
M6	Waste	Waste is not to be burnt on site.	Contractor	Construction

3.12 Climate change and greenhouse gas emissions

Table 3-33: Climate change and greenhouse gas emissions

Description of existing environmental and potential impacts		
Is the proposal located in an area likely to be permanently or tidally inundated in the future or subject to increased duration and intensity of flooding? As detailed in Section 3.2 (Waterways and water quality), given the lack of publicly accessible flood data and reports for the proposal areas it remains unknown whether the proposal areas are in flood prone areas. However, given the proximity of about 190 metres to Talbragar River, the Golden Highway and Saxa Road intersection is likely to be located within the Talbragar River floodplain (about 190 metres). It is unlikely that the area would be permanently or tidally inundated in the future but may be subject to increased duration and intensity of flooding.	Yes ☒	No ☐
Have opportunities for reduced energy consumption during construction and operation been considered. If yes, summarise actions taken e.g., material selection, local suppliers and construction staff, etc. The source and quantity of materials would be determined during the detailed design phase of the proposal and would consider the requirements of the Transport for NSW Sustainable Design Guidelines – Version 4.0. Materials would be sourced from local suppliers where practicable.	Yes ☐	No ☒
Greenhouse gas emissions sources during construction are likely to be largest from: • Materials and transporting of materials to site • Plant and vehicles used in the construction of the proposal. During operation sources would include: • maintenance of the proposal which includes infrastructure and pavement repairs, and fuel use for the operation of the plant and equipment to perform the maintenance activities • use of the proposal by vehicles.		

Safeguards

No safeguards have been considered necessary to manage climate change and greenhouse gas emission impacts as the proposal works would have a negligible impact.

3.13 Cumulative impact

Table 3-34: Cumulative impact

Description of existing environmental and potential impacts		
Are there other projects and developments in the study area which could add to potential impacts in both construction and operation? There are a series of solar and wind farm developments currently underway within the CWO REZ, wherein the proposal is located. As outlined in Section 2.2.2, the proposal would facilitate the transport of large and heavy components from the Port of Newcastle to the CWO REZ. The route selection, planning and operation of OSOM vehicle movements would be assessed and approved as part of each individual developer's respective environmental assessment and subject to the conditions of each relevant approval. Renewable projects currently planned within the CWO REZ include: • Narragamba Solar Farm – expected construction timeframe is January 2026 to December 2028 • Birriwa Solar Farm and Battery – construction timeframe unknown • Dunedoo Solar Farm – construction timeframe unknown • Dapper Solar Farm – currently in the approvals stage. The above projects would not add to the potential construction impacts and there would be no cumulative operational impacts. The proposal would support these solar and wind farm projects planned for the CWO REZ. Given the scale of the area covered by the route between the Port of Newcastle and the CWO REZ, there are likely to be a range of standard roadwork activities undertaken outside the REZ program of works. This includes periodic maintenance, scheduled maintenance activities and minor standalone projects. It is not anticipated that these activities would have a major impact on any construction impacts, and ultimately would result in an improved road corridor and network so would benefit the operational phase of any projects.	Yes ☐	No ☒

Safeguards

No safeguards related to cumulative impacts are provided, as no potential impact has been identified.

4. Summary of safeguards and environmental management measures

4.1 Safeguards and environmental management measures

This section provides a summary of the site-specific environmental safeguards and management measures identified in described in Chapter 3 of this minor works 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 4-1: Summary of site-specific safeguards for proposed work

Factor	Safeguards
General	G1. Transport for NSW and Crown land will consider and amend the cadastral boundaries at the Golden Highway and Spring Ridge Road intersection (I-015) and Castlereagh Highway and Barneys Reef Road intersection (I-041), as necessary in accordance with relevant statutory provisions. G2. Any ancillary facilities that are not identified in this MWREF must satisfy the criteria outlined in Table 2-4 and reflected in construction environmental management document(s) prior to its use.
Soil	E1. Erosion and sediment control measures are to be implemented (in accordance with the Landcom/Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)) and maintained to: • minimise 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. E2. All erosion and sedimentation controls implemented will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. E3. Work areas will be stabilised progressively during the works. E4. The maintenance of established stockpile sites will be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10). E5. Potential or actual acid sulphate soils are to be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005. E6. Any saline soils will be managed in accordance with NSW <i>Department of Primary Industries (2014) Salinity Training Handbook</i>. E7. An unexpected find procedure for potential or actual contaminated soils will be included in the construction environmental management documentation. E8. A progressive erosion and sediment control plan will be prepared for the works. E9. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised.
Waterways and water quality	W1. An emergency spill kit is to be kept onsite at all times during works. All staff are to be made aware of the location of the spill kit and trained in its use. W2. If a spill occurs, Transport's <i>Environmental Incident Procedure 2021</i> will be followed, and the Transport Project Manager notified as soon as practicable.

Factor	Safeguards
	W3. The Bureau of Meteorology flood forecasting and warning service is to be monitored for the duration of works for possible flooding to Talbragar River. In the event a flood warning is issued where flooding could occur at the work site(s), then the site(s) would be stabilised to minimise erosion extent and sediment runoff, plant and mobile equipment moved to higher ground where possible, and any remaining equipment on site stabilised to mitigate risk of floating offsite. Measures to remain until flooding has subsided and warnings cancelled. W4. Where possible, siting of laydown areas in higher elevated locations will be prioritised to minimise any potential impacts due to localised flooding.
Noise and vibration	NV1. Construction noise and vibration will be managed in accordance with the <i>Construction Noise and Vibration Guideline</i> (CNVG) (Transport for NSW, 2023) and <i>Interim Construction Noise Guideline</i> (ICNG) (DECC, 2009). NV2. 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. NV3. All sensitive receivers (e.g., schools and local residents) likely to be affected will be notified at least five business days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • the project • the construction period and construction hours • impacts and mitigation measures • contact information for project management staff • complaint and incident reporting • how to obtain further information. NV43. Any work with impulsive or tonal noise emissions will be carried out in accordance with the <i>Construction Noise and Vibration Guideline</i> (Roads) (Transport for NSW, 2023) and <i>EPA Interim Construction Noise Guideline</i> (ICNG) (NSW DECC, 2009). NV5. Additional noise mitigation measures will be incorporated into the Contractors Environmental Management Plan where appropriate, as identified in Table 3-9.
Air quality	A1. Vehicles transporting waste or other materials that have a potential to produce odours or dust are to be covered during transportation. 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 on sensitive receivers, motorist visibility and or worker safety are likely. A3. Plant, vehicles and equipment will be maintained in good condition and in accordance with manufacturer's specifications. A4. Plant and machinery will be turned off when not in use. A5. Visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention. A6. Work activities will be reprogrammed if the management measures are not adequately restricting dust generation.
Aboriginal cultural heritage	AH1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. The Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed.
Non-Aboriginal heritage	H1. If unexpected archaeological remains are uncovered during the works, all works are to cease in the vicinity of the material/find and the steps in Transport's <i>Standard</i>

Factor	Safeguards
	<i>Management Procedure: Unexpected Heritage Items</i> must be followed. Transport for NSW Senior Environment Specialist -Heritage is to be contacted immediately. H2. If any items defined as relics under the <i>NSW Heritage Act 1977</i> are uncovered during the works, all works are to cease in the vicinity of the find and the Transport for NSW Senior Environment Specialist -Heritage contacted immediately. H3. <i>The existing local heritage sign located near site I-041 will be protected to prevent any damage or disturbance during construction activities.</i>
Biodiversity	B1. If unexpected, threatened fauna or flora species are discovered, works will be stopped immediately and follow the Transport's <i>Unexpected Threatened Species Find Procedure</i> in Transport's <i>Biodiversity Management Guidelines (Transport for NSW, 2024)1 – Guide 1</i> (Pre-clearing process). B2. All construction work will be undertaken in accordance with Transport's <i>Biodiversity Management Guidelines (Transport for NSW, 2024)</i>. B3. The location and extent of all works will be clearly demarcated, including exclusion zones, and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks. B4. Vegetation to be retained at risk of impact from the works is to be protected in accordance with AS 4970-2009 – <i>Protection of trees on development sites</i> and may require exclusion fencing of the Tree Protection Zones. B5. Any tree trimming will be no more than 20% of the canopy cover for each tree. B6. Any additional impact to trees from that identified in this MWREF may require further assessment. B7. Tree removal, pruning and any impact to tree roots will be undertaken by a suitably qualified arborist. B8. The hollow-bearing tree to be removed at the Castlereagh Highway and Barneys Reef Road (I-041) will be inspected for the presence of fauna immediately prior to planned removal. If present, the fauna will be removed and relocated by a suitably qualified and experienced fauna handler prior to tree removal.
Traffic and transport	T1. A Traffic Management Plan shall be prepared by the Contractor and approved by Transport prior to any changes to road user movements, controls or access. The plan shall include controls and procedures to address potential traffic impacts on road users and the environment, with specific regard to local traffic movement requirements and peak traffic volumes during construction. T2. Private property accesses will be maintained during the works. T3. Where works would affect the free flow of traffic, a ROL will be obtained and a Traffic Guidance Scheme as part of the Traffic Management Plan will be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual</i>. T4. Appropriate signage (such as variable message signs) and supervision will be provided at all times to ensure that all construction work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas. T5. Designated work areas within any road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity. T6. Pedestrian access around the intersection works will be maintained at all times. Where this cannot be achieved a safe diversion for pedestrians should be provided.
Socio-economic	C1. Notification will be given to affected community members prior to the works taking place. The notification is to include:

Factor	Safeguards
	• 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. C2. Complaints received will be recorded and attended to promptly in accordance with the <i>Community Involvement Practice Notes and Resource Manual</i> (RTA, 1998). 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. 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).
Landscape character and visual amenity	L1. Any task lighting required for construction works will be directed away from sensitive receivers. L2. Any temporary construction lighting required for works during the night-time period will comply with the <i>Dark Sky Planning Guideline</i> (NSW Department of Planning and Environment, 2023).
Waste	M1. Waste management measures will follow Transport's <i>Technical Guide: Management of road construction and maintenance waste</i>. M2. The resource management hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be adopted, namely avoid unnecessary consumption; resource recovery; disposal as a last resort. M3. All waste will be treated in accordance with Transport's <i>Waste Minimisation and Management Guidelines</i> (RTA, 1998). M4. Waste material will not to be left on site once the works have been completed. M5. Prior to disposal, all wastes will be identified and classified with the NSW EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes. M6. Waste is not to be burnt on site.
Climate change and greenhouse gas emissions	None identified.
Cumulative impacts	None identified.

4.2 Licensing and approvals

Table 4-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
<i>Road Occupancy License from Transport for NSW</i>	For any lane closures	Prior to start of construction
<i>Crown Land Management Act 2016 (Divisions 3.4, 5.5 and 5.6)</i>	Lease or licence to occupy areas of Crown land	Prior to start of the activity

4.3 Other requirements

Table 4-3: Other requirements

Requirement		
Environmental management plan sent to SMES or their delegate (ESL) for review.	Yes ☒	No ☐

5. Certification, review and determination

5.1 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:

Signature

Name:



Position:

Chris Power
Graduate Environmental Consultant

Company name:

Arcadis

Date:

September 2024

Minor works REF reviewed by:

Signature



Name:

Kate Wiggins

Position:

Environmental Lead

Company name:

Arcadis

September 2024

5.2 Environment and sustainability 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 this minor works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguards 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* (NSW) and the *Fisheries Management Act 1994* (NSW).

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 of 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 Climate Change, Energy, the Environment and Water 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.

5.3 Environment and Sustainability staff recommendation

It is recommended that the proposal to upgrade several intersections along the State Road Network from the Port of Newcastle to the CWO REZ 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 in accordance with the EP&A Act, EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation. The minor works REF has 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.

If the proposal has not commenced within two years of the determination date the SMES must be consulted to identify any new or updated assessment or approval requirements.

Recommended by:

Signature		Signature	
Name:	Jonathon Blizzard	Name:	Dimitri Perdikaris
Position:	Senior Manager Environment and Sustainability	Position:	Senior Manager Renewables Transporation
	13/09/2024	Date:	13/09/2024

5.4 Decision statement

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: Alistair Lunn
Position: Regional Director West
Date: 16.09.2024

5.5 EP&A Regulation publication requirement

Table 5-1: 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 ☒	No ☐

6. Definitions

Table 6-1: Definitions

Term	Definition
AHIMS	Aboriginal Heritage Information Management System
ARTC	Australian Rail Track Corporation
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
CEMP	Construction Environmental Management Plan
CLM Act	<i>Crown Lands Management Act 2016 (NSW)</i>
Dubbo LEP 2022	Dubbo Local Environmental Plan 2022
Warrumbungle LEP 2013	Warrumbungle Local Environmental Plan 2013
CWO REZ	Central West Orana Renewable Energy Zone
DPI	Department of Industries
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPL	Environmental Protection Licence
EnergyCo	Energy Corporation of NSW
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
GW	Gigawatt
ICNG	Interim Construction Noise Guideline
LEP	Local Environmental Plan
LGA	Local Government Area
Minor works REF	Minor Works Review of Environmental Factors
Newcastle LEP 2012	Newcastle Local Environmental Plan 2012
NML	Noise management level
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
NSW OEH	New South Wales Office of Environment and Heritage, now currently known as the New South Wales Environment and Heritage department of the state government
NVMP	Noise and Vibration Management Plan
OSOM	Over-sized and over-mass components
PACHCI	<i>TfNSW Procedure for Aboriginal cultural heritage consultation and investigation</i>
PCT	Plant Community Type
PMST	Protected Matters Search Tool
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
REZ	Renewable Energy Zone
ROL	Road occupancy licenses
SEPP (Biodiversity and Conservation)	State Environmental Planning Policy (Biodiversity and Conservation) 2021
SEPP (Transport and Infrastructure)	State Environmental Planning Policy (Transport and Infrastructure) 2021
TEC	Threatened ecological communities
TMP	Traffic Management Plan
TMC	Traffic Management Centre
Transport	Transport for NSW
TSR	Travelling Stock Reserve

7. References

- AECOM. (2023). *Traffic Impact Study*.
- Australian Soil Resource Information System. (2018). *Australian Soil Resource Information System (ASRIS) maps*. Retrieved 12 December, 2023.
- DCCEEW. (2023). *Protected Matters Search Tool*. Retrieved from:
<https://pmst.awe.gov.au/#/map?lng=131.52832031250003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery,ImageryLabels>
- DPE. (2023). *Dark Sky Planning Guideline*. Retrieved from:
<https://www.planning.nsw.gov.au/sites/default/files/2023-03/dark-sky-planning-guideline.pdf>
- DPE. (2023). *State Vegetation Type Map*. Retrieved from:
https://geo.seed.nsw.gov.au/Html5Viewer412/index.html?viewer=SEED.SEED&local=en-au&runWorkflow=AppendLayerCatalog&CatalogLayer=SEED_Catalog.318.Floral%20Sites,SEED_Catalog.317.NSW_VegetationFormation_5m,SEED_Catalog.317.NSW_VegetationClass_5m,SEED_Catalog.317.NSW_PlantCommunityType_5m,SEED_Catalog.317.Plant%20Community%20Type%20with%20labels
- DPI (2024). *NSW Weedwise*. Retrieved from: <https://weeds.dpi.nsw.gov.au/>
- DPI. (2014). *Salinity Training Manual*. Retrieved from:
http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0008/519632/Salinity-training-manual.pdf
- Dubbo regional Council. (2023). *Towards 2040 Community Strategic Plan*. Retrieved from:
<https://www.dubbo.nsw.gov.au/ArticleDocuments/290/Towards%202040%20Community%20Strategic%20Plan.PDF.aspx>
- NSW DECC. (2009). *Interim Construction Noise Guideline*. Retrieved from:
<https://www.environment.nsw.gov.au/resources/noise/09265cng.pdf>
- NSW EPA. (2006). *Macquarie-Bogan River Catchment*. Retrieved from:
<https://www.environment.nsw.gov.au/ieo/MacquarieBogan/report.htm>
- NSW EPA. (2023a). *NSW Environmental Protection Authority Contaminated Land Register*. Retrieved 13 December 2023.
- NSW Government. (2023). *NSW OEH BioNet Wildlife Atlas*. Retrieved from:
https://atlas.bionet.nsw.gov.au/UI_Modules/ATLAS_/AtlasSearch.aspx
- NSW Government. (2023). *Warumbungle Local Environmental Plan 2013*. Retrieved from:
<https://legislation.nsw.gov.au/view/whole/html/inforce/current/epi-2013-0670>
- NSW Government. (2024). *Dubbo Regional Local Environmental Plan 2022*. Retrieved from:
<https://legislation.nsw.gov.au/view/html/inforce/current/epi-2022-0108>
- Office of Environmental and Heritage. (2023). *NSW eSpade Map Viewer*. Retrieved 15 December, 2023, from:
<https://www.environment.nsw.gov.au/eSpade2Webapp/>
- Transport for NSW. (2024). *Biodiversity Management Guideline*. Retrieved from:
https://www.transport.nsw.gov.au/system/files/media/documents/2024/best_practice_biodiversity_guidelines.pdf
- Transport for NSW. (2005). *Guidelines for the Management of Acid Sulfate materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze*. Retrieved from:
<https://www.transport.nsw.gov.au/system/files/media/documents/2023/guidelines-management-acid-sulfate-materials.pdf>
- Transport for NSW. (2023). *Construction Noise and Vibration Guideline*. Retrieved from:
https://www.transport.nsw.gov.au/system/files/media/documents/2023/EMF-NV-GD-0056_Construction_%20Noise_and_Vibration_Guideline%20_Roads.pdf
- Transport for NSW. (2023). *No Net Loss Guidelines*.

- Transport for NSW. (2023). *Tree and Hollow Replacement Guidelines*. Retrieved from:
<https://www.transport.nsw.gov.au/system/files/media/documents/2024/EMF-BD-GD-0129-Tree-and-hollow-replacement-guidelines.pdf>
- Warrumbungle Shire Council. (2022). *Warrumbungle Shire Council Community Strategic Plan 2022/2037*. Retrieved from:
https://www.warrumbungle.nsw.gov.au/ArticleDocuments/707/Warrumbungle%20Shire%20Community%20Strategic%20Plan%202022-2037_FINAL.pdf.aspx#:~:text=The%20Community%20Strategic%20Plan%20provides,by%20Council%20into%20the%20future.

Appendix A: Consideration of State and Commonwealth environmental factors

Environmental Planning and Assessment Regulation 2021 section 171(2) 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 A1: Consideration of section 171 of the EP&A Regulation factors

Factor	Description of impact	Duration and extent
a) Environmental impact on the community.	The proposed work may cause minor short-term environmental impacts on the community such as noise and traffic delays however the potential impacts would be minimised with the implementation of the safeguards as detailed in this MWREF.	Short-term negative (minor) Long-term, positive
b) The transformation of the locality.	The proposed works would be primarily limited to intersection upgrades within the existing road reserve. Accordingly, there would be no transformation of the locality.	Nil
c) Any environmental impact on the ecosystems of the locality.	The proposal is not likely to cause environmental impacts on the surrounding ecosystems. The proposal works would mostly be contained within the road corridor. Tree removal and pruning would be required at the Golden Highway and Saxa Road intersection (I-017 and the Castlereagh Highway and Barney Reef Road intersection (I-041). Biodiversity impacts would be managed in accordance with the safeguards detailed in Section 3.7.	Short-term negative (minor)
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.	The proposal would result in a reduction in the aesthetic quality of the locality as a result of noise and visual impacts during construction. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 4.1 of this minor works REF.	Short-term negative (minor)
e) Any effect on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.	The proposal would not impact cultural heritage or places of heritage value given that limited scope of works within the existing road reserve.	Nil
f) Any impact on the habitat of protected fauna (within the	There would be no impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016 (NSW)).	Nil

Factor	Description of impact	Duration and extent
meaning of the Biodiversity and Conservation Act 2016 (NSW)).		
g) Any endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air.	It is unlikely that the proposal would endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.	Nil
h) Any long-term effects on the environment	In the long term, the proposal would facilitate the safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ.	Long-term positive
i) Any degradation of the quality of the environment.	The proposal would potentially degrade the quality of the environment during construction with regards to biodiversity, traffic delays, noise, and generation of small volumes of construction waste, however the potential impacts would be minimised with the implementation of the safeguards provided in Section 3.	Short-term negative
j) Any risk to the safety of the environment.	The proposal would not pose any safety risks to the environment.	Nil
k) Any reduction in the range of beneficial uses of the environment.	The proposal would not reduce the range of beneficial uses of the environment.	Nil
l) Any pollution of the environment.	The proposal has the potential to produce air pollution during construction. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 4.1 of this minor works REF.	Short-term negative
m) Any environmental problems associated with the disposal of waste	The proposal would not result in any environmental problems associated with the disposal of waste. All waste material will be disposed of at appropriately licensed waste facilities. Reuse of other waste materials is not proposed as part of this proposal, however recycling facilities may accept concrete for crushing and reuse as aggregate in other civil applications.	Nil
n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply.	The proposal is unlikely to increase demands on resources (natural or otherwise) that are, or likely to become, in short supply.	Nil
o) The cumulative environmental effect with other existing or likely future activities.	The proposal is unlikely to have cumulative environmental effects with other existing or likely future activities.	Nil

Factor	Description of impact	Duration and extent
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions.	The proposal would not impact coastal processes and coastal hazards, including those projected climate change conditions.	Nil
q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	The proposal aligns with the Towards 2040 Community Strategic Plan and Community Strategic Plan 2022/2037 by facilitating the safe delivery of over-sized and over-massed components from Port of Newcastle to CWO REZ. The proposal aligns with the following objectives: ensure the road transportation network is safe, convenient, and efficient recognise, plan for, and respond to impacts of climate change identify and develop opportunities to realise the local government area's potential as a location for the production of renewable energies.	
r) Other relevant environmental factors		In considering the potential impacts of this proposal all relevant environmental factors have been considered, refer to Chapter 3 of this assessment.

Matters of National Environmental Significance

Table A2: 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?	Nil
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

Appendix B: TfNSW Stage 1 PACHCI

18/ 03/ 2024

Dimitri Perdikaris
76 Victoria Street
Grafton NSW 2460

Dear Dimitri,

Preliminary assessment results for Central West Orana Renewable Energy Zones based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation (the procedure)*.

The project sites I-001, I-002, I-003, I-004, I-005, I-006, I-007, I-008, H-009, H-010, I-026 and I-027 as described in the Stage 1 assessment, were assessed as being unlikely to have an impact on Aboriginal cultural heritage. The assessment is based on the following due diligence considerations:

- The project is unlikely to harm known Aboriginal objects or places.
- The AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area.
- The study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Heritage NSW's *Due diligence Code of Practice for the Protection of Aboriginal objects in NSW* and the Transport for NSW's procedure.
- The cultural heritage potential of the study area appears to be reduced due to past disturbance.
- There is an absence of sandstone rock outcrops likely to contain Aboriginal art.

Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals.

If the scope of your project changes, you must contact me and your regional environmental staff to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the course of the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Transport for NSW's *Unexpected Archaeological Finds Procedure*.

Safeguard- Due to the proximity of some of the proposed works to areas identified by AHIMS as being 'Aboriginal sites recorded in or near the location', caution must be taken to ensure there is no impact to these sites.

For further assistance in this matter do not hesitate to contact me.

Yours Sincerely,



Merredy Quinn- Bates
Aboriginal Cultural Heritage Officer

Dimitri Perdikaris
Project Manager,
Dear Dimitri,

02/02/2024

Preliminary assessment results for Central West Orana Renewable Energy Zones Golden Hwy. Based on Stage 1 of the Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI), Desktop/ Evaluation on this day 2/02/2024.

The project sites: 1-017 Saxo Rd 1-013 Black Stump Way, 1-014 Castlereagh Hwy, H-023B Bolaro street Dunedoo, 1-015 Spring Ridge Rd , 1-041 Barneys Reef Rd as described in the Stage 1 assessment, was assessed as being unlikely to have an impact on Aboriginal cultural heritage.

The assessment is based on the following due diligence considerations: The project is unlikely to harm known Aboriginal objects or places.

- The AHIMS search did not indicate, moderate to high concentrations of Aboriginal objects and places **inside the study area only**. Ref AHIMS Search
- The study area did not contain a landscape feature that indicated the presence of Aboriginal objects, based on the Office of Environment and Heritage's *Due diligence Code of Practice for the Protection of Aboriginal objects in NSW* and the Roads and Maritime Services' procedure.
- The cultural heritage potential of the study area appears to be heavily reduced due to current road alignment and past disturbance (Previous Construction and Erosion activities).

Safeguard Conditions: The described activities must be restricted to the project information and if there are any changes to the maintenance methodology, please contact the Aboriginal Cultural Heritage Officer in Western Region, please be vigilant in the consideration for the presence of potential Aboriginal objects when the construction commences.

Your project may proceed in accordance with the environmental impact assessment process as relevant, and all other relevant approvals.

If the scope of your project changes, you must contact me and your regional environmental staff to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Roads and Maritime Services' **Unexpected Heritage Item Procedure**.

For further assistance in this matter do not hesitate to contact me.
Yours sincerely.



Aboriginal Cultural Heritage Officer – Western Region

Appendix C: Noise assessment

Transport for
NSW

Distanced Based Assessment (Construction Scenario)

Please pick from drop-down list in orange cells

Noise area category		R0
RBL or L ₉₀ Background level (dB(A))	Day	30
	Evening	30
	Night	30
L ₉₀₊₅ (15minutes) Noise Mangement Level (dB(A))	Day	40
	Day (OOHW)	35
	Evening	35
	Night	35
Scenario		Paving / asphaltting
Is there line of sight to receiver?		No (behind solid barrier)

Steps for Screening Assessment:

- Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
- Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
- Select the scenario. If not found in drop-down list, refer to 'Source List' and select a representative scenario with similar plant combination.
- Is there line of sight to receiver? Select the appropriate scenario from the drop down list.

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.

- Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background noise measurements to check assumption in Step #2 if:
 - there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or
 - there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.Note that consideration need to be given to the construction staging plan when determining impact duration.
- Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver
- Where night works are involved, identify sleep disturbance affected distance.

Document the outcomes of these steps.

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

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

Residential receiver			L ₉₀₊₅ (15minutes) noise level above background (L ₉₀)												L ₉₀₊₅ (15minutes) 75 dB(A) or greater (Highly affected)			Sleep disturbance L ₉₀₊₅ 65 dB(A)
			5 to 10 dB(A) Noticeable			10 to 20 dB(A) Clearly audible			20 to 30 dB(A) Moderately intrusive			> 30 dB(A) Highly intrusive						
			Affected distance (m)			Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)
Undeveloped green fields, rural areas with isolated dwellings	Day	335							N	155	50	N	60	60	N,PC,RO	10	75	185
	Day (OOHW)	485				N,R1,DR	335	40	N,R1,DR	155	50	N,R1,DR,PC,SN	60	60	N,PC,RO	10	75	
	Evening	485				N,R1,DR	335	40	N,R1,DR	155	50	N,R1,DR,PC,SN	60	60	N,PC,RO	10	75	
	Night	485	N	485	35	N,R2,DR	335	40	N,PC,SN,R2,DR	155	50	AA,N,PC,SN,R2,DR	60	60	N,PC,RO	10	75	
	Highly Affected	10													N,PC,RO	10	75	
Developed settlements (urban and suburban)	Day	425							N	180	50	N	70	60	N,PC,RO	10	75	215
	Day (OOHW)	635				N,R1,DR	425	40	N,R1,DR	180	50	N,R1,DR,PC,SN	70	60	N,PC,RO	10	75	
	Evening	635				N,R1,DR	425	40	N,R1,DR	180	50	N,R1,DR,PC,SN	70	60	N,PC,RO	10	75	
	Night	635	N	635	35	N,R2,DR	425	40	N,PC,SN,R2,DR	180	50	AA,N,PC,SN,R2,DR	70	60	N,PC,RO	10	75	
	Highly Affected	10													N,PC,RO	10	75	
Propagation across a valley / over water	Day	575							N	230	50	N	80	60	N,PC,RO	10	75	280
	Day (OOHW)	880				N,R1,DR	575	40	N,R1,DR	230	50	N,R1,DR,PC,SN	80	60	N,PC,RO	10	75	
	Evening	880				N,R1,DR	575	40	N,R1,DR	230	50	N,R1,DR,PC,SN	80	60	N,PC,RO	10	75	
	Night	880	N	880	35	N,R2,DR	575	40	N,PC,SN,R2,DR	230	50	AA,N,PC,SN,R2,DR	80	60	N,PC,RO	10	75	
	Highly Affected	10													N,PC,RO	10	75	



Transport for
NSW

Distanced Based Assessment (Construction Scenario)

Please pick from drop-down list in orange cells

Noise area category		R2
RBL or L ₉₀ Background level (dB(A))	Day	45
	Evening	40
	Night	35
L ₁₀₋₁₅ (15 minutes) Noise Mangement Level (dB(A))	Day	55
	Day (OOHW)	50
	Evening	45
	Night	40
Scenario		Local road works
Is there line of sight to receiver?		Yes

Steps for Screening Assessment:

1. Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
2. Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
3. Select the scenario. If not found in drop-down list, refer to 'Source List' and select a representative scenario with similar plant combination.
4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list.

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.

6. Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background noise measurements to check assumption in Step #2 if:

- (a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or
- (b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.

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

7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver

8. Where night works are involved, identify sleep disturbance affected distance.

Document the outcomes of these steps.

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

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

Residential receiver			L _{Aeq(15minute)} noise level above background (L _{Aeq})												L _{Aeq(15minute)} 75 dB(A) or greater (Highly affected)			Sleep disturbance L _{Amax} 65 dB(A)
			5 to 10 dB(A) Noticeable			10 to 20 dB(A) Clearly audible			20 to 30 dB(A) Moderately intrusive			> 30 dB(A) Highly intrusive						
			Affected distance (m)			Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	
						Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures
Undeveloped green fields, rural areas with isolated dwellings	Day	265							N	125	65	N, PC, RO	40	75	N, PC, RO	40	75	230
	Day (OOHW)	390				N, R1, DR	265	55	N, R1, DR	125	65	N, R1, DR, PC, SN	40	75	N, PC, RO	40	75	
	Evening	565				N, R1, DR	390	50	N, R1, DR	185	60	N, R1, DR, PC, SN	75	70	N, PC, RO	40	75	
	Night	815	N	815	40	N, R2, DR	565	45	N, PC, SN, R2, DR	265	55	AA, N, PC, SN, R2, DR	125	65	N, PC, RO	40	75	
	Highly Affected	40													N, PC, RO	40	75	
Developed settlements (urban and suburban)	Day	330							N	140	65	N, PC, RO	45	75	N, PC, RO	45	75	280
	Day (OOHW)	500				N, R1, DR	330	55	N, R1, DR	140	65	N, R1, DR, PC, SN	45	75	N, PC, RO	40	75	
	Evening	740				N, R1, DR	500	50	N, R1, DR	215	60	N, R1, DR, PC, SN	85	70	N, PC, RO	45	75	
	Night	1085	N	1085	40	N, R2, DR	740	45	N, PC, SN, R2, DR	330	55	AA, N, PC, SN, R2, DR	140	65	N, PC, RO	45	75	
	Highly Affected	45													N, PC, RO	45	75	
Propagation across a valley / over water	Day	440							N	170	65	N, PC, RO	45	75	N, PC, RO	45	75	370
	Day (OOHW)	685				N, R1, DR	440	55	N, R1, DR	170	65	N, R1, DR, PC, SN	45	75	N, PC, RO	45	75	
	Evening	1035				N, R1, DR	685	50	N, R1, DR	280	60	N, R1, DR, PC, SN	100	70	N, PC, RO	45	75	
	Night	1525	N	1525	40	N, R2, DR	1035	45	N, PC, SN, R2, DR	440	55	AA, N, PC, SN, R2, DR	170	65	N, PC, RO	45	75	
	Highly Affected	45													N, PC, RO	45	75	

Transport for
NSW

Please pick from drop-down list in orange cells

Noise area category		R0
RBL or L _{AS} Background level (dB(A))	Day	30
	Evening	30
	Night	30
L _{Aeq} (15minute) Noise Management Level (dB(A))	Day	40
	Day (DOHV)	35
	Evening	35
	Night	35
Scenario		Local road works
Is there line of sight to receiver?		No (behind solid barrier)

Distanced Based Assessment (Construction Scenario)

Steps for Screening Assessment:

- Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
 - Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
 - Select the scenario. If not found in drop-down list, refer to 'Source List' and select a representative scenario with similar plant combination.
 - Is there line of sight to receiver? Select the appropriate scenario from the drop down list.
- Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.
6. Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background noise measurements to check assumption in Step #2 if:
- (a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or
- (b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.
- Note that consideration need to be given to the construction staging plan when determining impact duration.
7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver
8. Where night works are involved, identify sleep disturbance affected distance.
9. Document the outcomes of these steps.

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

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

Residential receiver			L _{Aeq} (15minute) noise level above background (L _{AS})												L _{Aeq} (15minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance L _{Amax} 65 dB(A)			
			5 to 10 dB(A) Noticeable			10 to 20 dB(A) Clearly audible			20 to 30 dB(A) Moderately intrusive			> 30 dB(A) Highly intrusive									
			Affected distance (m)			Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)
Undeveloped green fields, rural areas with isolated dwellings	Day	565							N	265	50	N	125	60	N, PC, RO	25	75				
	Day (DOHV)	815				N, R1, DR	565	40	N, R1, DR	265	50	N, R1, DR, PC, SN	125	60	N, PC, RO	25	75				
	Evening	815				N, R1, DR	565	40	N, R1, DR	265	50	N, R1, DR, PC, SN	125	60	N, PC, RO	25	75				
	Night	815	N	815	35	N, R2, DR	565	40	N, PC, SN, R2, DR	265	50	AA, N, PC, SN, R2, DR	125	60	N, PC, RO	25	75		155		
	Highly Affected	25													N, PC, RO	25	75				
Developed settlements (urban and suburban)	Day	740							N	330	50	N	140	60	N, PC, RO	25	75				
	Day (DOHV)	1090				N, R1, DR	740	40	N, R1, DR	330	50	N, R1, DR, PC, SN	140	60	N, PC, RO	25	75				
	Evening	1090				N, R1, DR	740	40	N, R1, DR	330	50	N, R1, DR, PC, SN	140	60	N, PC, RO	25	75				
	Night	1090	N	1090	35	N, R2, DR	740	40	N, PC, SN, R2, DR	330	50	AA, N, PC, SN, R2, DR	140	60	N, PC, RO	25	75		180		
	Highly Affected	25													N, PC, RO	25	75				
Propagation across a valley / over water	Day	1035							N	440	50	N	170	60	N, PC, RO	25	75				
	Day (DOHV)	1525				N, R1, DR	1035	40	N, R1, DR	440	50	N, R1, DR, PC, SN	170	60	N, PC, RO	25	75				
	Evening	1525				N, R1, DR	1035	40	N, R1, DR	440	50	N, R1, DR, PC, SN	170	60	N, PC, RO	25	75				
	Night	1525	N	1525	35	N, R2, DR	1035	40	N, PC, SN, R2, DR	440	50	AA, N, PC, SN, R2, DR	170	60	N, PC, RO	25	75		230		
	Highly Affected	25													N, PC, RO	25	75				



Overview of additional mitigation measures

After standard noise mitigation measures have been applied noise levels may still exceed noise management levels. The Construction and Maintenance Noise Estimator will indicate which additional measures apply. Note that assistance from Roads and Maritime Communication and Stakeholder Engagement is available to coordinate and deliver community consultation and notification. The team also has the latest noise fact sheets and letter templates.

The range of additional measures are described below. Note in instances where there are many receivers above the NML it may not be practical to discuss the project with every receiver recommended below. Instead the community should be proactively engaged so they have an incentive to participate in discussion. Support from the community may be demonstrated from surveys, online feedback, contact phone numbers and community events.

Longer term impacts

During long term works or at fixed sites the additional mitigation measures above may become less effective. In these situations at-receiver noise mitigation may be considered where feasible and reasonable if options for at source noise mitigation and management measures have been exhausted.

At receiver mitigation may include temporary window and door screens, temporary localised shielding or permanent forms of mitigation. Feasible and reasonable considerations for providing at-receiver treatments should include:

Abbreviation	Measure	Description
N	Notification (letterbox drop or equivalent)	Advance warning of works and potential disruptions can assist in reducing the impact on the community. The notification may consist of using variable message sign, letterbox drop (or equivalent), web site / social media or a combination to distribute information detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of 5 working days prior to the start of works. The approval conditions for projects may also specify requirements for notification to the community about works that may impact on them.
SN	Specific notifications	Specific notifications are letterbox dropped (or equivalent) to identified stakeholders no later than 5 working days ahead of construction activities that are likely to exceed the noise objectives. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops. This form of communication is used to support periodic notifications, or to advertise unscheduled works.
PC	Phone calls	Phone calls detailing relevant information made to identified/affected stakeholders, who have provided their contact details, within seven calendar days of proposed work. Phone calls provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs. Where the resident cannot be telephoned then an alternative form of engagement should be used.
IB	Individual briefings	Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Project representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project. Where the resident cannot be met with individually then an alternative form of engagement should be used.
RO	Respite offer	Respite Offers should be considered where there are high noise and vibration generating activities near receivers. As a guide work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers. The purpose of such an offer is to provide residents with respite from an ongoing impact. This measure is evaluated on a project-by-project basis, and may not be applicable to all projects, or or when duration respite has been agreed (see below)
R1	Respite Period 1	Out of hours construction noise in out of hours period 1 shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than 6 evenings per month
R2	Respite Period 2	Night time construction noise in out of hours period 2 shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm.
DR	Duration respite	Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through Duration Respite so that the project can be completed more quickly. Transport staff should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Respite.
AA	Alternative accommodation	Alternative accommodation options may be offered (as a last resort) to residents living in close proximity to construction works that are likely to experience highly intrusive noise levels. The specifics of the offer will be identified on a project-by-project basis, however an AA offer is unlikely to be made for maintenance works. Additional aspects for consideration shall include whether the highly intrusive activities occur throughout the night or before midnight.
V	Verification	Verification may be required for building or asset condition where works are likely to cause vibration impact or for noise levels following reasonable complaints. See Appendix F of the Construction Noise and Vibration Guideline for more details.

Predicted airborne $L_{Aeq}(10min)$ noise level at receiver			Additional mitigation measures	
Perception	dB(A) above RBL	dB(A) above NML	Type ¹	Mitigations levels ²
All hours				
75dBA or greater			N, V, PC, RO	HA
Standard hours: Mon–Fri (7am–6pm), Sat (8am–1pm), Sun/Public Holiday (Nil)				
Noticeable	5 to 10	0	-	NML
Clearly audible	10 to 20	< 10	-	NML
Moderately intrusive	20 to 30	10 to 20	N, V	NML+10
Highly intrusive	> 30	> 20	N, V	NML+20
OOHW Period 1: Mon–Fri (6pm–10pm), Sat (7am–8am & 1pm–10pm), Sun/Pub Holidays (8am–6pm)				
Noticeable	5 to 10	< 5	-	NML
Clearly audible	10 to 20	5 to 15	N, R1, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR	NML+15
Highly intrusive	> 30	> 25	V, IB, N, R1, DR, PC, SN	NML+25
OOHW Period 2: Mon–Fri (10pm–7am), Sat (10pm–8am), Sun/Public Holiday (6pm–7am)				
Noticeable	5 to 10	< 5	N	NML
Clearly Audible	10 to 20	5 to 15	V, N, R2, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML+15
Highly intrusive	> 30	> 25	AA, V, IB, N, PC, SN, R2, DR	NML+25
Notes¹ (refer to detailed descriptions in Table C1 above): 1. AA = Alternative accommodation V = Validation of predicted noise levels IB = Individual briefings N = Notification box drops PC = Phone calls SN = Specific notifications R1 = Respite period 1 R2 = Respite period 2 DR = Duration respite 2. All affected receivers				

Ground vibration - minimum working distances from sensitive receivers

As a guide, minimum working distances from sensitive receivers for typical items of vibration intensive plant are listed in the table below. The minimum distances are quoted for both cosmetic damage (refer to BS 7385:2-1993 for light-framed residential type structures and DIN 4150-3:2016 for fragile or heritage type structures) and human comfort (refer to EPA's Assessing Vibration - a technical guideline). The minimum working distances for cosmetic damage must be complied with at all times, unless otherwise approved by Roads and Maritime or under the environmental license as relevant.

Recommended minimum working distances for vibration intensive plant from sensitive receiver

Plant item	Rating / Description	Minimum working distance		
		Cosmetic damage		Human Response
		Light-framed structure (BS 7385)	Heritage and other sensitive structures (DIN 4150)	EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	14 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	54 m	100 m
Small Hydraulic Hammer	> 300 kN (> 18 tonnes)	25 m	68 m	100 m
Medium Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	5 m	7 m
Large Hydraulic Hammer	(900 kg - 12 to 18t excavator)	7 m	19 m	23 m
Vibratory Pile Driver	(1600 kg - 18 to 34t excavator)	22 m	60 m	73 m
Pile Boring	Sheet piles	20 m	50 m	100 m
Jackhammer	≤ 800 mm	2 m (nominal)	5 m	7 m
Profiler	Hand held	1 m (nominal)	2 m	3 m
Asphalt Paver	Wirtgen W210	4 m	-	-
Steel Drum Roller	Vogel Super 1800-3	1 m	-	-
Steel Drum Roller	Hamm HD70 (Oscillating Mode)	2 m	-	-
Steel Drum Roller	Hamm HD70 (Static Mode)	1 m	-	-

The minimum working distances are indicative and will vary depending on the particular item of plant, local geotechnical conditions and the dominant frequency of the construction vibration levels. They apply to cosmetic damage of typical light-framed residential buildings and heritage/fragile buildings and assume that construction vibration could include low frequency content associated with the increased risk of cosmetic damage. Vibration monitoring is recommended to confirm the minimum working distances at specific sites. Additionally, detailed analysis based on the frequency dependent guideline vibration levels in BS 7385:2-1993 and DIN 4150-3:2016 may be utilised in conjunction with site specific measurements to derive alternative cosmetic damage objectives and minimum working distances. For heritage listed / fragile structures, specialist advice from an appropriately qualified structural engineer who is familiar with heritage structures is required to support any proposed relaxation of the initial cosmetic damage screening criterion. Any such relaxation shall be approved by Roads and Maritime or under the environmental license as relevant.

Operational aspects of some receivers may be highly sensitive to noise and vibration over and above typical noise and vibration allowances based on annoyance and human comfort. For highly sensitive receivers (eg, high technology facilities with sensitive equipment, recording studios and cinemas), specific assessment is required to ensure satisfactory operation of the facility and determine if any mitigation or management measures are required to minimise the potential impacts. Some guidance where building contents contain sensitive equipment may be found in these additional references:

* Australian Standard 2834-1995 Computer Accommodation, Chapter 2.9 Vibration, p16

* Gordon CG Generic Vibration Criteria for Vibration Sensitive Equipment Proceedings of International Society for Optical Engineering (SPIE), Vol. 1619, San Jose, CA, November 4-6, 1991, pp. 71-85

* ASHRAE Applications Handbook (SI) 2003, Chapter 47 Sound and Vibration Control, pp47.39-47.40

* ISO 8569 1996 Measurement & Evaluation of Shock & Vibration Effects on Sensitive Equipment in buildings

In relation to human comfort (response), the minimum working distances in the above table relate to continuous vibration. For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels, occurring over shorter periods are allowed (see EPA's Assessing Vibration: a technical guideline). Where the predicted vibration levels for construction activities exceed the human comfort objectives, the procedures in Appendix C of the Construction Noise and Vibration Guideline are to be followed in order to mitigate the potential impacts at sensitive receivers.

Appendix D: Aboriginal Heritage Information Management System Search results

Appendix E: Non-Aboriginal Heritage Search Results



Warrumbungle Local Environmental Plan 2012

Heritage Map - Sheet HER_009

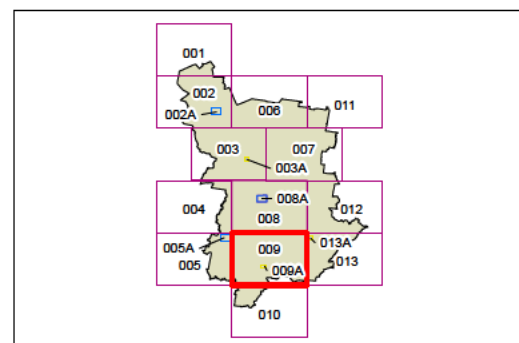
Heritage

 Conservation Area - General

 Item - General

Cadastre

 Cadastre 16/06/11 © Land and Property Information (LPI)

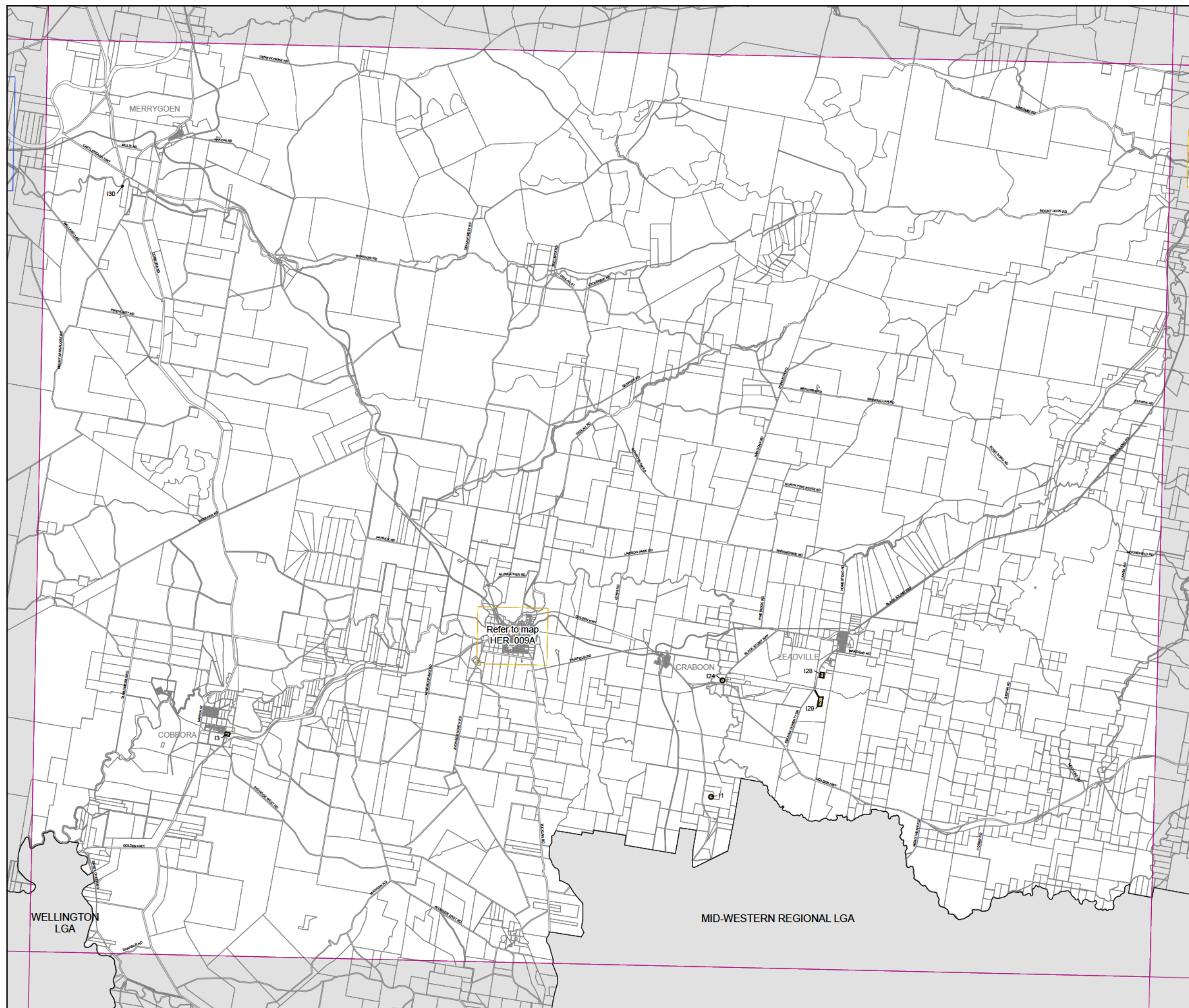


0 8 Km

Scale: 1:160,000 @ A3

Projection: GDA 1994
MGA Zone 55

Map identification number: 8020_COM_HER_009_160_20121107





Dubbo Regional Local Environmental Plan 2022

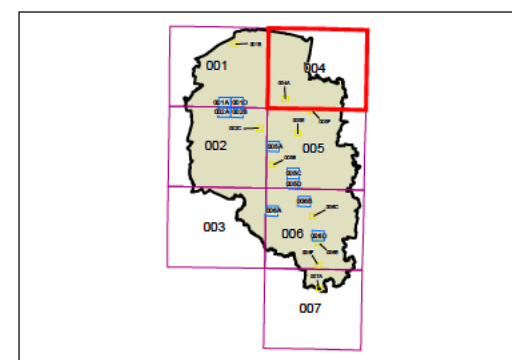
Heritage Map - Sheet HER_004

Heritage

-  Conservation Area - General
-  Item - General

Cadastre

-  Cadastre 14/03/2022 © Spatial Services

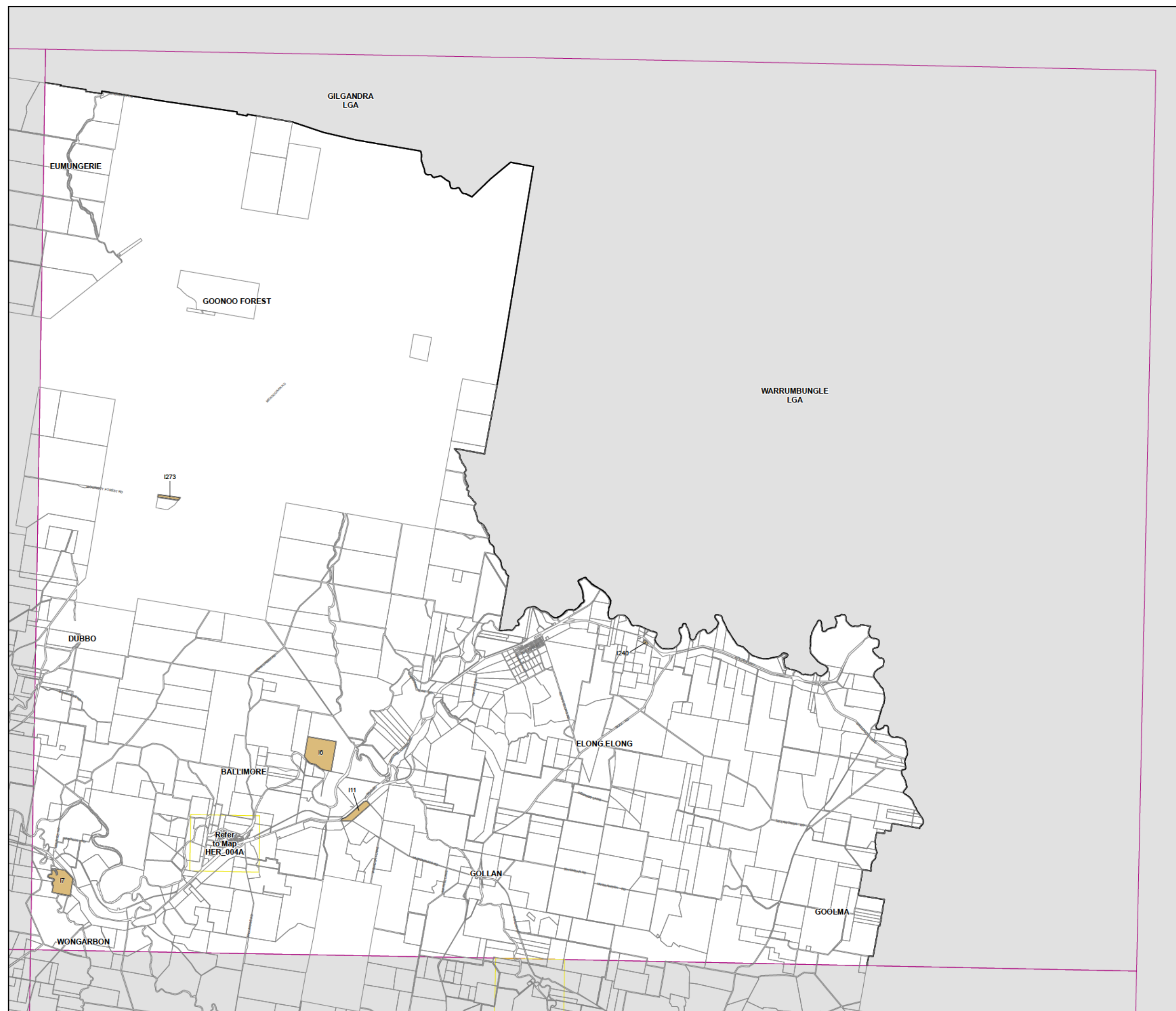


0 6
Kilometres

Projection: GDA 1994
MGA Zone 55

Scale: 1:160,000 @ A3

Map Identification Number: 5301_COM_HER_004_160_202314





Warrumbungle Local Environmental Plan 2012

Heritage Map - Sheet HER_009A

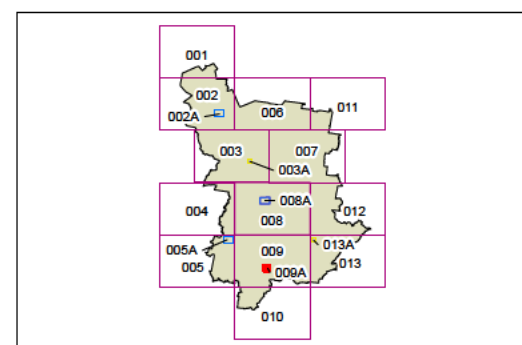
Heritage

 Conservation Area - General

 Item - General

Cadastre

 Cadastre 16/06/11 © Land and Property Information (LPI)

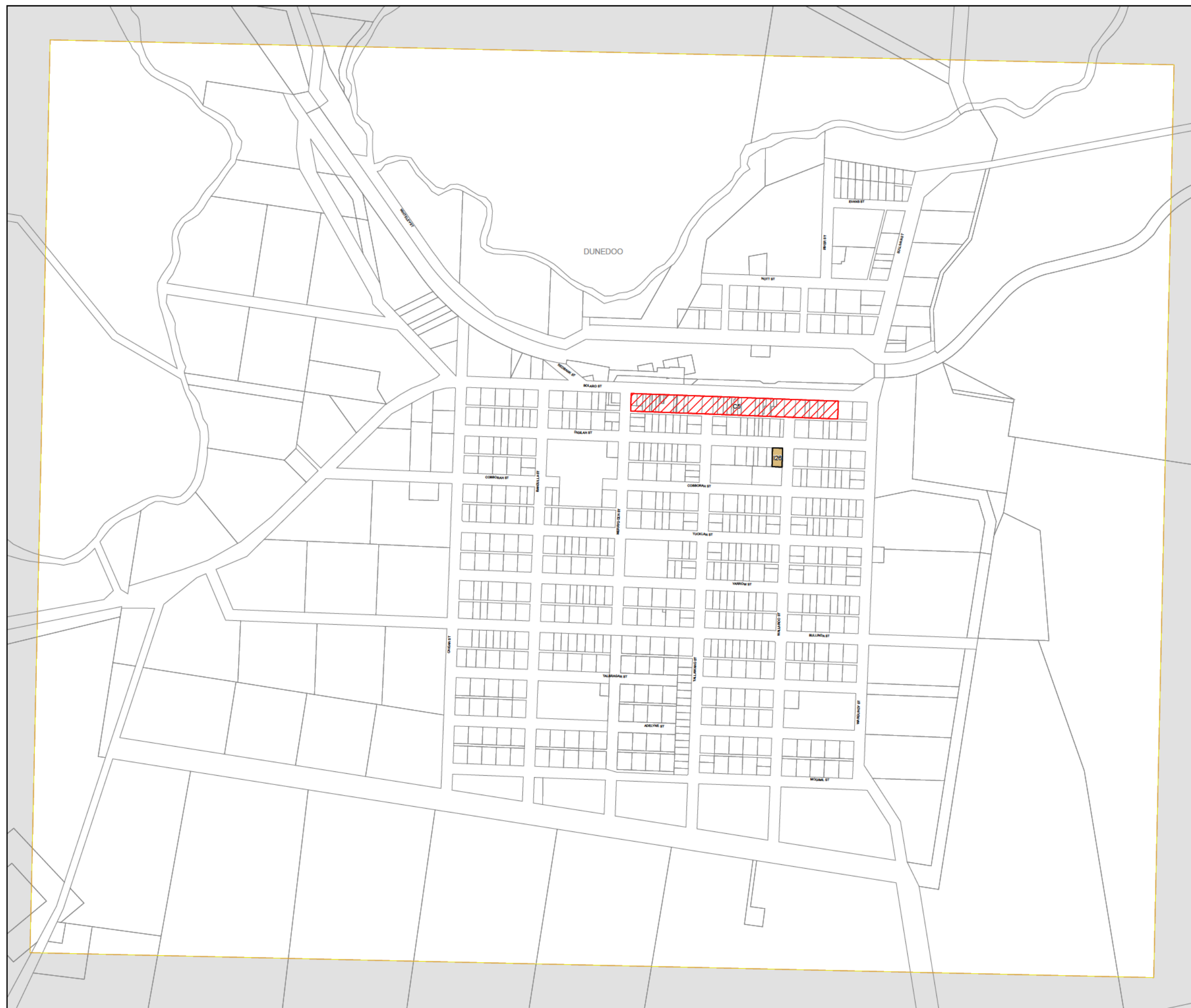


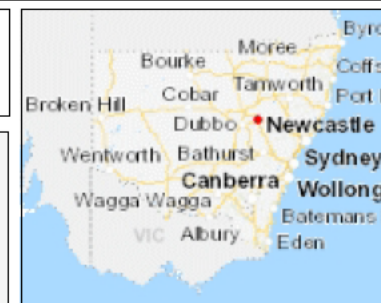
0 0.5 Km

Scale: 1:10,000 @ A3

Projection: GDA 1994
MGA Zone 55

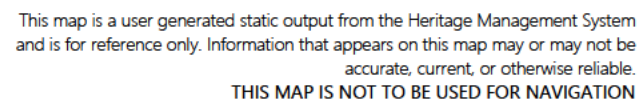
Map identification number: 8020_COM_HER_009A_010_20121107





- World Heritage Areas NSW
- SEPP
- State Heritage Register
- Local Environmental Plan
- Aboriginal Place
- Conservation Area - General
- Conservation Area - Landscape
- Heritage Conservation Area
- Item - Aboriginal
- Item - Archaeological
- Item - General
- Item - Landscape
- Local Environmental Plan
- State Heritage Register
- Interim Heritage Order

Notes



Search Results

24 results found.

Colonial Mutual Life Building 118 Macquarie St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Coolbaggie Nature Reserve Coolbaggie Forest Rd	Eumungerie, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dubbo Courthouse 137 Brisbane St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dubbo High School Main Building 76 Wingewarra St	Dubbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dubbo Pioneer Cemetery Butler Falls Rd	Dubbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dubbo Post Office (former) 98 Macquarie St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dubbo Showground Grandstand Fitzroy St	Dubbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dundullimal Obley Rd	Dubbo, NSW, Australia	(Place not included in NHL) National Heritage List
Dundullimal Homestead and Stone Barn 23 Obley Road	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Eastonville 122 Bourke St	Dubbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Gaol (former) and Residence 215 Macquarie St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Goonoo State Forest	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Brocklehurst, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Toongi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Lands Board Office Building 142 Brisbane St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Macquarie River Rail Bridge Bligh St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Police Inspectors Residence 111 Darling St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Public School 181 - 195 Darling St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
RAAF Base Dubbo (former) Palmer St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
RAAF Base Dubbo (former) Palmer St	Dubbo, NSW, Australia	(Ineligible Place) Commonwealth Heritage List
Salvation Army Citadel (former) 36-40 Church St	Dubbo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Talbragar Shire Council Chambers (former) 193 Macquarie St	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
The Springs Homestead and Outbuildings Paddys Creek Rd	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Wongarbon Nature Reserve	Wongarbon, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Wed Mar 27 13:37:07 2024

Search Results

15 results found.

Binnaway Nature Reserve	Binnaway, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Chalk Mountain Area	Bugaldie, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Coolah Courthouse and Police Station 74 Binnia St	Coolah, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Coonabarabran Courthouse Dalgarno St	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dapper Nature Reserve (1984 boundary)	Goolma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dunedoo Railway Station and Yard Group Bolaro St	Dunedoo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Goolhi Graves Goolhi Rd	Old Goolhi Station, Mullaley, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Goonoo State Forest	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Narangarie Quarry Geological Site Narangarie Rd	Coolah, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Pilliga Nature Reserve (1980 boundary)	Newell Hwy	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Warrumbungle National Park	John Renshaws Pkwy	Coonabarabran, NSW, Australia	(Listed place) National Heritage List
Warrumbungle National Park (1980 boundary)	John Renshaws Pkwy	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Warrumbungles	Oxley Hwy	Coonabarabran, NSW, Australia	(Rejected Place) Register of the National Estate (Non-statutory archive)
Weetalibah Nature Reserve		Weetaliba, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Thu Mar 21 19:20:01 2024



Australian Government

Department of Climate Change, Energy,
the Environment and Water

- [About us](#)
- [Contact us](#)

You are here: [Home](#) » [Heritage](#) » [Heritage Publications](#) » [Photo database](#)

Australian heritage photographic library search results

Query details

Location: dubbo

Results: 62 records were found.

Records Displayed: 1 to 10

Search results



Click image for more details

Title: Colonial Mutual Life Building

Location: 118 Macquarie St, Dubbo

Barcode No: rt05880

Place ID: 473



Click image for more details

Title: Colonial Mutual Life Building

Location: 118 Macquarie St, Dubbo

Barcode No: rt34642

Place ID: 473



Click image for more details

Title: Dubbo Courthouse

Location: 137 Brisbane St, Dubbo

Barcode No: rt05877

Place ID: 470



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: rt34647

Place ID: 14032

Photographic resources

- [Begin a new search](#)

For further information
please contact:

Heritage Mailbox:

heritage@dcceew.gov.au

Key

Links to another web site
Opens a pop-up window



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006801

Place ID: 14032



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006805

Place ID: 14032



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006806

Place ID: 14032



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006807

Place ID: 14032



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006809

Place ID: 14032



Click image for more details

Title: Dubbo Post Office (former)

Location: 98 Macquarie St, Dubbo

Barcode No: dig006810

Place ID: 14032

[Search Again](#)

- [Photographic request form](#)
- [Copyright and photo reproduction](#)

[Next](#) > [Last](#) >>

[Contact us](#) [Accessibility](#) [Disclaimer](#) [Privacy](#)



- [Home](#)
 - [Heritage](#)
 - [Photo database](#)



Australian Government

**Department of Climate Change, Energy,
the Environment and Water**

- [About us](#)
- [Contact us](#)

You are here: [Home](#) » [Heritage](#) » [Heritage Publications](#) » [Photo database](#)

Australian heritage photographic library search results

Query details

Location: warrumbungle

Results: No records were found which satisfied your search request.

[Contact us](#) [Accessibility](#) [Disclaimer](#) [Privacy](#) 

- [Home](#)
 - [Heritage](#)
 - [Photo database](#)

Photographic resources

- [Begin a new search](#)

**For further information
please contact:**

Heritage Mailbox:
heritage@dcceew.gov.au

Key

Links to another web site
Opens a pop-up window

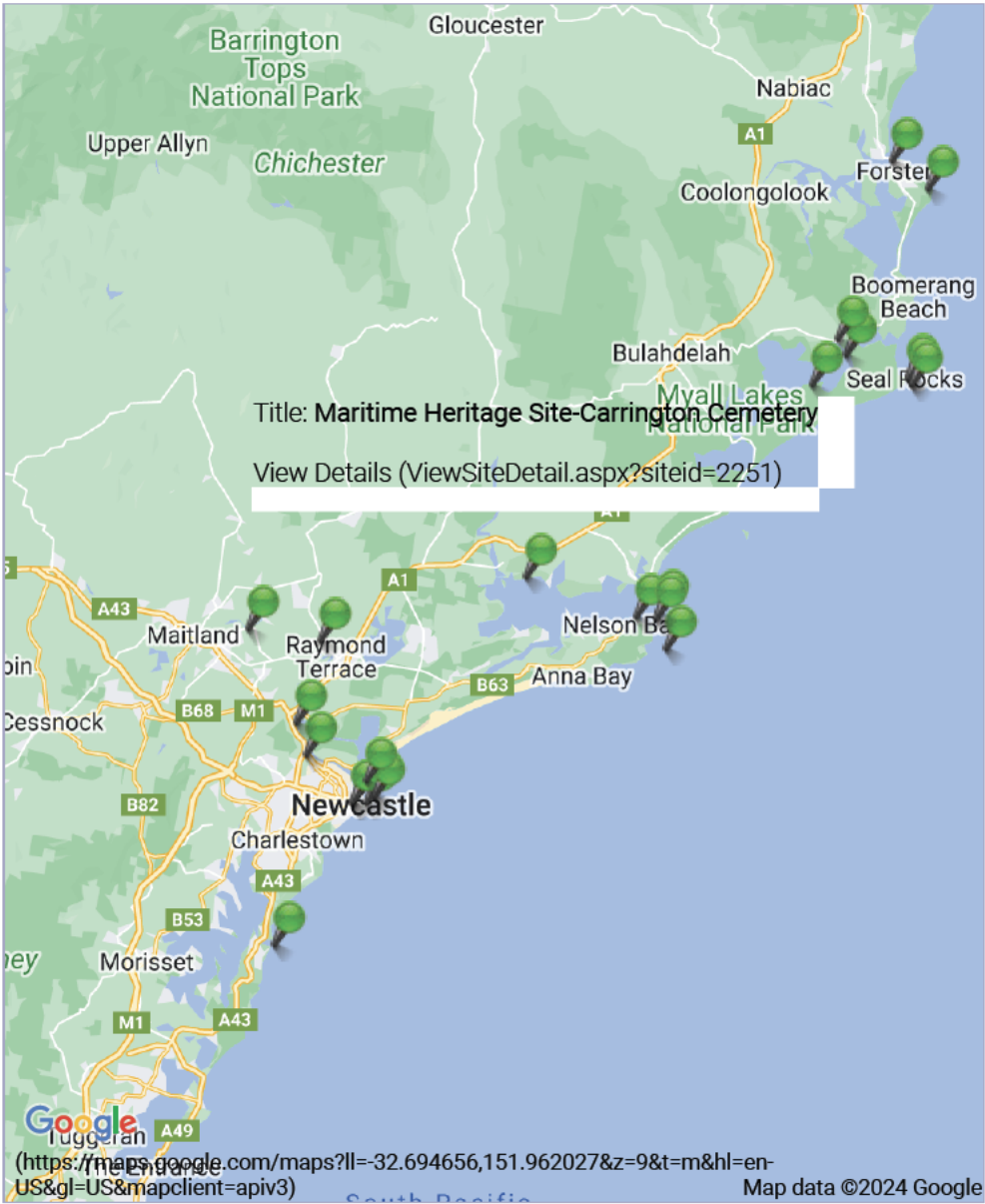
A NSW Government website



[Topics](#) > [Heritage](#) > [Search heritage databases](#) > [Maritime heritage database](#)
> [Search maritime heritage sites with map](#)

Search maritime heritage sites with map

[Search for maritime heritage sites by region, category and type.](#)



- Region
- ☐ All regions

☐ Northern Rivers

☐ Mid north coast

☒ Hunter Valley

☐ Central Coast

☐ Sydney

☐ Illawarra

☐ South East

☐ NSW - Other

☐ Lord Howe Island and Middleton & Elizabeth Reefs

☐ Darling

☐ Murray river

Maritime category

Maritime Heritage

▼

Maritime type

All type

▼

Site search results

Site title	Description	Category	Region
Cape Hawke Lighthouse (ViewSiteDetail.aspx?siteid=2031)		Maritime Heritage Site	Hunter Valley
Cape Hawke, Forster (ViewSiteDetail.aspx?siteid=2036)	The harbour works at Forster near Cape Hawke were undertaken in earnest during 1898. ...	Maritime Heritage Site	Hunter Valley

Carrington Cemetery (ViewSiteDetail.aspx?siteid=2251)		Maritime Heritage Site	Hunter Valley
Fort Scratchley (ViewSiteDetail.aspx?siteid=2040)	The Fort Scratchley Historic Site is a nineteenth century Coast Defence Fort located in a commanding position guarding the Hunter River and Newcastle. ...	Maritime Heritage Site	Hunter Valley
Historic Wharves - Hunter River, Morpeth (ViewSiteDetail.aspx?siteid=2782)	The remains of thirteen historic wharves are located along the bank of the Hunter River at	Maritime Heritage Site	Hunter Valley
Hunter River, Newcastle (ViewSiteDetail.aspx?siteid=2039)		Maritime Heritage Site	Hunter Valley
Lake Macquarie Port (ViewSiteDetail.aspx?siteid=2350)	Lake Macquarie was a centre for early trade. ...	Maritime Heritage Site	Hunter Valley
Myall Lakes (ViewSiteDetail.aspx?siteid=2361)	Myall Lakes was an important area in the collection and transshipment of raw material, particularly timber, from the nineteenth to twentieth centuries. ...	Maritime Heritage Site	Hunter Valley
Nelson Head Lighthouse Cottage & Reserve (ViewSiteDetail.aspx?siteid=2360)	The Nelson Head Lighthouse Cottage and Reserve is located in the historic Nelson Head Lighthouse complex. ...	Maritime Heritage Site	Hunter Valley
Nelson Head Lighthouse Group (ViewSiteDetail.aspx?siteid=2259)	The first light was installed in 1872 and the present cottage was built three years later. ...	Maritime Heritage Site	Hunter Valley
Nelsons Plains Wharf Hunter River (ViewSiteDetail.aspx?	Remains of a timber wharf located on the eastern bank of the Hunter River at 30-31	Maritime Heritage Site	Hunter Valley

siteid=2588)	Nobles Road, Nelsons Plains. ...		
Nerani Head Cemetery (ViewSiteDetail.aspx? siteid=2254)		Maritime Heritage Site	Hunter Valley
Newcastle Regional Maritime Museum (ViewSiteDetail.aspx? siteid=2035)	NEWCASTLE REGIONAL MARITIME MUSEUM Street Address: Off Nobby's Road Fort Scratchley, Newcastle East Postal Address: PO Box 148 Newcastle NSW 2300 Ph 024929 2588 Facsimile: 02 4929 5457 E-mail: nrmm@hunt	Maritime Heritage Site	Hunter Valley
Newcastle Regional Museum (ViewSiteDetail.aspx? siteid=2337)	NEWCASTLE REGIONAL MUSEUM Street Address: 787 Hunter Street Newcastle West NSW 2302 Postal Address: PO Box 2156 DANGAR NSW 2309 Telephone: (02) 4974 1400 Facsimile: (02) 4974 1405 E- mail : nrmuseum@ncc. ...	Maritime Heritage Site	Hunter Valley
Nobby's Head Lighthouse (ViewSiteDetail.aspx? siteid=2034)	Nobby's Head Lighthouse < ...	Maritime Heritage Site	Hunter Valley
Old Bungwahl Cemetery (ViewSiteDetail.aspx? siteid=2250)		Maritime Heritage Site	Hunter Valley
Point Stephens Lighthouse	Point Stephens Lighthouse. ...	Maritime Heritage Site	Hunter Valley

Contact us

Heritage NSW

 02 9873 8500

 [Email](#)

Please consider the environment before printing.

Appendix F: Biodiversity Search Results

DPI Weedwise Search – Central West region ‘priority weeds’

Definitions

Prohibition on certain dealings: Must not be imported into the state, sold, bartered, exchanged or offered for sale.

Regional recommended measure: Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.

Exclusion zone: An exclusion zone is established for all land in the region, except the core infestation which includes all urban centres of the Central West region.

Biosecurity zone: Within the biosecurity zone this weed must be eradicated where practicable, or as much of the weed destroyed as practicable, and any remaining weed suppressed. The local control authority must be notified of any new infestations of this weed within the biosecurity zone.

Prohibited Matter: A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify the Department of Primary Industries

Control Order: Owners and occupiers of land on which there is species must notify the local control authority for the area if the species is part of a new infestation on the land, destroy all species on the land ensuring that subsequent generations of species are destroyed; and keep the land free of species. A person who deals with a carrier of species must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier.

Scientific Name	Common name	Biosecurity duty
<i>Opuntia leucotricha</i>	Aaron's bear prickly pear	Prohibition on certain dealings Regional recommended measure
<i>Lycium ferocissimum</i>	African boxthorn	Prohibition on certain dealings
<i>Alternanthera philoxeroides</i>	Alligator weed	Prohibition on certain dealings Biosecurity zone
<i>Eichhornia azurea</i>	Anchored water hyacinth	Prohibited Matter
<i>Tamarix aphylla</i>	Athel pine	Prohibition on certain dealings Regional recommended measure
<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Bitou bush	Prohibition on certain dealings Biosecurity zone
<i>Centaurea x moncktonii</i>	Black knapweed	Prohibited Matter
<i>Salix nigra</i>	Black willow	Prohibition on certain dealings
<i>Rubus fruticosus</i> species aggregate	Blackberry	Prohibition on certain dealings Regional recommended measure
<i>Opuntia rufida</i>	Blind cactus	Prohibition on certain dealings Regional recommended measure
<i>Chrysanthemoides monilifera</i> subsp. <i>Monilifera</i>	Boneseed	Prohibition on certain dealings Control order
<i>Cylindropuntia fulgida</i> var. <i>mamillata</i>	Boxing glove cactus	Prohibition on certain dealings Regional recommended measure
<i>Asparagus asparagoides</i>	Bridal creeper	Prohibition on certain dealings Regional recommended measure
<i>Asparagus declinatus</i>	Bridal veil creeper	Prohibited matter
<i>Orobanche</i> species	Broomrapes	Prohibition matter
<i>Opuntia microdasys</i>	Bunny ears cactus	Prohibition on certain dealings Regional recommended measure
<i>Ambrosia confertiflora</i>	Burr ragweed	Regional recommended measure
<i>Cabomba caroliniana</i>	Cabomba	Prohibition on certain dealings
<i>Austrocylindropuntia</i> <i>cylindrica</i>	Cane cactus	Prohibition on certain dealings
<i>Genista monspessulana</i>	Cape broom	Prohibition on certain dealings
<i>Orbea variegata</i>	Carrion flower	Regional recommended measure
<i>Dolichandra unguis-cati</i>	Cat's claw creeper	Prohibition on certain dealings Regional recommended measure
<i>Opuntia schickendantzii</i>	Chicken dance cactus	Prohibition on certain dealings

Scientific Name	Common name	Biosecurity duty
		Regional recommended measure
<i>Nassella neesiana</i>	Chilean needle grass	Prohibition on certain dealings Regional recommended measure
<i>Asystasia gangetica</i> subsp. <i>micrantha</i>	Chinese violet	Control Order
<i>Asparagus africanus</i>	Climbing asparagus	Prohibition on certain dealings
<i>Asparagus plumosus</i>	Climbing asparagus fern	Prohibition on certain dealings
<i>Opuntia stricta</i>	Common pear	Prohibition on certain dealings Regional recommended measure
<i>Hyparrhenia hirta</i>	Cooltai grass	Regional recommended measure
<i>Hygrophila polysperma</i>	East Indian hyrophila	Regional recommended measure
<i>Myriophyllum spicatum</i>	Eurasian water milfoil	Prohibition matter
<i>Austrocylindropuntia subulata</i>	Eve's needle cactus	Prohibition on certain dealings
<i>Senecio madagascariensis</i>	Fireweed	Prohibition on certain dealings Regional recommended measure
<i>Genista linifolia</i>	Flax-leaf broom	Prohibition on certain dealings
<i>Asparagus densiflorus</i>	Foxtail fern	Prohibition on certain dealings
<i>Limnobia laevigatum</i>	Frogbit	Prohibition matter
<i>Andropogon gayanus</i>	Gamba grass	Prohibition matter
<i>Arundo donax</i>	Giant reed	Regional recommended measure
<i>Ulex europaeus</i>	Gorse	Prohibition on certain dealings
<i>Cestrum parqui</i>	Green cestrum	Regional recommended measure
<i>Salix cinerea</i>	Grey willow	Prohibition on certain dealings
<i>Asparagus aethiopicus</i>	Ground asparagus	Prohibition on certain dealings
<i>Harrisia species</i>	Harrisia cactus	Regional recommended measure
<i>Hieracium species</i>	Hawkweeds - Hieraciums	Prohibited matter
<i>Pilosella species</i>	Hawkweeds - Pilosellas	Prohibited Matter
<i>Gleditsia triacanthos</i>	Honey locust	Regional recommended measure
<i>Cylindropuntia pallida</i>	Hudson pear	Prohibition on certain dealings Regional recommended measure
<i>Hydrocotyle ranunculoides</i>	Hydrocotyl	Prohibited Matter
<i>Hygrophila costata</i>	Hygrophila	Recommended management measure
<i>Hymenachne amplexicaulis</i> and hybrids	Hymenachne	Prohibition on certain dealings
<i>Sorghum halepense</i>	Johnson grass	Regional recommended measure
<i>Vachellia karroo</i>	Karoo acacia	Prohibited Matter
<i>Heteranthera reniformis</i>	Kidney-leaf mud plantain	Regional recommended measure
<i>Pilosella piloselloides</i>	King devil hawkweed	Prohibited Matter
<i>Bassia scoparia</i>	Kochia	Prohibited Matter
<i>Clidemia hirta</i>	Koster's curse	Prohibited Matter
<i>Lagarosiphon major</i>	Lagarosiphon	Prohibited Matter
<i>Lantana camara</i>	Lantana	Prohibition on certain dealings
<i>Ludwigia peruviana</i>	Ludwigia	Regional recommended measure
<i>Anredera cordifolia</i>	Madeira vine	Prohibition on certain dealings
<i>Prosopis species</i>	Mesquite	Prohibition on certain dealings Regional recommended measure
<i>Nassella tenuissima</i>	Mexican feather grass	Prohibited Matter
<i>Miconia species</i>	Miconia	Prohibited Matter
<i>Mikania micrantha</i>	Mikania vine	Prohibited Matter
<i>Mimosa pigra</i>	Mimosa	Prohibited Matter
<i>Pilosella officinarum</i>	Mouse-ear hawkweed	Prohibited Matter
<i>Pilosella aurantiaca</i>	Orange hawkweed	Prohibited Matter
<i>Parkinsonia aculeata</i>	Parkinsonia	Prohibition on certain dealings Control Order
<i>Parthenium hysterophorus</i>	Parthenium weed	Prohibited Matter Prohibition on certain dealings
<i>Annona glabra</i>	Pond apple	Prohibited Matter
<i>Vachellia nilotica</i>	Prickly acacia	Prohibited Matter
<i>Austrocylindropuntia species</i>	Prickly pears	Prohibition on certain dealings
<i>Cylindropuntia species</i>	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Opuntia species</i>	Prickly pears	Prohibition on certain dealings

Scientific Name	Common name	Biosecurity duty
		Regional recommended measure
<i>Opuntia elata</i>	Riverina pear	Prohibition on certain dealings Regional recommended measure
<i>Cylindropuntia imbricata</i>	Rope pear	Prohibition on certain dealings Regional recommended measure
<i>Cryptostegia grandiflora</i>	Rubber vine	Prohibited Matter
<i>Sagittaria platyphylla</i>	Sagittaria	Prohibition on certain dealings Regional recommended measure
<i>Salvinia molesta</i>	Salvinia	Prohibition on certain dealings Regional recommended measure
<i>Cytisus scoparius</i> subsp. <i>scoparius</i>	Scotch broom	Prohibition on certain dealings
<i>Nassella trichotoma</i>	Serrated tussock	Prohibition of certain dealings Regional recommended measure
<i>Chromolaena odorata</i>	Siam weed	Prohibited Matter
<i>Solanum elaeagnifolium</i>	Silverleaf nightshade	Prohibition on certain dealings
<i>Opuntia monacantha</i>	Smooth tree pear	Prohibition on certain dealings Regional recommended measure
<i>Asparagus scandens</i>	Snakefeather	Prohibition on certain dealings
<i>Cenchrus longispinus</i>	Spiny burgrass	Regional recommended measure
<i>Limnolobos spongia</i>	Spongeplant	Prohibited Matter
<i>Centaurea stoebe</i> subsp. <i>micranthos</i>	Spotted knapweed	Prohibited Matter
<i>Hypericum perforatum</i>	St John's Wort	Regional recommended measure
<i>Opuntia aurantiaca</i>	Tiger pear	Prohibition on certain dealings Regional recommended measure
<i>Solanum viarum</i>	Tropical soda-apple	Control Order
<i>Opuntia tomentosa</i>	Velvety tree pear	Prohibition on certain dealings Regional recommended measure
<i>Trapa</i> species	Water caltrop	Prohibited Matter
<i>Eichhornia crassipes</i>	Water hyacinth	Prohibition on certain dealings Biosecurity zone
<i>Stratiotes aloides</i>	Water soldier	Prohibited Matter
<i>Opuntia robusta</i>	Wheel cactus	Prohibition on certain dealings Regional recommended measure
<i>Salix</i> species	Willows	Prohibition on certain dealings
<i>Striga</i> species	Witchweeds	Prohibited Matter
<i>Limnolobos flava</i>	Yellow burrhead	Prohibited Matter
<i>Nymphaea Mexicana</i>	Yellow waterlily	Regional recommended measure



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 14-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	41
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Riverland	700 - 800km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream from Ramsar site	In feature area
The macquarie marshes	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	
Weeping Myall Woodlands	Endangered	Community may occur within area	
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Community Name	Threatened Category	Presence Text	Buffer Status
----------------	---------------------	---------------	---------------

Listed Threatened Species

[[Resource Information](#)]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
 Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
-----------------	---------------------	---------------	---------------

BIRD

[Anthochaera phrygia](#)

Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
---------------------------	-----------------------	--	-----------------

[Aphelocephala leucopsis](#)

Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
--------------------------	------------	--	-----------------

[Botaurus poiciloptilus](#)

Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
-----------------------------	------------	--	-----------------

[Calidris ferruginea](#)

Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
------------------------	-----------------------	--	-----------------

[Callocephalon fimbriatum](#)

Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
--------------------------	------------	--	-----------------

[Calyptorhynchus lathami lathami](#)

South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
---	------------	---	-----------------

[Climacteris picumnus victoriae](#)

Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
---	------------	---	-----------------

[Falco hypoleucos](#)

Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
-------------------	------------	--	-----------------

[Grantiella picta](#)

Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
--------------------------	------------	--	-----------------

[Hirundapus caudacutus](#)

White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
---------------------------------	------------	---	-----------------

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Homoranthus darwinioides [12974]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area
Zieria ingramii Ingram's Zieria [56734]	Endangered	Species or species habitat known to occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals [Resource Information]				
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Cobbora Solar Farm	2022/09269		Assessment	In feature area
Controlled action				
Open cut coal mine & associated infrastructure	2011/6158	Controlled Action	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Central West	Northern Inland Catchments	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 14-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	40
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Riverland	700 - 800km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream from Ramsar site	In feature area
The macquarie marshes	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	
Weeping Myall Woodlands	Endangered	Community may occur within area	
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Community Name	Threatened Category	Presence Text	Buffer Status
----------------	---------------------	---------------	---------------

Listed Threatened Species

[[Resource Information](#)]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
 Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
-----------------	---------------------	---------------	---------------

BIRD

[Anthochaera phrygia](#)

Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
---------------------------	-----------------------	--	-----------------

[Aphelocephala leucopsis](#)

Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
--------------------------	------------	--	-----------------

[Botaurus poiciloptilus](#)

Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
-----------------------------	------------	--	-----------------

[Calidris ferruginea](#)

Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
------------------------	-----------------------	--	-----------------

[Callocephalon fimbriatum](#)

Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In buffer area only
--------------------------	------------	--	---------------------

[Calyptorhynchus lathami lathami](#)

South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
---	------------	--	-----------------

[Climacteris picumnus victoriae](#)

Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
---	------------	--	-----------------

[Falco hypoleucos](#)

Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
-------------------	------------	--	-----------------

[Grantiella picta](#)

Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
--------------------------	------------	--	-----------------

[Hirundapus caudacutus](#)

White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
---------------------------------	------------	--	-----------------

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Homoranthus darwinioides [12974]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area

Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

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

Extra Information

EPBC Act Referrals [Resource Information]				
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Central West	Northern Inland Catchments	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 14-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	35
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	
Banrock station wetland complex	800 - 900km upstream from Ramsar site	
Riverland	800 - 900km upstream from Ramsar site	
The coorong, and lakes alexandrina and albert wetland	1000 - 1100km upstream from Ramsar site	
The macquarie marshes	200 - 300km upstream from Ramsar site	

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.	
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.		
Scientific Name	Threatened Category	Presence Text
BIRD		

Scientific Name	Threatened Category	Presence Text
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
MAMMAL		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
PLANT		
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
REPTILE		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species [Resource Information]		
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Rostratula australis as Rostratula benghalensis (sensu lato)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Narrabri to Wellington gas transmission pipeline	2011/5913	Controlled Action	Completed
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 14-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	40
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

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

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Riverland	800 - 900km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream from Ramsar site	In feature area
The macquarie marshes	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

[Resource Information]

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur	In buffer area only within area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur	In feature area within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur	In feature area within area
Weeping Myall Woodlands	Endangered	Community may occur	In feature area within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur	In feature area within area

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium monoplacoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In feature area
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area	In buffer area only
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands	[Resource Information]
The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.	
Commonwealth Land Name	State Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited	

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [13260]	NSW	In feature area

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Dubbo - Tamworth Natural Gas Pipeline	2000/32	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

