

# OSOM vehicle facilitation upgrades Sandgate to Wallsend (A37 and A15) Minor works review of environmental factors

February 2024



## Acknowledgement of Country

Transport for NSW acknowledges Awabakal people, the traditional custodians of the land on which the OSOM Vehicle Facilitation Upgrades 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.



## Report review tracking

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## Approval and authorisation

Approved by	Chris Meehan
Signed	
Date	29/02/2024

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# 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* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act).

In doing so the REF helps to fulfil the requirements of section 5.5 of the EP&A Act including that Transport examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The potential for the proposal to significantly impact a matter of national environmental significance, including nationally listed threatened biodiversity matters, or the environment of Commonwealth land. Where a significant impact is considered likely on nationally listed biodiversity matters, either the proposal must be reconsidered or a project REF must be prepared.

## 2. The proposal

### 2.1 Description

#### 2.1.1 Proposal location

Table 2-1: Proposal location details

Location details	
Title	OSOM Vehicle Facilitation Upgrades Sandgate to Wallsend (A37 and A15)
File number	
Road name and number	The proposal covers four locations along a route from Maitland Road at Sandgate; along the Newcastle Inner City Bypass, Newcastle Road, Thomas Street and the Newcastle Link Road to Cameron Park.
Closest crossroad(s)	Janet Street, Thomas Street, Transfield Avenue and Minmi Road
Local government area	Newcastle and Lake Macquarie
Transport for NSW region	Hunter

#### 2.1.2 Proposal description

The Hexham Straight Widening Alliance is planning to deliver a number of improvements to better facilitate OSOM vehicles up to 140m long travelling from the Port of Newcastle and other local industrial areas through Newcastle to access the M1 Motorway and M15 Hunter Expressway (the proposal). These improvements are aimed at minimising network impacts of both current infrastructure projects (Hexham Straight, M1 to Raymond Terrace, Rankin Park to Jesmond, etc) and to accommodate future increases in OSOM movements, most notably due to increased development of Renewable Energy projects across NSW. The proposal will be delivered by the Hexham Straight Widening Alliance.

Two other sites (Site 4 and Site 6) are not included in this memo as they are within existing project footprints; Hexham Straight Widening and Rankin Park to Jesmond respectively; and will be undertaken as part of the project work at these sites.

##### Location of proposed works

The proposal covers four locations along a route from Maitland Road at Sandgate; along the Newcastle Inner City Bypass, Newcastle Road, Thomas Street and the Newcastle Link Road to Cameron Park.

The sites are as follows:

- Site 5 – Median crossover on Newcastle Inner City Bypass, Jesmond
- Site 8 – Roundabout at intersection of Newcastle Road and Thomas Street, Wallsend
- Site 9 – Roundabout at intersection of Newcastle Link Road and Transfield Avenue, Wallsend
- Site 10 – Roundabout at intersection of Newcastle Link Road and Minmi Road, Cameron Park

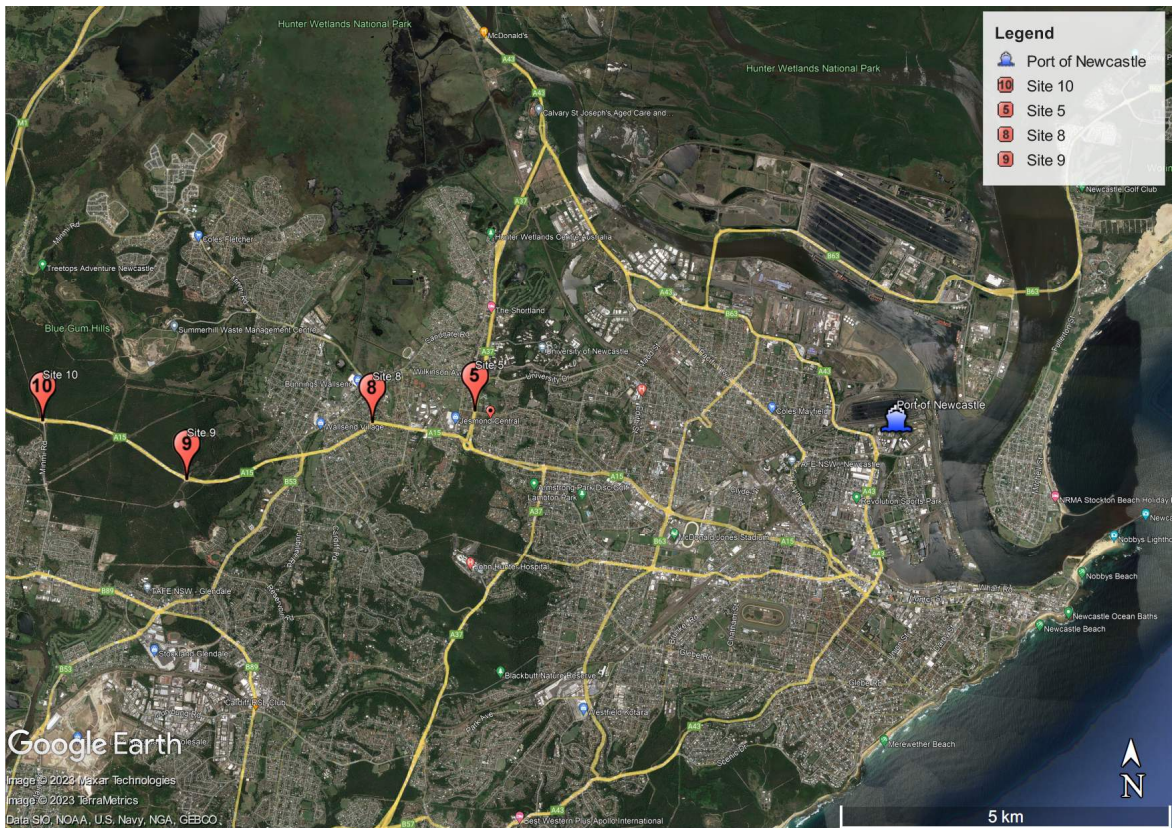


Figure 2-1: location of the proposed works

### Key features of the proposal

Movements of the following OSOM vehicles have been considered when developing proposed modifications at each intersection:

- wheel paths of the 85 metre wind turbine blade trailers
- wheel paths of the 100 metre wind turbine blade trailers
- 220 tonne transformer vehicles
- Wind turbine tower component trailers.

Several early works activities will be undertaken to assist in the design process including:

- Geotechnical Investigation for design verification and waste classification
- Service identification/location to verify design and positive confirmation of utility location.

Due to the location of the early works to be performed, these activities will generally be undertaken at night utilising an approved Road Occupancy License (ROL) to close a lane of traffic. Other establishment activities to be undertaken include the completion of dilapidation inspections to the existing road networks and adjacent structures / assets.

The proposal is anticipated to involve the following key features:

#### Site 5:

- Excavate about 315m<sup>2</sup> of existing grassed median including around 15 small previously planted trees between University Drive Overpass and Janet Street Overpass construct mountable kerb and median infill pavement.
- Relocate existing signage and install new removable bollards
- Import, placement and compaction of pavement material, concrete placement, and asphalt paving.
- Works to be conducted at night due to Road Occupancy Licence restrictions.



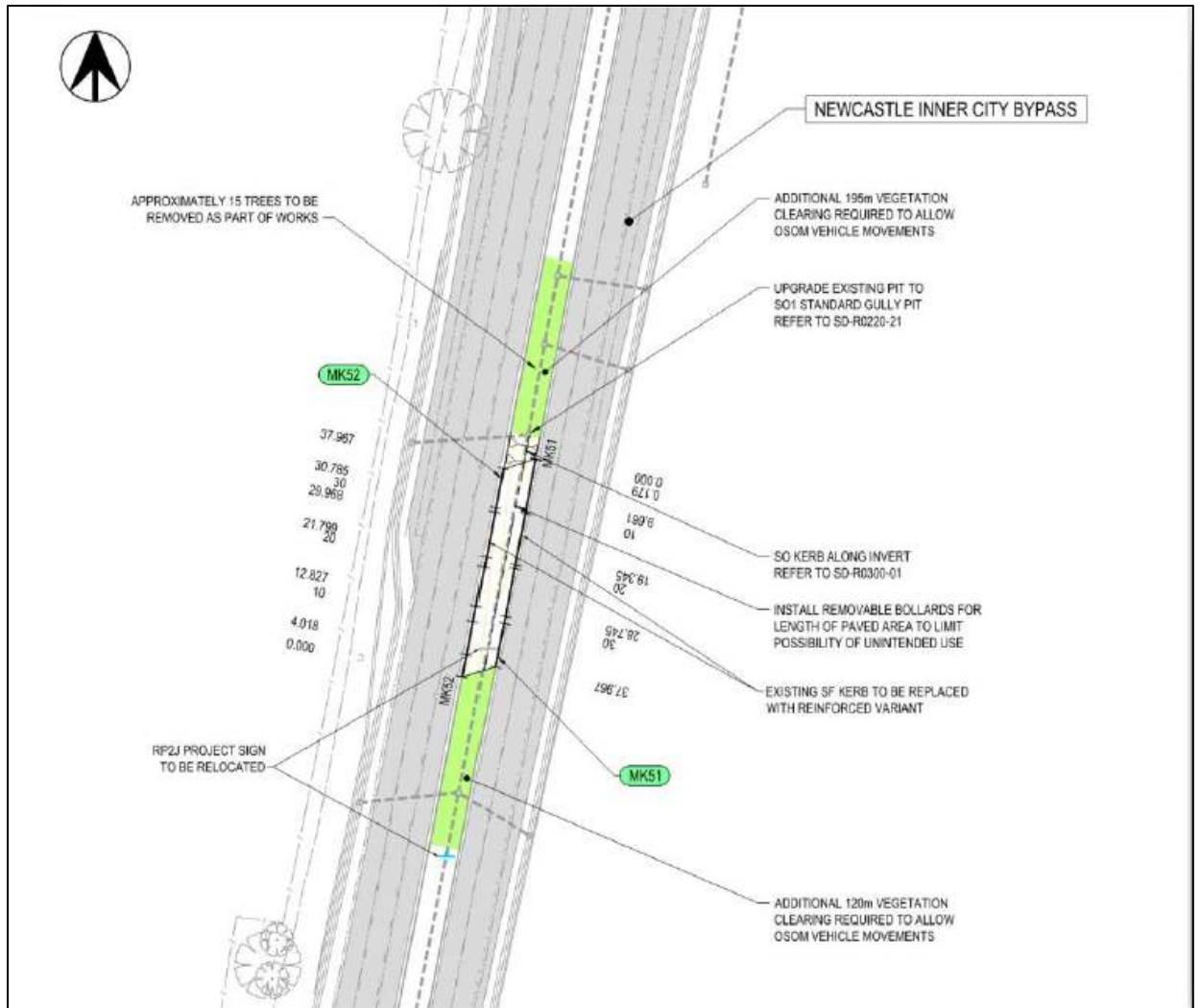


Figure 2-2: Site 5 proposed works at median crossover on Newcastle Inner City Bypass, near Janet Street overpass

Site 8:

- Remove a section of barrier kerb from between the westbound lanes of Newcastle Road on approach to the roundabout and replace with new mountable kerb.
- Relocate existing signage out of OSOM vehicle envelope including extension of existing cabling, otherwise swap to a removable footing or flexible post at existing locations. Signage would remain in the disturbed zone being the centre median, concrete islands or maintained roadside verge.
- Excavate around 155m<sup>2</sup> of existing Thomas St median on westbound departure of the roundabout to construct mountable kerb and median infill pavement.
- Remove around 60m<sup>2</sup> of previously planted vegetation (shrubs and immature to semi-mature trees) from the westbound verge to allow for the OSOM load envelope to pass through this area whilst the truck and trailer wheels remain on the road pavement (load envelope travels over approx. 100m<sup>2</sup> of area behind kerb).
- Import, placement and compaction of pavement material, concrete placement, and asphalt paving.
- Works to be conducted at night due to Road Occupancy Licence restrictions.

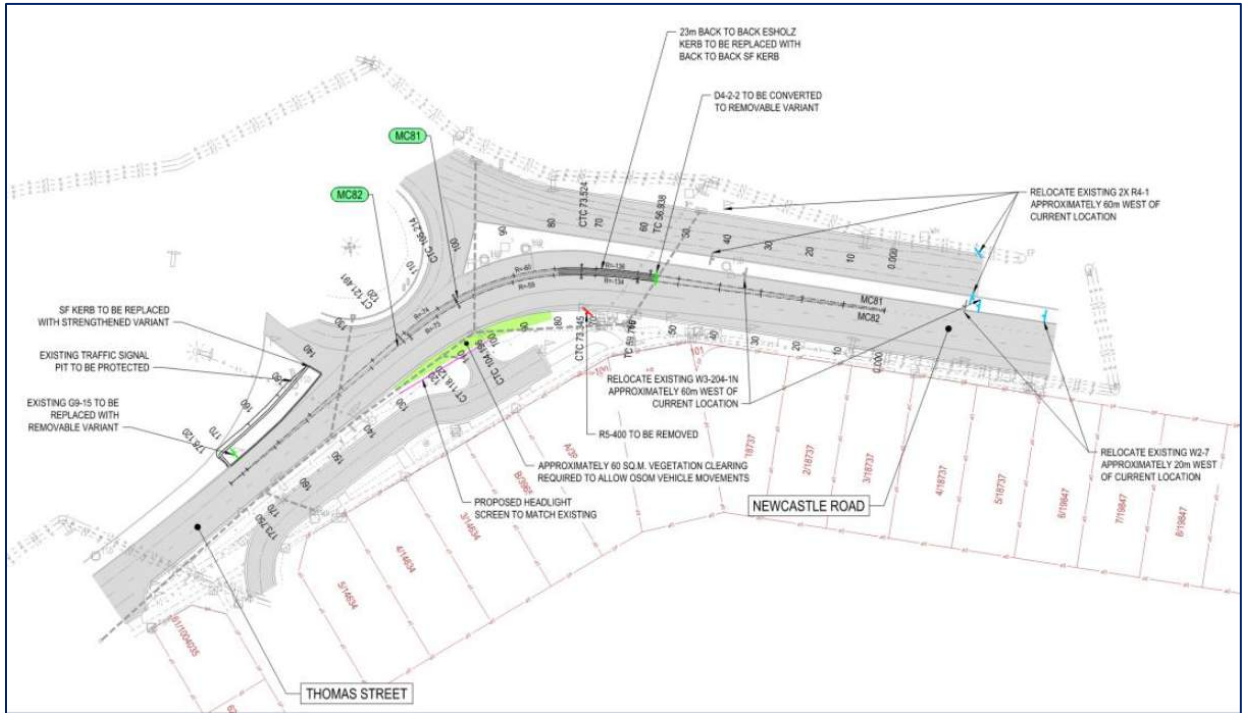


Figure 2-3: Site 8 proposed works at roundabout at intersection of Newcastle Road and Thomas Street

Site 9:

- Widen/replace the existing mountable annulus towards the centre of the roundabout to cater for OSOM vehicles of up to 140 metres in length
- Excavate existing material within around 380m<sup>2</sup> of the existing annulus to allow for depth of new mountable roundabout centre (annulus), some may be re-used as general fill if required.
- Import, placement and compaction of pavement material, concrete placement, and asphalt paving.
- Clearing limited to removal of grass and topsoil from centre of the roundabout.
- Work to be conducted at night due to Road Occupancy Licence restrictions.

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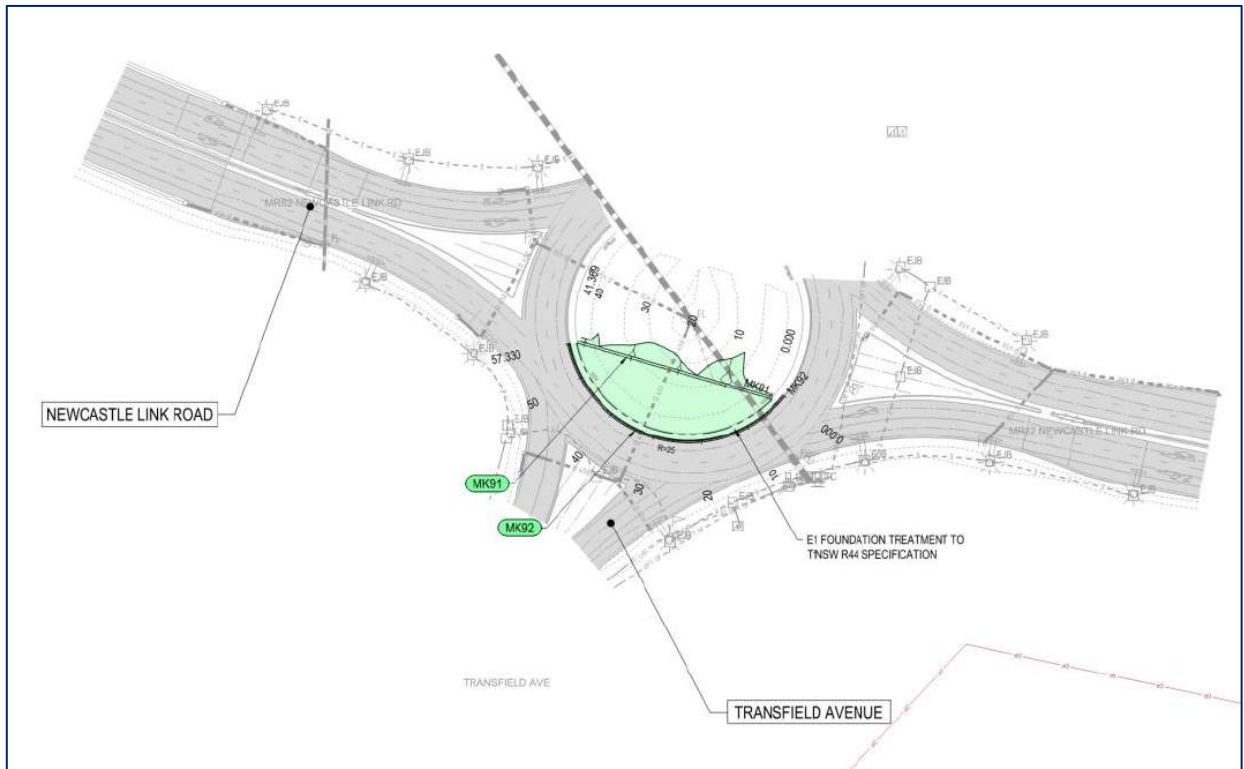


Figure 2-4: Site 9 proposed works at roundabout on Newcastle Link Road intersection with Transfield Avenue

Site 10:

- Widen/replace the existing mountable annulus towards the centre of both roundabouts to cater for OSOM vehicles of up to 140 metres in length
- Clearing limited to removal of grass, topsoil and some previously planted shrubs from centre of the roundabout.
- Excavate existing material within around 320m<sup>2</sup> of the existing annulus to allow for depth of new mountable roundabout centre (annulus), some may be re-used as general fill if required.
- Import, placement and compaction of pavement material, concrete placement, and asphalt paving.
- Relocate existing roundabout signage out of OSOM vehicle envelope where possible, otherwise swap to a removable footing or flexible post at existing locations. Signage would remain in the disturbed zone being the centre of the roundabout, concrete islands or maintained roadside verge.
- Work to be conducted at night due to Road Occupancy Licence restrictions.

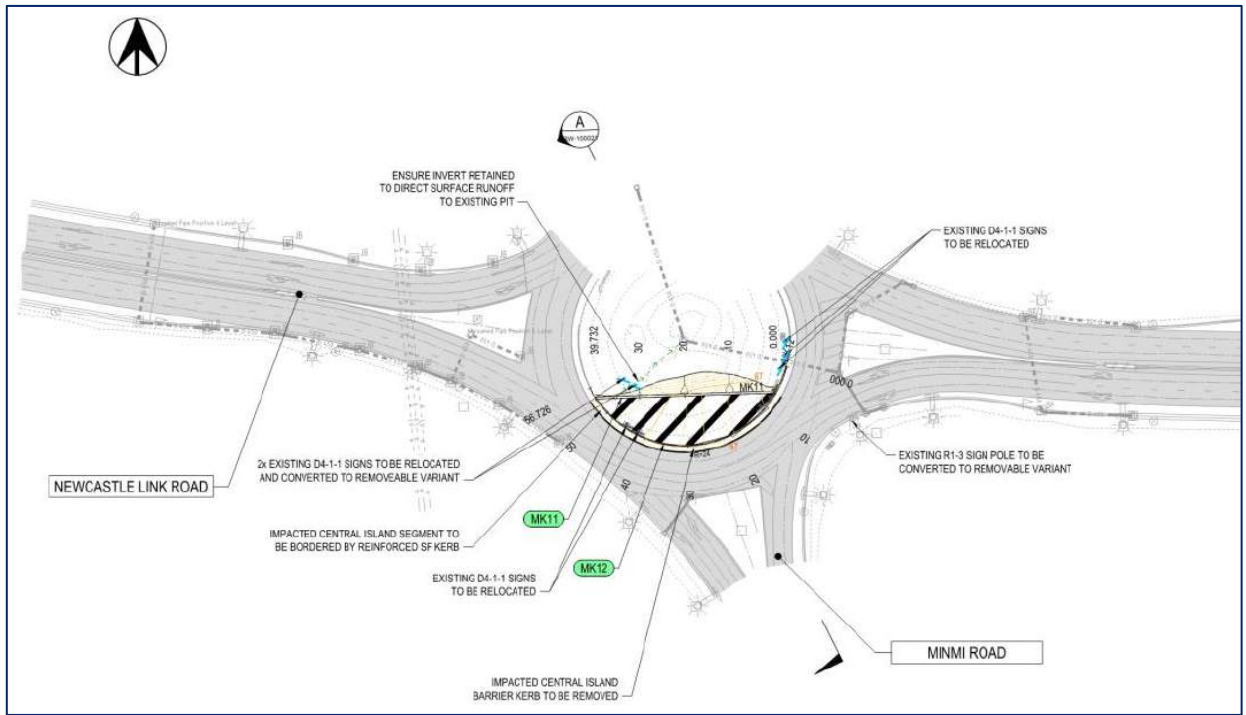


Figure 2-5: Site 10 proposed works at roundabout on Newcastle Link Road at the intersection of Minmi Road

**Construction staging and methodology**

The proposed construction staging and methodology provided is indicative only and will differ slightly between sites.

Construction stage	Methodology
Site establishment	<ul style="list-style-type: none"> <li>• survey, utility location and design development</li> <li>• establishment of traffic control measures</li> <li>• establishment of environmental controls including limit or works (if necessary) and erosion and sediment controls.</li> </ul>
Intersection works	<ul style="list-style-type: none"> <li>• clearing and demolition</li> <li>• subsurface works (subsoil, foundation)</li> <li>• utility works</li> <li>• base pavement construction</li> <li>• new / modified kerbing work</li> <li>• asphalt works</li> </ul>
Finishing works	<ul style="list-style-type: none"> <li>• linemarking and signage</li> <li>• remove any traffic control and management</li> <li>• remove temporary construction equipment</li> <li>• site cleanup</li> </ul>

**Construction traffic access and management**

Whilst each of the sites have different traffic configurations, the general approach to Traffic Management is for short term works. This will predominantly be achieved through works on night shift, returning all lanes to road users at the end of each shift.

Traffic Guidance Schemes (TGSs) will be developed by the Alliance Traffic Manager in accordance with TCAWS Issue 6 to show the arrangements for warning road customers and guiding them around, past or through the works. TGSs will be presented to the Traffic Control Group (TCG) for review during the IFC design phase prior to formal submission. The TCG will consist of representatives from:

- OSOM Delivery Team
- ROM
- TfNSW.

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During all stages, speed reductions from the existing speed limits (90/60kph) down to 60/40kph through the work zone will be applied for to provide the safest work zone possible.

Each site will utilise a combination of temporary delineation, barriers, and merged lane closures, supported with a TMA unit and VMS unit.

### 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
- chainsaw
- jackhammer
- 15T excavators
- Water cart
- positrac/backhoe
- pad foot roller
- smooth drum roller
- road trucks
- light vehicles
- concrete saw
- asphalt paver
- kerb machine
- vacuum truck.

### Construction hours

Where possible, work would be carried out 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

To minimise traffic impacts and to ensure the safety of workers, it is expected that the majority of activities would need to be undertaken outside of standard working hours. These hours would be in accordance with the ROL issued by the Transport Management Centre and up to five nights a week as follows:

- Sunday to Thursday: 8 pm to 5 am or Monday to Friday: 8pm to 5am
- No work on public holidays

Any impacted residents or businesses would be consulted regarding the proposed construction hours at least five working days prior to work commencing in accordance with the Construction Noise and Vibration Guideline (Roads and Maritime, 2016) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009). The community would be kept informed of proposed upcoming work and contact information.

## 2.1.3 Proposal objectives

The project objectives are as follows:

- Reduce interaction and therefore impacts to the Hexham Straight Widening project as both operations require significant Out-of-Hours works delivery across a shared (currently) footprint.
- Provide an alternative backup route for OSOM movements in the event of an emergency or delay on the Hexham Straight Widening project, such as a traffic incident, planned closure or ROL conflict.

## 2.1.4 Ancillary facilities

Table 2-2: Ancillary facilities

Ancillary facilities		
<p><b>Will the proposal require the use or installation of a compound site?</b></p> <p>The works will use the existing facilities at the main Hexham Straight project construction compound located on land leased by TfNSW situated at Old Maitland Rd, Sandgate. The main compound houses the current office facilities including amenities and hardstand for storage and treatment of materials used in or generated from the works.</p> <p>Temporary satellite facilities will be located at Site 9 (to also service sites 8 &amp; 10) for use by personnel, these facilities will include:</p> <ul style="list-style-type: none"> <li>• Combined Office/Crib Facilities.</li> <li>• Amenities/Porta-loo.</li> <li>• Parking.</li> <li>• Small Storage Area.</li> </ul> <p>These facilities will be located within the existing paved and/or cleared unused road stub on the northern and southern sides of the roundabout and do not require any vegetation clearing or excavation. Temporary facilities will cater for existing property access through these areas, noting the southern side is also used by a mobile coffee van.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>Will the proposal require the use or installation of a stockpile site?</b></p> <p>The works will use the existing facilities at the main Hexham Straight project construction or previously disturbed area at Site 9.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>Are any other ancillary facilities required (e.g. temporary plants, parking areas, access tracks)?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

## 2.1.5 Proposed date of commencement

The proposal is anticipated to commence in Q2 2024

## 2.1.6 Estimated length of construction period

Construction is expected to take around 20 weeks to complete with work occurring at multiple sites at once, weather permitting.

## 2.2 Need and options

### 2.2.1 Options considered

The options considered for the proposal included:

- **Option 1 ‘Do nothing’:** undertake no road infrastructure improvements to better facilitate OSOM vehicles up to 140m long travelling from the Port of Newcastle and other local industrial areas through Newcastle to access the M1 Motorway and M15 Hunter Expressway.
- **Option 2 ‘The proposal’:** undertake program of intersection upgrades as outlined in Section 2.1.2.

Table 2-3: assessment of options against proposal objectives

Objectives	Option 1 ‘Do-nothing’	Option 2 ‘The proposal’
<b>Reduce interaction and therefore impacts to the Hexham Straight Widening project as both operations</b>	Option 1 would involve not undertaking any improvements to the intersections along the	Option 2 would give the ability to reduce interaction and therefore impacts to existing projects while facilitating movement of OSOM

Objectives	Option 1 'Do-nothing'	Option 2 'The proposal'
<b>require significant Out-of-Hours works delivery across a shared (currently) footprint.</b>	<p>proposed alternate OSOM transport route.</p> <p>By not undertaking the improvements, significant interaction and coordination between OSOM asset owners and existing projects may occur, resulting in timing, works/transport duration and cost impacts.</p> <p><b>Does not meet objective.</b></p>	<p>vehicles from the Port of Newcastle.</p> <p>The provision of improvements such as additional hardstand, relocation of signage and utilities would provide additional space and safer passage for OSOM vehicle movements while minimising disruption to existing projects.</p> <p><b>Meets objective.</b></p>
<b>Provide an alternative backup route for OSOM movements in the event of an emergency or delay on the Hexham Straight Widening project, such as a traffic incident, planned closure or ROL conflict.</b>	<p>Option 1 would not provide an alternative OSOM transport route.</p> <p><b>Does not meet objective.</b></p>	<p>Option 2 would provide an alternative OSOM transport route.</p> <p><b>Meets objective.</b></p>

Based on the outcomes described in Table 2-2-1, Option 2 is the preferred option as it meets the proposal objective while Option 1 does not.

## 2.2.2 Justification for the proposal

The proposal is required to better facilitate OSOM vehicles up to 140m long travelling from the Port of Newcastle and other local industrial areas through Newcastle to access the M1 Motorway and M15 Hunter Expressway.

These improvements are aimed at minimising network impacts of both current infrastructure projects (Hexham Straight, M1 to Raymond Terrace, Rankin Park to Jesmond, etc) and to accommodate increases in OSOM movements most notably due to increased development of Renewable Energy projects across NSW. Without the proposal significant impacts to current infrastructure projects may pose a risk to the construction duration and constructability of these projects, as well as causing delays to the movement of OSOM vehicles.

## 2.3 Statutory and planning framework

### 2.3.1 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.

### 2.3.2 Other relevant legislation and environmental planning instruments

#### Newcastle Local Environmental Plan 2012

Sites 5, 8 and 9 are located within the Newcastle LGA and are subject to the Newcastle Local Environmental Plan 2012 (Newcastle LEP 2012). The proposal area is zoned as SP2 Infrastructure under the Newcastle LEP 2012. Table 2-3-1 outlines the zoning applicable to the proposal under the Newcastle LEP.

Table 2-4: Newcastle LEP 2012 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Sites 5, 8 and 9	<ul style="list-style-type: none"> <li>• to provide for infrastructure and related uses</li> <li>• to prevent development that is not compatible with or that may detract from the provision of infrastructure.</li> </ul>	The proposal proposes to upgrade the infrastructure. This is consistent with the objectives of SP2 Infrastructure.

#### Lake Macquarie Local Environmental Plan 2014

Site 10 is located within the Newcastle LGA and is subject to the Lake Macquarie Local Environmental Plan 2014 (Lake Macquarie LEP). The proposal area is zoned as SP2 Infrastructure under the Lake Macquarie LEP. Table 2-3-2 outlines the zoning applicable to the proposal under the Lake Macquarie LEP.

Table 2-5: Lake Macquarie LEP 2014 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Site 10	<ul style="list-style-type: none"> <li>• to provide for infrastructure and related uses</li> <li>• to prevent development that is not compatible with or that may detract from the provision of infrastructure</li> <li>• To provide land required for the development or expansion of major health, education and community facilities.</li> </ul>	The proposal proposes to upgrade the infrastructure. This is consistent with the objectives of SP2 Infrastructure.

The application of Newcastle LEP, Lake Macquarie LEP, and other relevant legislation and environmental planning instruments is considered in Table 2-3-3.

Table 2-6: Review of other legislation and environmental planning instruments

Legislation	Overview	Approval required?
<b>NSW Legislation</b>		
<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. These are permitted under a roads occupation 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.	<b>Yes</b> A roads occupation licence would need to be obtained by the construction contractor before beginning any work that requires road possession and closures.



Legislation	Overview	Approval required?
<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 consent from the Environmental Protection Authority (EPA).	<b>No</b> 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. However, in accordance with Part 5.7 of the POEO Act, Transport would notify the EPA of any pollution incidents that occur onsite. This would be managed in the CEMP to be prepared and implemented by the Contractor.
<i>National Parks and Wildlife Act 1974</i>	Under this Act, activities occurring on land reserved under the Act and impacts to Aboriginal places, objects and features require consent.	<b>No</b> The proposal is not located on land protected under the Act and the proposal was assessed as being unlikely to have an impact on Aboriginal cultural heritage (see Section 3.5).
<i>Heritage Act 1977</i>	Under this Act, activities that may impact items of state heritage significance require consent from Heritage NSW.	<b>No</b> No state heritage items are expected to be impacted by the proposal (see Section 3.6).
Environmental planning instruments		
<i>Newcastle Local Environmental Plan 2012</i>	The relevant land zones and objectives apply to the proposal: <ul style="list-style-type: none"> <li>• SP2 – Infrastructure</li> </ul>	<b>No</b> Developments comprising roads are permitted without consent on land zoned SP2 Infrastructure.
<i>Lake Macquarie Environmental Plan 2011</i>	Local heritage items to be altered or demolished require consent.	Section 2.109 of Transport and Infrastructure SEPP enables the proposal to be carried out as development permitted without consent and assessed under Part 5 of the EP&A Act. Development consent from Council is not required.  Local heritage items are not expected to be directly impacted by the proposal (see Section 3.6)

## 2.4 Community engagement and agency consultation

### 2.4.1 SEPP (Transport and Infrastructure) consultation

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

Table 2-7: Consultation required with Council

Is consultation with Council required under sections 2.10 -2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area? No. The intersection upgrades proposed are minor in scale and as such, substantial traffic impacts during construction are not anticipated.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow? No. Temporary structure 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 areas adjacent to the road reserve may be used for ancillary activities including car parking and laydown areas.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? The proposed works is to be carried out on state owned roads that are maintained by Council. Under the scope of works the excavation required is minor.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? 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? Yes, but potential impacts are considered to be minor or inconsequential. See Section 3.6 for further details.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Is the proposal within the coastal vulnerability area and inconsistent with a certified coastal management program applying to that land? Note: See interactive map at <a href="http://Coastal%20management-(nsw.gov.au)">Coastal management -(nsw.gov.au)</a> . Note the coastal vulnerability area has not yet been mapped. Note: a certified coastal zone management plan is taken to be a certified coastal management program. No. The proposal is not located within a coastal vulnerability area.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? <i>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).</i> Works are not considered to be located on flood liable land. City of Newcastle flood mapping:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

<ul style="list-style-type: none"> <li>Site 5: very low to low risk. Shallow and slow moving flood water in a 1% Annual Exceedance Probability event, that has a 1% chance of occurring each year.</li> <li>Site 8: no risk</li> <li>Site 9: no risk</li> </ul> <p>Lake Macquarie LEP 2014 Flood Planning Map</p> <ul style="list-style-type: none"> <li>Site 10: not located within a flood planning area</li> </ul>		
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Table 2-8: 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)?		
<p>Are the works located on flood liable land? (to any extent)</p> <p>If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance?</p> <p>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>.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i> , or on land acquired under that Act?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on land in Zone C1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Do the works include a fixed or floating structure in or over navigable waters?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Are the works on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region World Heritage Property?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Table 2-9: 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does the proposal include a bus depot?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Does the proposal include a permanent road maintenance depot or associated infrastructure, such as garages, sheds, tool houses, storage yards, training facilities and workers amenities?

Yes

No

## 2.4.2 Other agency and community engagement

Residents and key stakeholders will be regularly informed of upcoming outages and utility interruptions. The Community and Stakeholder Management Plan will be developed for the Project and implemented in the management of community notification associated with the utility relocation works. Services authorities also may complete their own notifications for outages.



### 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		
<p><b>Are there any known occurrences of salinity or acid sulfate soils in the area?</b> A review of the SEED Map Viewer (Office of Environment and Heritage, 2024) Was carried out on the 25 January 2024. The search indicated that the proposal is not located within areas of acid sulfate soils occurrence.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Does the proposal involve the disturbance of large areas (e.g., &gt;2ha) for earthworks?</b> The proposal works will remain mostly within the road reserve and would not require large disturbances for earthworks.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?</b> Sites are located within the existing (sometimes narrow) road reserve and erosion and sedimentation controls will be placed within these corridors.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>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?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is there any evidence within or nearby the likely footprint of potential contamination?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is the likely proposal footprint in or nearby highly sloping landform?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is the proposal likely to result in more than 2.5ha (area) of exposed soil?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>The proposal would have minimal disturbance of material and therefore minimal potential for the proposal to have impacts related to sediment and erosion. During construction, excavation of material has the potential to enter local stormwater networks should erosion and sedimentation controls not be installed adequately.</p>		

#### Safeguards

Safeguards to be implemented are:

E1 Erosion and sediment control measures will be implemented and maintained to:

- prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets
- reduce water velocity and capture sediment on site
- minimise the amount of material transported from site to surrounding pavement surfaces
- divert clean water around the site in accordance with the Landcom/Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book).

E2. Erosion and Sediment Controls are to be maintained and checked regularly, with records kept and provided on request.

E3. Erosion and sediment control measures will not be removed until the works are complete and areas stabilised.

E4. Work areas will be stabilised progressively during the works.

E5. A progressive erosion and sediment control plan will be prepared for the works.

### 3.2 Waterways and water quality

Table 3-2: Waterways and water quality

Description of existing environmental and potential impacts		
<p><b>Is the proposal located within, adjacent to or near a waterway?</b></p> <p>The NSW DPI Fisheries Spatial Data Portal identified no waterways within 500 metres of any of the sites.</p> <p>Within one kilometre of the proposal sites:</p> <ul style="list-style-type: none"> <li>Ironbark Creek freshwater fish community is located 800m to the west of Site 8</li> </ul>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is the location known to flood or be prone to water logging?</b></p> <p>City of Newcastle flood mapping:</p> <ul style="list-style-type: none"> <li>Site 5: very low to low risk. Shallow and slow moving flood water in a 1% Annual Exceedance Probability event, that has a 1% chance of occurring each year.</li> <li>Site 8: no risk</li> <li>Site 9: no risk</li> </ul> <p>Lake Macquarie LEP 2014 Flood Planning Map:</p> <ul style="list-style-type: none"> <li>Site 10: not located within a flood planning area</li> </ul>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>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))?</b></p> <p><u>Note: See maps here</u></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Would the proposal be undertaken on a bridge or ferry?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is the proposal likely to require the extraction of water from a local water course (not mains)?</b></p> <p>All water required for the proposal would be sourced from potable town water.</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

#### Safeguards

Safeguards to be implemented are:

W1. Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.

W2. No dirty water will be released into drainage lines and/or waterways.

W3. Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.

### 3.3 Noise and vibration

Table 3-3: 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)?

Yes  No

Site 5 is located about 25 metres from the closest residential property and 20 metres from Callaghan College/Heaton Public School (Figure 3-1). Both sides of the existing Newcastle Inner City Bypass have a noise wall/mound between Site five and these noise sensitive areas do not have a direct line of sight to the proposal.

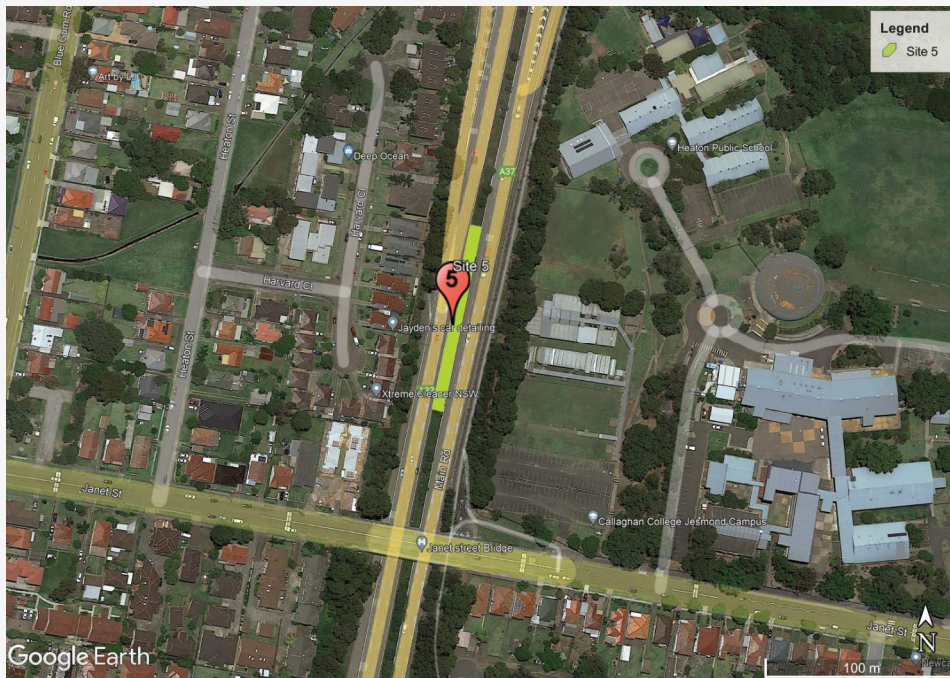


Figure 3-1: Noise sensitive receivers in proximity to Site 5

Site 8 is located about 25 metres from the closest residential property and about 150 metres from the Hello Health Family Medical practice (Figure 3-2). These noise sensitive areas currently experience traffic noise from the surrounding busy road network.



Figure 3-2: Noise sensitive receivers in proximity to Site 8

Site 9 and Site 10 are not located within 200 metres of any noise sensitive areas.



<p><b>Is the proposal going to be undertaken only during standard working hours?</b></p> <p>Where possible, work would be carried out during standard construction hours as follows:</p> <ul style="list-style-type: none"> <li>Monday to Friday: 7:00 am to 6:00 pm</li> <li>Saturday: 8:00 am to 1:00 pm</li> <li>Sunday and public holidays: No work</li> </ul> <p>To minimise traffic impacts and to ensure the safety of workers, it is expected that the majority of activities would need to be undertaken outside of standard working hours. These hours would be in accordance with the ROL issued by the Transport Management Centre and up to five nights a week as follows:</p> <ul style="list-style-type: none"> <li>Sunday to Thursday: 8 pm to 5 am or Monday to Friday: 8pm to 5am</li> <li>No work on public holidays</li> </ul>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>
<p><b>Is any explosive blasting required for the proposal?</b></p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>
<p><b>Would construction noise or vibration from the proposal affect sensitive receivers?</b></p> <p>The Transport Construction and Maintenance Noise Estimator tool has been used to assess construction noise and vibration impacts of the proposal. The results of the assessment are available in <b>Appendix B</b> including required mitigation measures.</p> <p>Construction noise impacts have been assessed for the paving/asphalting scenario for both during and outside standard construction hours. The sensitive receivers within the vicinity of the proposal are identified above.</p>	<p>Yes <input checked="" type="checkbox"/></p>	<p>No <input type="checkbox"/></p>
<p><b>Would operation of the proposal alter the noise environment for sensitive receivers?</b></p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>
<p><b>Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation?</b></p> <p>No light framed structures, heritage and other sensitive structures will be within the cosmetic damage minimum working distances of vibratory plant items planned to be used for the proposal (jackhammer, profiler, asphalt paver, drum roller) as listed in the Transport Construction and Maintenance Noise Estimator tool.</p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>

**Safeguards**

Safeguards to be implemented are:

N1. A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will follow the approach in the Interim Construction Noise Guideline (CNG) (DECC, 2009).

N2. Any impacted residents or businesses would be consulted regarding the proposed construction hours at least five working days prior to work commencing in accordance with the Construction Noise and Vibration Guideline (Roads and Maritime, 2016) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009). The community would be kept informed of proposed upcoming work and contact information.

N3. Noise impacts will be minimised in accordance with Transport Construction and Maintenance Noise Estimator (EMF-NV-TT-0067) and Transport Construction noise and vibration guidelines (for roads and maritime) 2022 (EMF-NV-GD-0056).



### 3.4 Air quality

Table 3-4: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period?</p> <p>Site 5 is located within a residential area. The nearest residential receivers are located about 25 metres away.</p> <p>The nearest receivers to Site 8 are located about 25 metres away.</p> <p>The nearest sensitive receivers to site 9 and Site 10 are located more than 200 metres away.</p> <p>The primary dust generating activities during construction include the reconstruction of the median at Site 5 and excavation and asphaltting at Site 8, Site 9 and Site 10.</p> <p>The potential for construction related dust impacts are considered minor due to the limited scope of works. Dust impacts would be further managed and minimised through the implementation of environmental safeguards used during construction.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Is there likely to be an emission to air during construction?</p> <p>Emissions to air would be created through the operation of plant equipment described in Section 2.1.2 during construction. This is not expected to be discernible from the existing emissions generated by vehicle movements on the existing road.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

#### Safeguards

Safeguards to be implemented are:

A1. The Construction Environmental Management Plan (CEMP) would include, but not be limited to:

- During weather periods, such as strong winds, where dust or airborne particles are more likely, works are not to be carried out.
- Plant machinery is to be turned off when not in use.
- Vehicles, plant and equipment would be maintained in accordance with manufacturer’s specifications and in good condition.

A2. Measures (such as watering or covering exposed areas) will be used to minimise or prevent air pollution and dust.

A3. Vehicles and vessels transporting waste or other materials that may produce odours or dust will be covered during transportation.

### 3.5 Aboriginal cultural heritage

Table 3-5: 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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Basic AHIMS searches were completed on the 10 January 2024 ( <b>Appendix C</b> ). These searches confirmed there are no registered Aboriginal sites within the vicinity of any of the proposal sites.		
<p><b>Is there potential for the proposal to impact on any items of Aboriginal cultural heritage?</b></p> <p>The project was assessed as being unlikely to have an impact on Aboriginal cultural heritage (<b>Appendix C</b>).</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Would the proposal involve the removal of mature native trees?</b></p> <p>All mature trees to be removed or trimmed are planted amenity type trees within the existing highly modified road corridor.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>Is the proposal consistent with the requirements of Transport’s <i>Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI)</i>?</b></p> <p>A Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) was carried out in January 2024. The proposal was assessed as being unlikely to have an impact on Aboriginal Cultural Heritage based on the following due diligence considerations:</p> <ul style="list-style-type: none"> <li>• The project is unlikely to harm known Aboriginal objects or places.</li> <li>• The AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area.</li> <li>• 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.</li> <li>• The cultural heritage potential of the study area appears to be reduced due to past disturbance.</li> <li>• There is an absence of sandstone rock outcrops likely to contain Aboriginal art.</li> </ul> <p>The Stage 1 PACHCI assessment is provided in <b>Appendix C</b>.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

**Safeguards**

Safeguards to be implemented are:

AH1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport Aboriginal cultural heritage officer and Senior Manager Environment and Sustainability contacted immediately. Refer to steps in the Transport *Unexpected heritage items procedure* (EMF-HE-PR-0076) which must be followed.

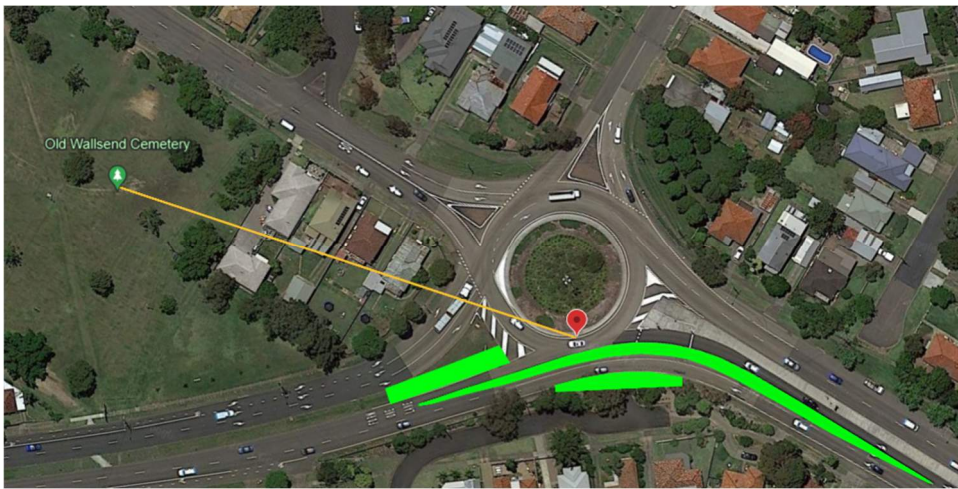
AH2. If the scope of your project changes, you must a Transport Aboriginal Cultural Heritage Officer me and Environmental Site Representative to reassess any potential impacts on Aboriginal cultural heritage.

### 3.6 Non-Aboriginal heritage

Table 3-6: Non-Aboriginal heritage

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

The above searches were carried out in January 2024.																															
<p>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?</p> <p>The results of the above searches identified the presence of three non-Aboriginal heritage items within the vicinity of the proposal. These sites are summarised in Table 3-6-1</p> <p><b>Table 3-6-1: Non-Aboriginal heritage items within the vicinity of the proposal area</b></p> <table border="1"> <thead> <tr> <th>Item</th> <th>Heritage significance</th> <th>Description</th> <th>Address</th> <th>Listing</th> <th>Location (approximate)</th> </tr> </thead> <tbody> <tr> <td>Marquis of Midlothian Hotel</td> <td>Local</td> <td>A reasonably intact representative of the public inns constructed in the mid-19th century and mainly served as accommodation and rest stops for travellers.</td> <td>42 Robert Street, Jesmond</td> <td>Newcastle LEP listing I207</td> <td>500m from the Site 5 intersection</td> </tr> <tr> <td>Old Wallsend Cemetery Park</td> <td>Local</td> <td>Open space parkland, comprising 1.25 hectares of grassed area between Newcastle Road and Thomas Street Wallsend. In the centre is a stone obelisk with a plaque inscribed with some text relating to the development of the rest park by the Council in the 1960s.</td> <td>25 Newcastle Road, Wallsend</td> <td>Newcastle LEP listing I652</td> <td>Located 150m from the Site 8 intersection</td> </tr> <tr> <td>Wallsend Hospital Median Garden</td> <td>Local</td> <td>A garden associated with the development of medical practices in the township.</td> <td>Longworth Avenue, Wallsend</td> <td>Newcastle LEP listing I641</td> <td>Located 270m from Site 8.</td> </tr> </tbody> </table>						Item	Heritage significance	Description	Address	Listing	Location (approximate)	Marquis of Midlothian Hotel	Local	A reasonably intact representative of the public inns constructed in the mid-19th century and mainly served as accommodation and rest stops for travellers.	42 Robert Street, Jesmond	Newcastle LEP listing I207	500m from the Site 5 intersection	Old Wallsend Cemetery Park	Local	Open space parkland, comprising 1.25 hectares of grassed area between Newcastle Road and Thomas Street Wallsend. In the centre is a stone obelisk with a plaque inscribed with some text relating to the development of the rest park by the Council in the 1960s.	25 Newcastle Road, Wallsend	Newcastle LEP listing I652	Located 150m from the Site 8 intersection	Wallsend Hospital Median Garden	Local	A garden associated with the development of medical practices in the township.	Longworth Avenue, Wallsend	Newcastle LEP listing I641	Located 270m from Site 8.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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<p>The nearest item of heritage value is the Old Wallsend Cemetery Park which is located 150m from Site 8 (Figure 3-6). The scope of works is limited to the existing road reserve and corridor and are minor in nature. Given the distance and limited works the proposal is not anticipated to impact the heritage listed Cemetery.</p>																															



**Figure 3-6: Distance of Old Wallsend Cemetery Park from Site 8**

Similarly with the Hospital Gardens and Marquis of Midlothian Hotel within the vicinity of Site 5 and Site 8 respectively, due to the nature of works they are unlikely to be impacted.

<p><b>Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?</b></p> <p>The trees which are planned to be removed and impacted do not form part of a heritage listing or have other heritage value.</p> <p>Further assessment of potential impacts to trees is provided in Section 3.7 (Biodiversity).</p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>
<p><b>Is the proposal likely to occur in or near features that indicate potential archaeological remains?</b></p> <p>Due to the developed nature of the area and limited planned excavation, risk of discovery of heritage items during works are considered low. An unexpected finds protocol will be included in the CEMP in the event that a heritage item is discovered.</p>	<p>Yes <input type="checkbox"/></p>	<p>No <input checked="" type="checkbox"/></p>

**Safeguards**

Safeguards to be implemented are:

H1. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport Unexpected heritage items procedure (EMF-HE-PR-0076) must be followed.

H2. If an existing heritage item or item identified on the Transport for NSW s.170 register is on site or in the near vicinity of the works, the item will be protected to prevent any damage or disturbance.

**3.7 Biodiversity**

**Table 3-7: Biodiversity**

Description of existing environmental and potential impacts		
<p>Have relevant database searches been carried out?</p> <p>A search of the below databases was carried out on the in February 2024 and is attached in <b>Appendix D</b>.</p> <ul style="list-style-type: none"> <li>• BioNet threatened species records within the locality</li> <li>• Regional vegetation mapping and BioNet Vegetation Classification database (including a search by the relevant CMA/s to identify potential TECs present)</li> <li>• <a href="#">NSW WeedWise</a> (DPI) website.</li> </ul>	<p>Yes <input checked="" type="checkbox"/></p>	<p>No <input type="checkbox"/></p>

<ul style="list-style-type: none"> <li>Commonwealth EPBC Act Protected Matters Search Tool (PMST)</li> <li>NSW DPI Fisheries Spatial Data Portal.</li> </ul>																																
<p><b>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.</b></p> <p>The NSW OEH BioNet Wildlife Atlas search did not identify endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory bird species in or within 100 metres of the proposal areas.</p> <p>A review of the threatened species database records within one kilometres of the proposal area using NSW OEH BioNet Wildlife search identified threatened fauna species as occurring or having the potential to occur with the proposal area.</p> <p>The nearest recorded sightings of fauna species within one kilometre of the proposal areas are summarised in Table 3-7-1.</p> <p><b>Table 3-7-1: Recorded sightings of species listed under the BC Act within one-kilometre of the proposal areas</b></p> <table border="1"> <thead> <tr> <th>Scientific and common name</th> <th>Status *</th> <th>Type of listing (BC Act or EPBC Act)</th> <th>Distance from works</th> <th>Potential impacts</th> </tr> </thead> <tbody> <tr> <td>Grey Haaded Flying-fox (Pteropus poliocephalus)</td> <td>V</td> <td>BC Act and EPBC Act</td> <td>0.5 kilometres Site 5 and 0.2 kilometres from Site 8</td> <td>None anticipated</td> </tr> <tr> <td>Black-eyed Susan (Tetratheca juncea)</td> <td>V</td> <td>BC Act and EPBC Act</td> <td>0.5 kilometres from Site 9</td> <td>None anticipated</td> </tr> <tr> <td>Koala (Phascolarctos cinereus)</td> <td>E</td> <td>BC Act and EPBC Act</td> <td>0.2 Kilometres from Site 10</td> <td>None anticipated</td> </tr> <tr> <td>Little Bent-Winged Bat (Miniopterus australia)</td> <td>V (BC Act)</td> <td>BC Act</td> <td>0.4 Kilometres from Site 5</td> <td>None anticipated</td> </tr> <tr> <td>Large Bent-Winged Bat (Miniopterus oriana oceanensis)</td> <td>V (BC Act)</td> <td>BC Act</td> <td>0.4 Kilometres from Site 5</td> <td>None anticipated</td> </tr> </tbody> </table> <p>*V= vulnerable, E = endangered, CE = critically endangered, VEC = vulnerable ecological community EEC = endangered ecological community, CEEC = critically endangered ecological community M = Migratory</p> <p>The EPBC PMST identified the following Matters of National Environmental Significance within a one-kilometre radius of the proposal areas:</p> <ul style="list-style-type: none"> <li>One wetland of international importance (Ramsar Wetlands)             <ul style="list-style-type: none"> <li>Hunter Estuary Wetlands located about 2.7 kilometres north of the Newcastle Inner city Bypass intersection.</li> </ul> </li> <li>Five listed Threatened Ecological Communities (TEC)</li> <li>64 Threatened species</li> <li>76 Migratory species</li> </ul> <p>Impacts to NSW and nationally listed flora and fauna are considered unlikely due to the highly disturbed nature of the works locations within the existing busy road corridor. It is highly unlikely that endangered fauna would use the vegetation to be removed due to its sparsity, immaturity, lack of hollows and location within or adjacent to the busy Newcastle Inner City Bypass. In addition, works are planned to be completed out of hours at night and any threatened bats (for which there are nearby records) are likely to be elsewhere feeding. As a result, impacts to NSW and nationally listed species, ecological communities and migratory species are unlikely.</p>	Scientific and common name	Status *	Type of listing (BC Act or EPBC Act)	Distance from works	Potential impacts	Grey Haaded Flying-fox (Pteropus poliocephalus)	V	BC Act and EPBC Act	0.5 kilometres Site 5 and 0.2 kilometres from Site 8	None anticipated	Black-eyed Susan (Tetratheca juncea)	V	BC Act and EPBC Act	0.5 kilometres from Site 9	None anticipated	Koala (Phascolarctos cinereus)	E	BC Act and EPBC Act	0.2 Kilometres from Site 10	None anticipated	Little Bent-Winged Bat (Miniopterus australia)	V (BC Act)	BC Act	0.4 Kilometres from Site 5	None anticipated	Large Bent-Winged Bat (Miniopterus oriana oceanensis)	V (BC Act)	BC Act	0.4 Kilometres from Site 5	None anticipated	<p>Yes <input checked="" type="checkbox"/></p>	<p>No <input type="checkbox"/></p>
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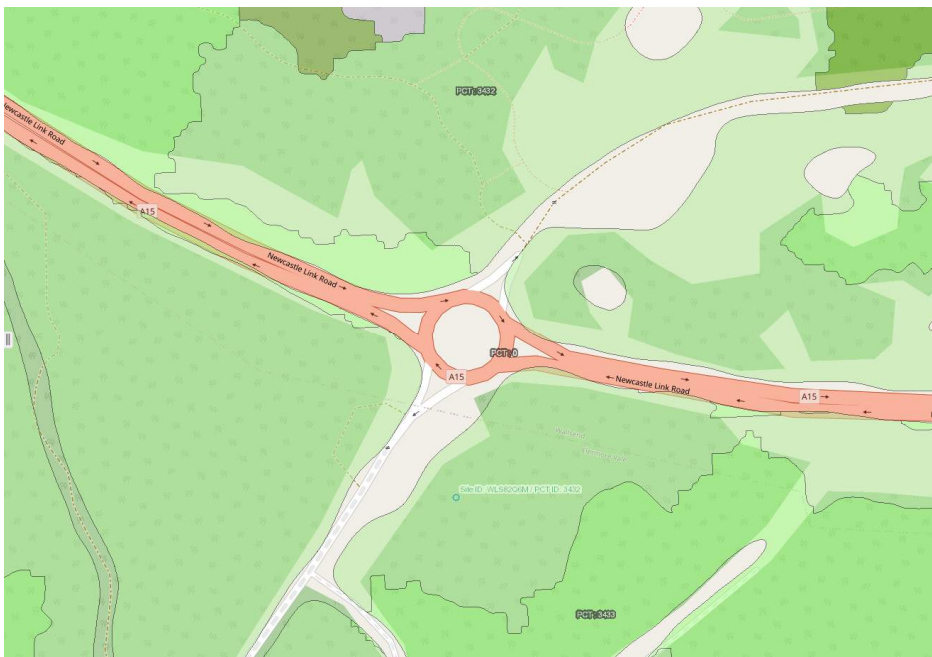
The TECs and listed migratory species within one-kilometre radius of the proposal boundaries are also unlikely to be impacted. This is due to the highly constrained proposal boundary within the previously disturbed road corridor. The proposal poses minimal risk to the Ramsar wetland at the Hunter Estuary Wetlands, as it is located over 1 kilometre away from the nearest site.

As described in Section 3.2, the NSW DPI Fisheries Spatial Data Portal identified no waterways within 500 metres of any of the sites. Ironbark Creek freshwater fish community is located 800m to the west of Site 8, but it not expected to be impacted.

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

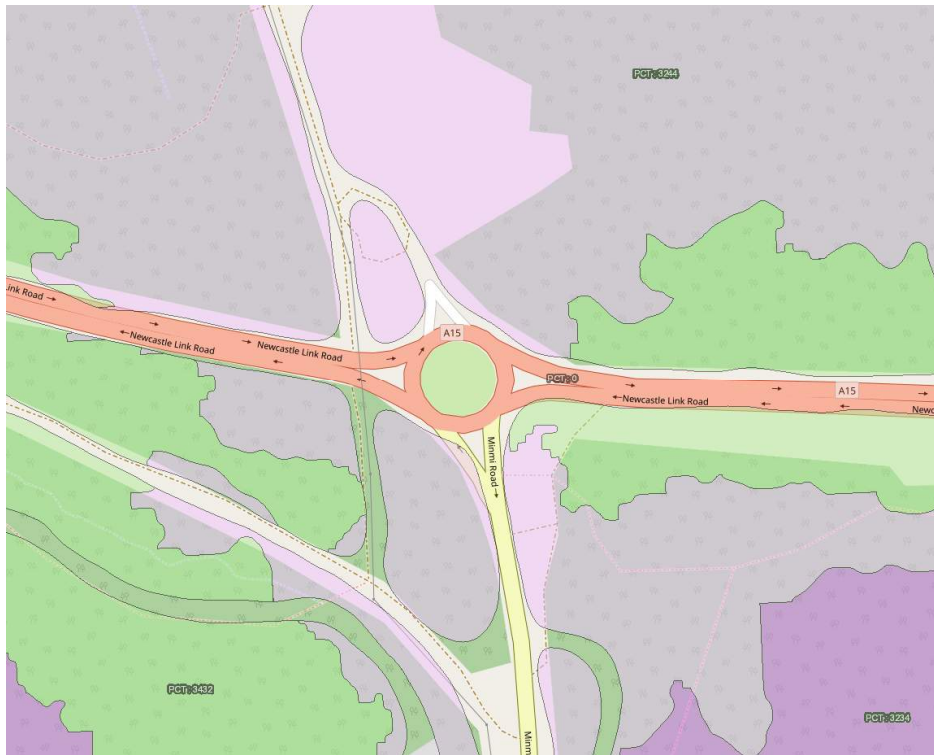
Native vegetation has been mapped under the NSW State Vegetation Type Map (SVTM) (DPE, 2023). While existing roads are mapped as PCT 0/non-native due to the disturbed nature and asphalt preventing vegetation growth, mapping shows the plant community types (PCTs) adjacent to the proposal areas:

- Site 5: surrounding areas not mapped due to urban location
- Site 8: surrounding areas not mapped due to urban location
- Site 9: PCT 0/non-native within proposal footprint, surrounding PCTs include; PCT 3432 -Hunter Coast Foothills Apple-Ironbark Grassy and PCT 3433 -Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest (Figure 3-7-1)



**Figure 3-7-1: vegetation types surrounding Site 9 sourced from NSW State Vegetation Type Map (SVTM) (DPE, 2023)**

- Site 10: PCT 0/non-native within proposal footprint, surrounding PCTs include; PCT 3432 -Hunter Coast Foothills Apple-Ironbark Grassy and PCT 3244 -Lower North Spotted Gum-Mahogany-Ironbark Sheltered Forest (Figure 3-7-2)



**Figure 3-7-2: vegetation types surrounding Site 9 sourced from NSW State Vegetation Type Map (SVTM) (DPE, 2023)**

The listed mapped PCTs are all outside the proposal site boundaries and are not likely to be impacted.

A review of the DPI Weedwise website was undertaken for the Hunter region. A list of ‘priority weeds’ present within the Hunter region is provided in **Appendix D**.

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

Yes  No

Tree removal and trimming is required within Site 5 and Site 8. Within Site 5 around 15 small previously planted trees between University Drive Overpass and Janet Street Overpass construct mountable kerb and median infill pavement (Figure 3-7-3).



**Figure 3-7-3: Example of proposed vegetation removal at Site 5**

Within Site 8 around 60m<sup>2</sup> of previously planted vegetation including immature to semi-mature trees are required to be removed from the westbound verge. The trees are located on the southern side of the intersection (Figure 3-7-4). Tree trimming and

removal would be limited to only the necessary extent required to meet these swept paths.  
As identified in Section 3.5 and Section 3.6, the impacted trees are not heritage listed.



Figure 3-7-4: Site photograph of proposed vegetation removal at Site 8

**Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species?**

Yes  No

The nationally listed threatened species, TECs migratory species previously recorded within one-kilometre radius of the proposal boundaries are also unlikely to be impacted. This is due to the highly constrained proposal boundary within the previously disturbed road corridor.

**Would the proposal require the removal of any other vegetation?**

Yes  No

The upgrades for sites 5, 9 and 10 will all require the removal of small amounts of existing shrubs and grasses. The vegetation to be removed is previously planted amenity scrubs, grasses and weeds.

**Would the proposal require the removal of any tree hollows?**

Yes  No

No removal of any tree hollows is proposed.

**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?**

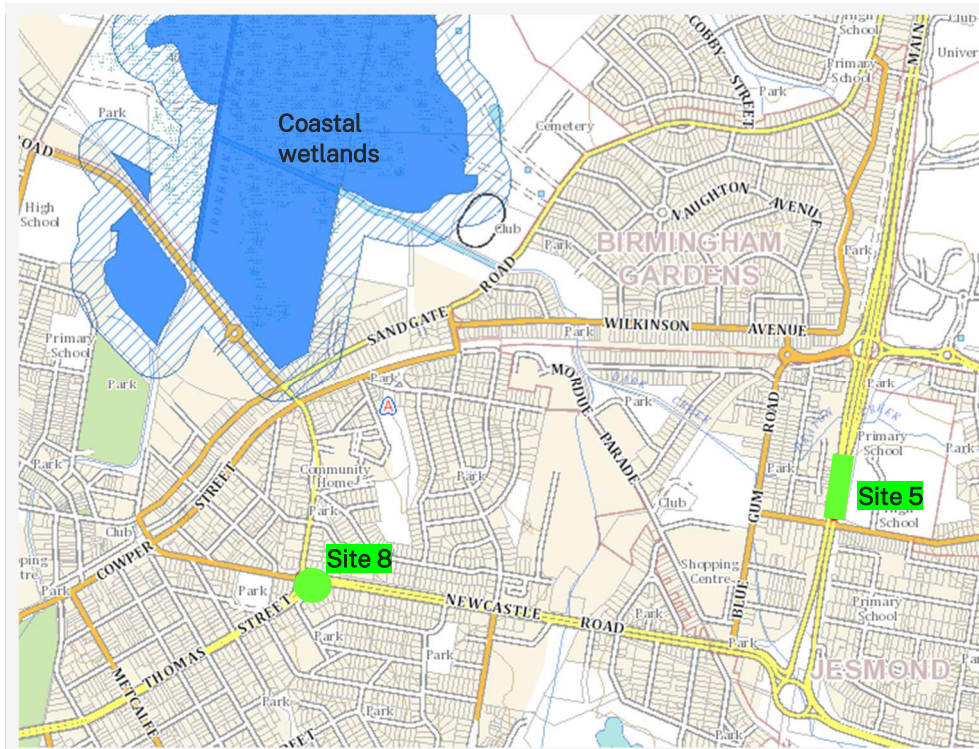
Yes  No

The proposal is not located within areas mapped as 'littoral rainforest' or 'coastal wetland'.

The nearest littoral rainforest is located about 7.8 kilometres from the proposal within the Glenrock State Conservation area.

The nearest coastal wetland is located 700 metres from Site 8. Figure 3-7-5 shows the coastal wetlands within the vicinity of the proposal.





**Figure 3-7-5: Coastal wetlands (blue) within the vicinity of the proposal sites (green).**

Given the minor nature of the works proposed and the distance between the proposal sites and the coastal wetlands, it is unlikely the proposal will impact these wetlands.

**Would the proposal provide any additional barriers to the movement of wildlife?**

The proposed works are not expected to provide any additional barriers to the movement of wildlife.

Yes  No

**Would the proposal disturb any natural waterways or aquatic habitat?**

As described in Section 3.2, no waterways or aquatic habitats 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?**

No direct or indirect impacts to microbat roosting or breeding habitat are expected as no bridges are to be impacted and culvert works are to be completed out of hours at night, when potential microbats will have left the culvert to feed.

Yes  No

**Safeguards**

Safeguards to be implemented are:

- F1. Environmental protection flagging is to be installed, clearly demarcating areas of environmental protection.
- F2. If threatened fauna or flora species are discovered unexpectedly, stop works immediately and follow the Transport Unexpected Threatened Species Find Procedure contained in the Transport Biodiversity Guidelines – Guide 1 (Pre-clearing process (EMF-BD-GD-0032).
- F3. Vegetation that has been protected or planted as part of offset works provided as part of an approved project (e.g., in association with fauna crossings) will not be removed.

F4, All pathogens (e.g., Chytrid, Myrtle Rust and Phytophthora) will be managed in accordance with Transport Biodiversity Guidelines-Guide 7 (Pathogen Management) (EMF-BD-GD-0032) and Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (DECC) (for Phytophthora).

F5, Priority weeds will be managed according to requirements under the Biosecurity Act, 2015 and Transport Biodiversity Guidelines-Guide 6 (Weed Management) (EMF-BD-GD-0032).

F6, Fauna handling must be carried out in accordance with Transport Biodiversity Guidelines-Guide 9 (Fauna Handling) (EMF-BD-GD-0032).

F7, Works will not create an ongoing barrier to the movement of wildlife.

F8, Pruning of mature trees will be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees.

### 3.8 Traffic and transport

Table 3-8: Traffic and transport

Description of existing environmental and potential impacts		
<p>Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction?</p> <p>Site 5 is situated on the busy Newcastle Inner City Bypass and all work will be undertaken during night shift to minimise impacts to road users and provide a safe work zone:</p> <ul style="list-style-type: none"> <li>For the duration of all works, the median lane both northbound and southbound will be taken under possession during night shifts.</li> <li>Speed reductions will be established upon approach in both directions such that traffic passes the construction zone at 40kph.</li> <li>The lanes will be returned to road users at the completion of each shift.</li> <li>Temporary barriers will remain in the new median pavement zone at times to prevent vehicles from entering the excavation.</li> <li>Consideration will be given to the feasibility of a temporary SZA establishment during the excavation phase to further increase the safety of road users transiting past the work zone.</li> </ul> <p>Site 8 is situated within the footprint of the Thomas Street / Newcastle Road roundabout.</p> <p>There are three major configurations for the completion of the proposed works:</p> <ul style="list-style-type: none"> <li>Stage A –Clearing work: a westbound merge on Newcastle Road, with a reduction of the 2 Thomas Street through lanes to 1 lane (median), which will provide a safe working environment to undertake clearing / vegetation removal on the shoulder / verge zone.</li> <li>Stage B –Elsholz work: a westbound merge on Newcastle Road, with a reduction of 3 lanes to 1 lane (kerbside), which includes the “closure” of the through lane to the west. A detour effected via Thomas Street / Metcalfe Street and Cowper Street for traffic intending to travel west on Newcastle Road.</li> <li>Stage C –Thomas Street Island work: a westbound merge on Newcastle Road, with a reduction of the 2 Thomas Street through lanes to 1 lane (kerbside), which will provide a safe working environment to undertake works on the island. A detour effected for vehicles travelling east on Newcastle Road and/or travelling south on Longworth Avenue with a view to travel south on Thomas Street, would be provided by continuing east on Newcastle Road then right onto Douglas Street then right onto Corindi Street and into Raglan Street to arrive back on Thomas Street.</li> </ul> <p>Site 9 is situated on the Newcastle Link Road, at the intersection with Transfield Avenue, formed as a roundabout.</p> <p>The site will be established through the closure of the median lane westbound to facilitate a work area on the roundabout anusus and within the grassed island:</p> <ul style="list-style-type: none"> <li>Night shift works are envisaged for all work owing to the geometry of the site, working location, offset to traffic and high traffic volumes.</li> </ul>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>



<ul style="list-style-type: none"> <li>The median lane westbound (on Newcastle Link Road) will be merged on approach to the roundabout, east of Transfield Avenue.</li> <li>In addition the roundabout will be configured to prevent vehicles traveling eastbound from performing a u-turn via the roundabout, such that they do not enter the work zone established.</li> </ul> <p>Site 10 is very similar in nature to Site 9 and thus the same traffic strategy will be employed during delivery of the works, with the added traffic stream to and from Minmi Road.</p> <ul style="list-style-type: none"> <li>Night shift works are envisaged for all work owing to the geometry of the site, working location, offset to traffic and high traffic volumes.</li> <li>The median lane westbound (on Newcastle Link Road) will be merged on approach to the roundabout, east of Minmi Road.</li> <li>In addition, the roundabout will be configured to enable vehicles to enter from Minmi Road and turn left to head west on Newcastle Link Road or perform a right turn and travel towards Wallsend.</li> <li>A final movement will be included to permit vehicles travelling east on Newcastle Link Road to turn right into Minmi Road.</li> </ul>																		
<p><b>Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>																
<p><b>Is the proposal likely to affect any other transport modes 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?</b></p> <p>Several existing bus routes travel through the proposal areas, as summarised in Table 3-8-1.</p> <p>Existing bus routes are expected to be impacted by the proposal with minor delays due to traffic control during night works during construction. The operation of the proposal would not have any impacts on any other transport modes.</p> <p><b>Table 3-8-1: existing bus routes impacted by the proposal</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #003366; color: white;">Bus Route Number</th> <th style="background-color: #003366; color: white;">Location</th> <th style="background-color: #003366; color: white;">Bus stop closest to the intersection</th> <th style="background-color: #003366; color: white;">Potential Impacts</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>Newcastle Road and Thomas Street intersection</td> <td>Four bus stops (Bus stop ID 2287355, 2287356, 228743 and 228731)</td> <td>None Identified</td> </tr> <tr> <td>160 and 163</td> <td>Newcastle Road &amp; Diana Street, near the Newcastle Road and Thomas Street Intersection</td> <td>One bus stop (Bus stop ID 228743)</td> <td>None Identified</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Bus Route Number	Location	Bus stop closest to the intersection	Potential Impacts	12	Newcastle Road and Thomas Street intersection	Four bus stops (Bus stop ID 2287355, 2287356, 228743 and 228731)	None Identified	160 and 163	Newcastle Road & Diana Street, near the Newcastle Road and Thomas Street Intersection	One bus stop (Bus stop ID 228743)	None Identified					Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Bus Route Number	Location	Bus stop closest to the intersection	Potential Impacts															
12	Newcastle Road and Thomas Street intersection	Four bus stops (Bus stop ID 2287355, 2287356, 228743 and 228731)	None Identified															
160 and 163	Newcastle Road & Diana Street, near the Newcastle Road and Thomas Street Intersection	One bus stop (Bus stop ID 228743)	None Identified															

**Safeguards**

T1. Where possible, current traffic movements and property accesses will be maintained during the works. Any disturbance will be minimised to prevent unnecessary traffic delays.

### 3.9 Socio-economic

Table 3-9: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Is the proposal likely to require any property acquisition?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to alter any access for properties (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact trees planted by a community group, Landcare group or by council or a tree that is a memorial or part of a memorial group e.g., has a plaque? Amenity trees to be removed were planted as part of previous road upgrades.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting? Amenity trees to be removed were planted as part of previous road upgrades.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

### Safeguards

Safeguards to be implemented are:

S1. 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.

S2. 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.

S3. All complaints will be recorded on a complaints register and attended to promptly.

S4. 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).

Table 3-10: Landscape character and visual amenity

Description of existing environmental and potential impacts		
Is the proposed work over or near an important physical or cultural element or landscape? (For example, heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area? (For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

<p><b>Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced?</b></p> <p>All mature trees to be removed or trimmed are planted amenity type trees within the existing highly modified road corridor.</p> <p>Removal of trees does not change the visual amenity due to the small impact area:</p> <p>Site 5 –removes section of median planting but remains consistent with adjacent areas of median planting along the corridor (existing similar gaps in planting)</p> <p>Site 8 –small reduction in vegetated area but does not impact the overall visual amenity as vegetation remains between road and properties.</p> <p>Site 10 –removal of some of the vegetation from roundabout central island is consistent with Site 9 (no existing vegetation) on the same corridor.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Would the proposal involve new noise walls or visible changes to existing noise walls?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>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?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Would any new structures or features to be constructed, result in over shadowing to adjoining properties or areas?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**Safeguards**

Safeguards to be implemented are:

V1. Works will be carried out in accordance with Transport EIA-N04 *Guideline for Landscape Character and visual impact assessment 2020*.

**3.10 Waste**

Table 3-11: Waste

Description of existing environmental and potential impacts		
<p><b>Is the proposal likely to generate &gt;200 tonnes of waste material (contaminated and /or non-contaminated material)?</b></p> <p>Surplus excavated material is proposed to be disposed off site to a material recycler where able to be classified as recyclable GSW. Only disposed to landfill where unable to meet that classification.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><b>Is the proposal likely to require a licence from EPA?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p><b>Is the proposal likely to require the removal of asbestos?</b></p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**Safeguards**

Safeguards to be implemented are:

WM1. Resource management hierarchy principles will be followed:

- avoid unnecessary resource consumption as a priority
- avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery)
- disposal is undertaken as a last resort.

(in accordance with the *Waste Avoidance and Resource Recovery Act 2001*).

WM2. If vegetation is to be mulched and transported off site for beneficial reuse, it will be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the NSW EPA Mulch Order and Exemption.

WM3. Waste is not to be burnt on site.

WM4. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.

WM5. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.

### 3.11 Climate change and greenhouse gas emissions

Table 3-12: 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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Have opportunities for reduced energy consumption during construction and operation been considered?</p> <p>Opportunities investigated include:</p> <ul style="list-style-type: none"> <li>• material opportunities during construction: recycled content in heavily bound base, recycled content in asphalt pavement (RAP)</li> <li>• potential for use of solar powered lighting for night work: HSWA have purchased a number of these for use across both packages of work)</li> <li>• utilising satellite facilities for work away from the main compound to minimise unnecessary travel.</li> </ul> <p>The proposal provides operational reduction in emissions due to lowering interactions between existing construction projects and OSOM vehicles, resulting in minimised delay to construction plant, OSOM vehicles and member of public vehicles.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Greenhouse gas emissions sources during construction are likely to be largest from:</p> <ul style="list-style-type: none"> <li>• transporting materials to site</li> <li>• operation of plant and equipment.</li> </ul> <p>During operation sources would include:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• use of the proposal by vehicles.</li> </ul>		

**Safeguards**

Safeguards to be implemented are:

CC1. Opportunities for reduced energy consumption during construction and operation will be investigated during further design development.

**3.12 Cumulative impact**

Table 3-13: Cumulative impact

Description of existing environmental and potential impacts		
<p><b>Are there other projects and developments in the study area which could add to potential impacts in both construction and operation?</b></p> <p>Site 5 is adjacent to the Transport Newcastle Inner City Bypass - Rankin Park to Jesmond Project (currently underway and will continue beyond the timeline of this proposal).</p> <p>Discussion has already commenced with the project team in order to minimise construction impacts. Work will be coordinated with Road Occupancy Licence conditions and traffic control implementation. Impacts due to the adjacent project and this proposal are similar and are not expected to have a cumulative impact to the community due to the small scope and timeline of this proposal.</p> <p>Site 8 is adjacent to the Newcastle City Council proposed widening of Longworth Avenue (expected to start construction late 2024). It is not expected to have any construction overlap or cumulative impact with this proposal.</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

**Safeguards**

Safeguards to be implemented are:

CI1. Consultation with nearby projects will occur to minimise impacts to the travelling public and sensitive receivers.



## 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 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
Soil	<p>E1 Erosion and sediment control measures will be implemented and maintained to:</p> <ul style="list-style-type: none"> <li>prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets</li> <li>reduce water velocity and capture sediment on site</li> <li>minimise the amount of material transported from site to surrounding pavement surfaces</li> <li>divert clean water around the site in accordance with the Landcom/Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book).</li> </ul> <p>E2. Erosion and Sediment Controls are to be maintained and checked regularly, with records kept and provided on request.</p> <p>E3. Erosion and sediment control measures will not be removed until the works are complete and areas stabilised.</p> <p>E4. Work areas will be stabilised progressively during the works.</p> <p>E5. A progressive erosion and sediment control plan will be prepared for the works.</p>
Waterways and water quality	<p>W1. Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.</p> <p>W2. No dirty water will be released into drainage lines and/or waterways.</p> <p>W3. Water quality control measures will be used to prevent any materials (e.g., concrete, grout, sediment etc.) entering drain inlets or waterways.</p>
Noise and vibration	<p>N1. A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will follow the approach in the Interim Construction Noise Guideline (CNG) (DECC, 2009).</p> <p>N2. Any impacted residents or businesses would be consulted regarding the proposed construction hours at least five working days prior to work commencing in accordance with the Construction Noise and Vibration Guideline (Roads and Maritime, 2016) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009). The community would be kept informed of proposed upcoming work and contact information.</p> <p>N3. Noise impacts will be minimised in accordance with Transport Construction and Maintenance Noise Estimator (EMF-NV-TT-0067) and Transport Construction noise and vibration guidelines (for roads and maritime) 2022 (EMF-NV-GD-0056).</p>
Air quality	<p>A1. The Construction Environmental Management Plan (CEMP) would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>During weather periods, such as strong winds, where dust or airborne particles are more likely, works are not to be carried out.</li> <li>Plant machinery is to be turned off when not in use.</li> </ul>

	<ul style="list-style-type: none"> <li>Vehicles, plant and equipment would be maintained in accordance with manufacturer's specifications and in good condition.</li> </ul> <p>A2. Measures (such as watering or covering exposed areas) will be used to minimise or prevent air pollution and dust.</p> <p>A3. Vehicles and vessels transporting waste or other materials that may produce odours or dust will be covered during transportation.</p>
<b>Aboriginal heritage</b>	<p>AH1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport Aboriginal cultural heritage officer and Senior Manager Environment and Sustainability contacted immediately. Refer to steps in the Transport <i>Unexpected heritage items procedure</i> (EMF-HE-PR-0076) which must be followed.</p> <p>AH2. If the scope of your project changes, you must a Transport Aboriginal Cultural Heritage Officer me and Environmental Site Representative to reassess any potential impacts on Aboriginal cultural heritage.</p>
<b>Non-Aboriginal cultural heritage</b>	<p>H1. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport Unexpected heritage items procedure (EMF-HE-PR-0076) must be followed.</p> <p>H2. If an existing heritage item or item identified on the Transport for NSW s.170 register is on site or in the near vicinity of the works, the item will be protected to prevent any damage or disturbance.</p>
<b>Biodiversity</b>	<p>F1. Environmental protection flagging is to be installed, clearly demarcating areas of environmental protection.</p> <p>F2. If threatened fauna or flora species are discovered unexpectedly, stop works immediately and follow the Transport Unexpected Threatened Species Find Procedure contained in the Transport Biodiversity Guidelines – Guide 1 (Pre-clearing process) (EMF-BD-GD-0032).</p> <p>F3. Vegetation that has been protected or planted as part of offset works provided as part of an approved project (e.g., in association with fauna crossings) will not be removed.</p> <p>F4. All pathogens (e.g., Chytrid, Myrtle Rust and Phytophthora) will be managed in accordance with Transport Biodiversity Guidelines -Guide 7 (Pathogen Management) (EMF-BD-GD-0032) and Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (DECC) (for Phytophthora).</p> <p>F5. Priority weeds will be managed according to requirements under the Biosecurity Act, 2015 and Transport Biodiversity Guidelines -Guide 6 (Weed Management) (EMF-BD-GD-0032).</p> <p>F6. Fauna handling must be carried out in accordance with Transport Biodiversity Guidelines -Guide 9 (Fauna Handling) (EMF-BD-GD-0032).</p> <p>F7. Works will not create an ongoing barrier to the movement of wildlife.</p> <p>F8. Pruning of mature trees will be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees.</p>
<b>Traffic and transport</b>	<p>T1. Where possible, current traffic movements and property accesses will be maintained during the works. Any disturbance will be minimised to prevent unnecessary traffic delays.</p>
<b>Socio-economic</b>	<p>S1. Notification will be given to affected community members prior to the works taking place. The notification is to include:</p> <ul style="list-style-type: none"> <li>details of the proposal</li> <li>duration of works and working hours</li> <li>changed traffic or access arrangements</li> <li>how to lodge a complaint or obtain more information</li> <li>contact name and details.</li> </ul> <p>S2. Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner.</p> <p>S3. All complaints will be recorded on a complaints register and attended to promptly.</p> <p>S4. The community must be notified of all work outside standard hours which have the potential to impact noise-sensitive receivers. Notification zones must be determined using the <i>Construction and Maintenance Noise Estimator</i> (EMF-NV-TT-</p>

	0067). Notification requirements must comply with <i>Transport Construction noise and vibration guidelines (for roads and maritime) 2022</i> (EMF-NV-GD-0056).
<b>Waste</b>	<p>WM1. Resource management hierarchy principles will be followed:</p> <ul style="list-style-type: none"> <li>• avoid unnecessary resource consumption as a priority</li> <li>• avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery)</li> <li>• disposal is undertaken as a last resort.</li> </ul> <p>(in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i>).</p> <p>WM2. If vegetation is to be mulched and transported off site for beneficial reuse, it will be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the <u>NSW EPA Mulch Order and Exemption</u>.</p> <p>WM3. Waste is not to be burnt on site.</p> <p>WM4. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.</p> <p>WM5. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.</p>
<b>Climate change and greenhouse gas emissions</b>	CC1. Opportunities for reduced energy consumption during construction and operation will be investigated during further design development.
<b>Cumulative impacts</b>	CI1. Consultation with nearby projects will occur to minimise impacts to the travelling public and sensitive receivers.

## 4.2 Licensing and approvals

An approved Road Occupancy License (ROL) is required to close traffic lanes for construction. No further licensing or approvals are required for the proposal.

## 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: Sahara Dukes  
Position: Environment & Sustainability Officer  
Company name: Transport for NSW  
Date: 29/02/2024

**Minor works REF reviewed by:**

Signature



Name: Georgia Brennan  
Position: Environment & Sustainability Manager  
Company name: Transport for NSW  
Date: 29/02/2024

## 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* and the *Fisheries Management Act 1994*.

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

The assessment has also addressed the potential impacts 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 deliver a number of improvements to better facilitate OSOM vehicles up to 140m long travelling from the Port of Newcastle and other local industrial areas through Newcastle to access the M1 Motorway and M15 Hunter Expressway at Newcastle 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

Name: Jonathon Blizzard  
Position: Senior Manager Environment and Sustainability  
Date: 04/03/2024

**Noted by:**

Signature

Name: Chris Meehan  
Position: A/ Project Manager/Engineer  
Date: 29/02/2024

### 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. e

I determine that Transport for NSW may:

- proceed with the activity

Signature

Name: Anna Zycki  
Position: Regional Director North  
Date: 11 March 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>

# 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.	<p>Construction of the proposal would potentially introduce short term noise impacts. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 3.3 of this minor works REF.</p> <p>In the long term, the proposal would facilitate the safe delivery of over-sized and over-massed vehicles from the Port of Newcastle to the Central West.</p>	<p>Short-term negative (minor)</p> <p>Long-term, positive</p>
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.	<p>The proposal would likely result in tree removal, trimming and vegetation clearance of some existing previously planted landscaping.</p> <p>Due to the location and sparsity of this existing planted vegetation, existing ecosystems impacts are considered to be minor.</p>	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 have minor impacts to cultural heritage or places of heritage value 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)

Factor	Description of impact	Duration and extent
f) Any impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016).	There would be no impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016).	Nil
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 vehicles from the Port of Newcastle to the Central West.	Long-term positive
i) Any degradation of the quality of the environment.	Construction of the proposal would potentially introduce short term noise impacts. 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
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	The proposal is unlikely to have cumulative environmental effects with other existing or likely future activities.	Nil

Factor	Description of impact	Duration and extent
existing or likely future activities.		
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 SEPP (Transport and Infrastructure) by facilitating the safe delivery of over-sized and over-massed components from Port of Newcastle to the CWO REZ. The proposal aligns with the objective to enable to efficient handling and distribution of freight from port areas through the provision of transport infrastructure.	Long-term positive
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: Distance Based Noise Assessments

## Site 5 – closest resident 25m behind cutting and high timber noise fence

Transport for NSW

### Distanced Based Assessment (Construction Scenario)

Noise area category: R3

RBL or LA90 Background Level (dB(A))	Day	50
	Evening	45
	Night	40
L50s(Totenna) Noise Level (dB(A))	Day	60
	Day (OOHW)	55
	Evening	50
	Night	45
Scenario	Partial roadbuilding	
Is there line of sight to receiver?	No (behind solid barrier)	

**Steps for Screening Assessment:**

- Schedule entry 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 lagged 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 4 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.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please contact a Roads and Maritime noise specialist for more information)

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

Receiver	Affected distance (m)	L50s(Totenna) noise level above background (LA90)												L50s(Totenna) 75 dB(A) or greater (Highly affected)	Sleep disturbance L50s 65	
		5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 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))			
Undeveloped green fields, rural areas with isolated dwellings	Day	60														
	Day (OOHW)	105														
	Evening	155														
Developed settlements (urban and suburban)	Day	70														
	Day (OOHW)	115														
	Evening	160														
Propagations across a valley / over water	Day	85														
	Day (OOHW)	140														
	Evening	230														

## Site 8 – closest resident 25m

Transport for NSW

### Distanced Based Assessment (Construction Scenario)

Noise area category: R3

RBL or LA90 Background Level (dB(A))	Day	50
	Evening	45
	Night	40
L50s(Totenna) Noise Level (dB(A))	Day	60
	Day (OOHW)	55
	Evening	50
	Night	45
Scenario	Paving / asphaltting	
Is there line of sight to receiver?	Yes	

**Steps for Screening Assessment:**

- Schedule entry 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 lagged 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 4 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.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please contact a Roads and Maritime noise specialist for more information)

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

Receiver	Affected distance (m)	L50s(Totenna) noise level above background (LA90)												L50s(Totenna) 75 dB(A) or greater (Highly affected)	Sleep disturbance L50s 65	
		5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 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))			
Undeveloped green fields, rural areas with isolated dwellings	Day	105														
	Day (OOHW)	155														
	Evening	230														
Developed settlements (urban and suburban)	Day	115														
	Day (OOHW)	160														
	Evening	280														
Propagations across a valley / over water	Day	140														
	Day (OOHW)	230														
	Evening	365														

## Site 9 and 10 – closest resident Site 9 >800m and Site 10 240m





Transport for NSW

Distanced Based Assessment (Construction Scenario)

Measure pick from drop-down list in orange cells

<b>Noise area category</b>	95
<b>RBL or LA90</b>	Day 45
<b>Background Level (dB(A))</b>	Evening 40
	Night 35
<b>LAeq(16hours)</b>	Day 55
<b>Noise Management Level (dB(A))</b>	Day (OOHW) 50
	Evening 45
	Night 40
<b>Scenario</b>	Permit / maintaining
<b>Is there line of sight to receiver?</b>	No (behind substantial solid barrier)

**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 4.2.  
 (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.  
 (Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please contact a Roads and Maritime noise specialist for more information)

Abbreviation	Measure
N	Notification
SN	Specific applications
PC	Pre-calls
IB	Individual briefings
RI	Receipts enter
RS	Receipts period 1
R2	Receipts period 2
DR	Duration measure
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	Affected distance (m)	LAeq(16hours) noise level above background (LA90)												LAeq(16hours) 75 dB(A) or greater (Highly affected)	Sleep disturbance LAmax 65	
		5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 dB(A)					
		Noticeable	Clearly audible	Moderately intrusive	Highly intrusive											
Undeveloped green fields / rural areas with isolated dwellings	Day	35														
	Day (OOHW)	105														
	Evening	155														
	Night	230	N	230	40											125
Developed settlements (urban and suburban)	Day	70														
	Day (OOHW)	115														
	Evening	180														
	Night	280	N	280	40											140
Propagation across a valley / over water	Day	50														
	Day (OOHW)	135														
	Evening	230														
	Night	365	N	365	40											170

Minor works review of environmental factors

## Appendix C: Aboriginal Heritage Clearance Letter and AHIMS Search results

15/ 01/ 2024

Chris Meehan  
Level 1, 6 Stewart Avenue  
Newcastle NSW 2302

Dear Chris,

**Preliminary assessment results for Central West Orana Renewable Energy Zones – Route 2 based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation (the procedure)*.**

The project, 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 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*.

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

Yours Sincerely,



Merredy Quinn- Bates  
Aboriginal Cultural Heritage Officer

Transport for NSW

Date: 10 January 2024

53-55 Maitland Street  
Narrabri New South Wales 2390

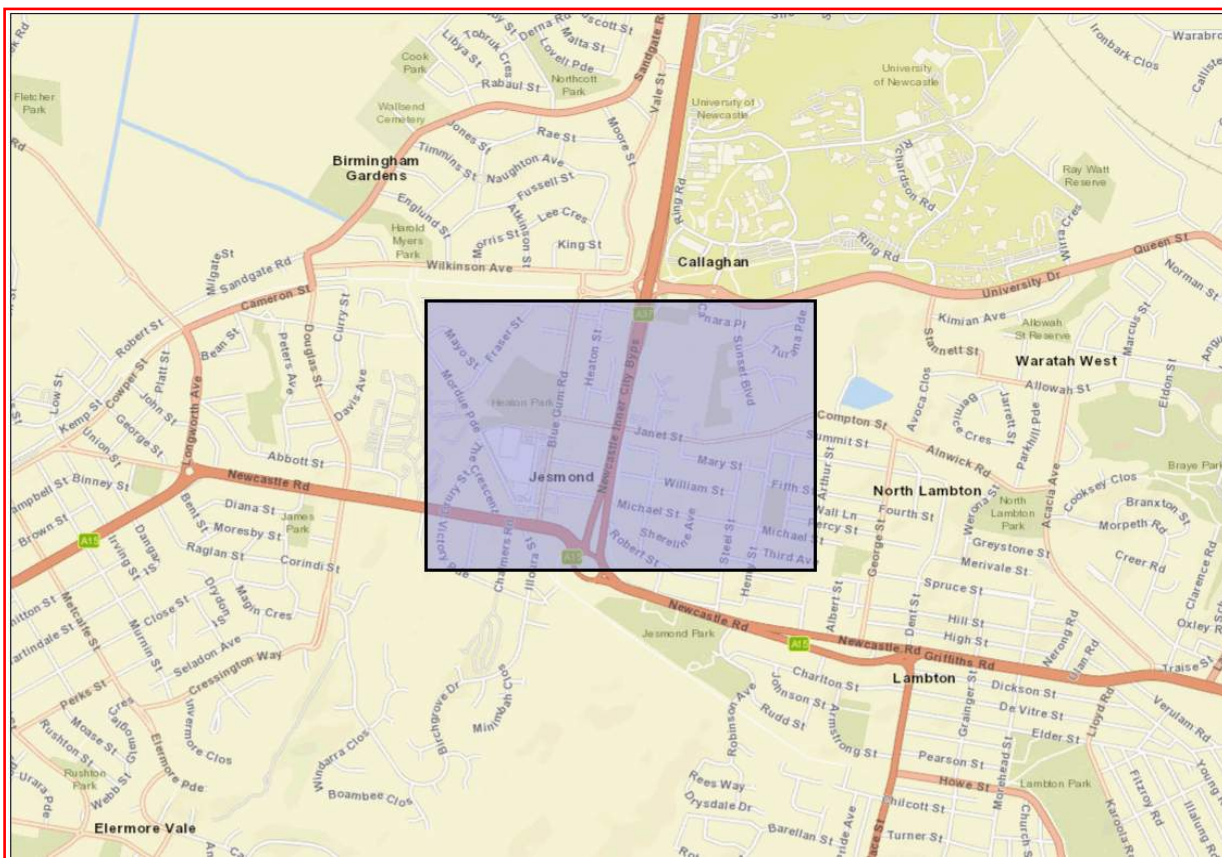
Attention: Georgia Brennan

Email: georgia.brennan@transport.nsw.gov.au

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lat, Long From : -32.9063, 151.6861 - Lat, Long To : -32.8972, 151.7015, conducted by Georgia Brennan on 10 January 2024.**

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



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

<b>0</b>	<b>Aboriginal sites are recorded in or near the above location.</b>
<b>0</b>	<b>Aboriginal places have been declared in or near the above location. *</b>

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

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

### **Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
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- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.



Transport for NSW

Date: 10 January 2024

53-55 Maitland Street  
Narrabri New South Wales 2390

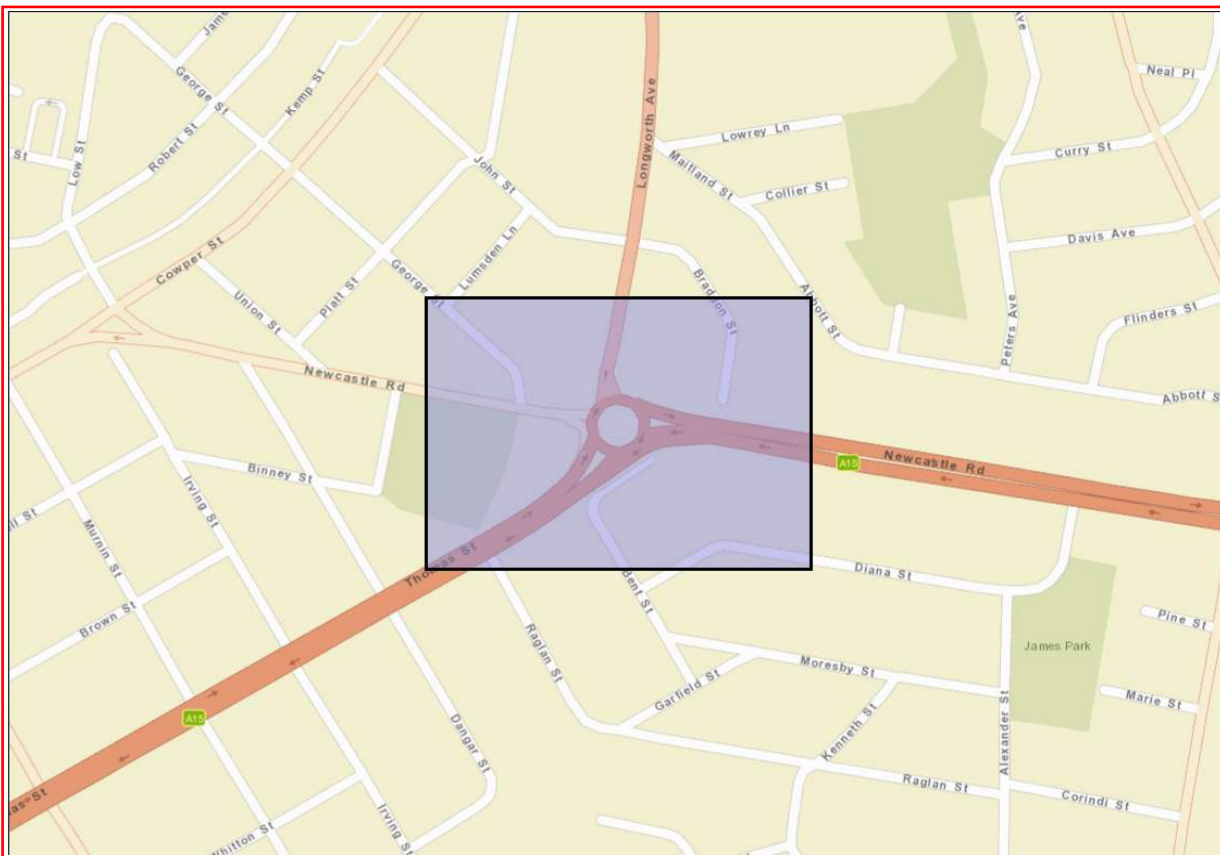
Attention: Georgia Brennan

Email: georgia.brennan@transport.nsw.gov.au

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lat, Long From : -32.9042, 151.6749 - Lat, Long To : -32.9019, 151.6787, conducted by Georgia Brennan on 10 January 2024.**

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



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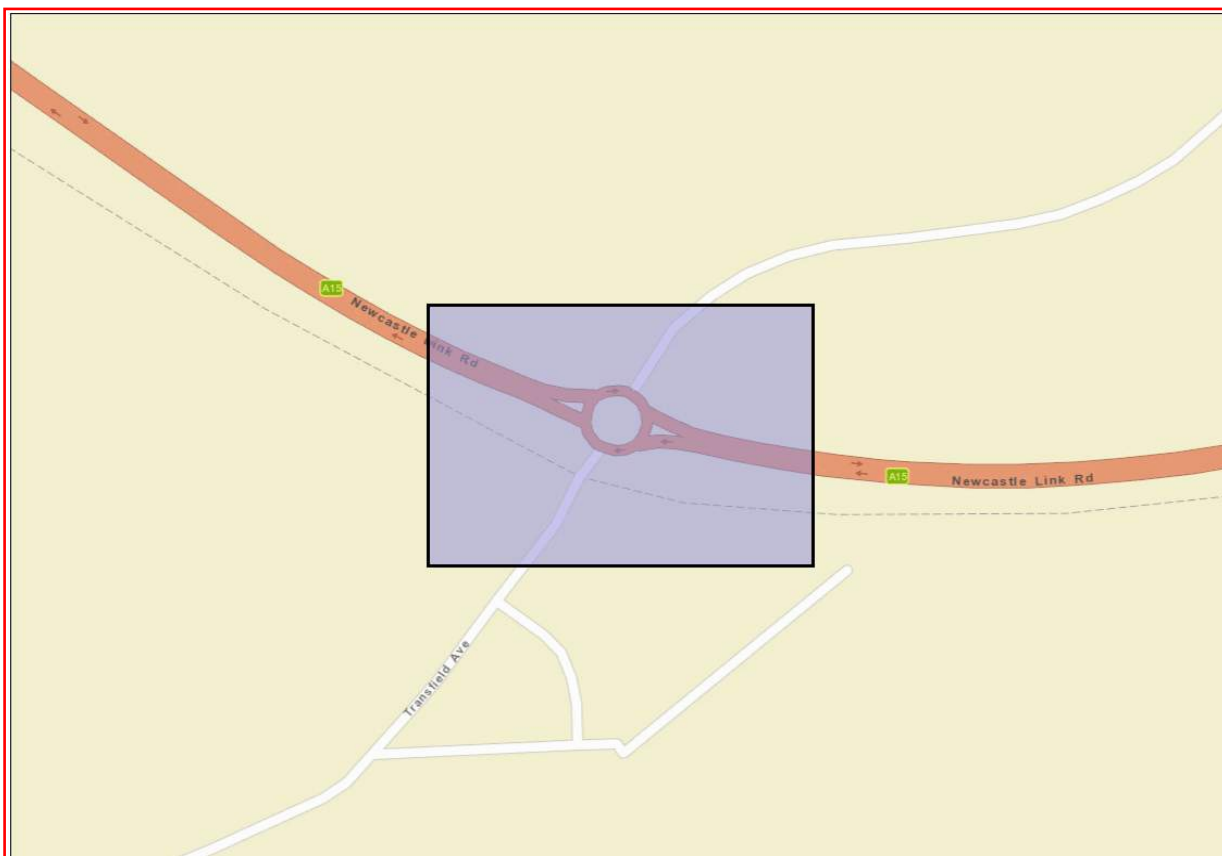
Attention: Georgia Brennan

Email: georgia.brennan@transport.nsw.gov.au

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lat, Long From : -32.9119, 151.6444 - Lat, Long To : -32.9097, 151.6482, conducted by Georgia Brennan on 10 January 2024.**

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



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

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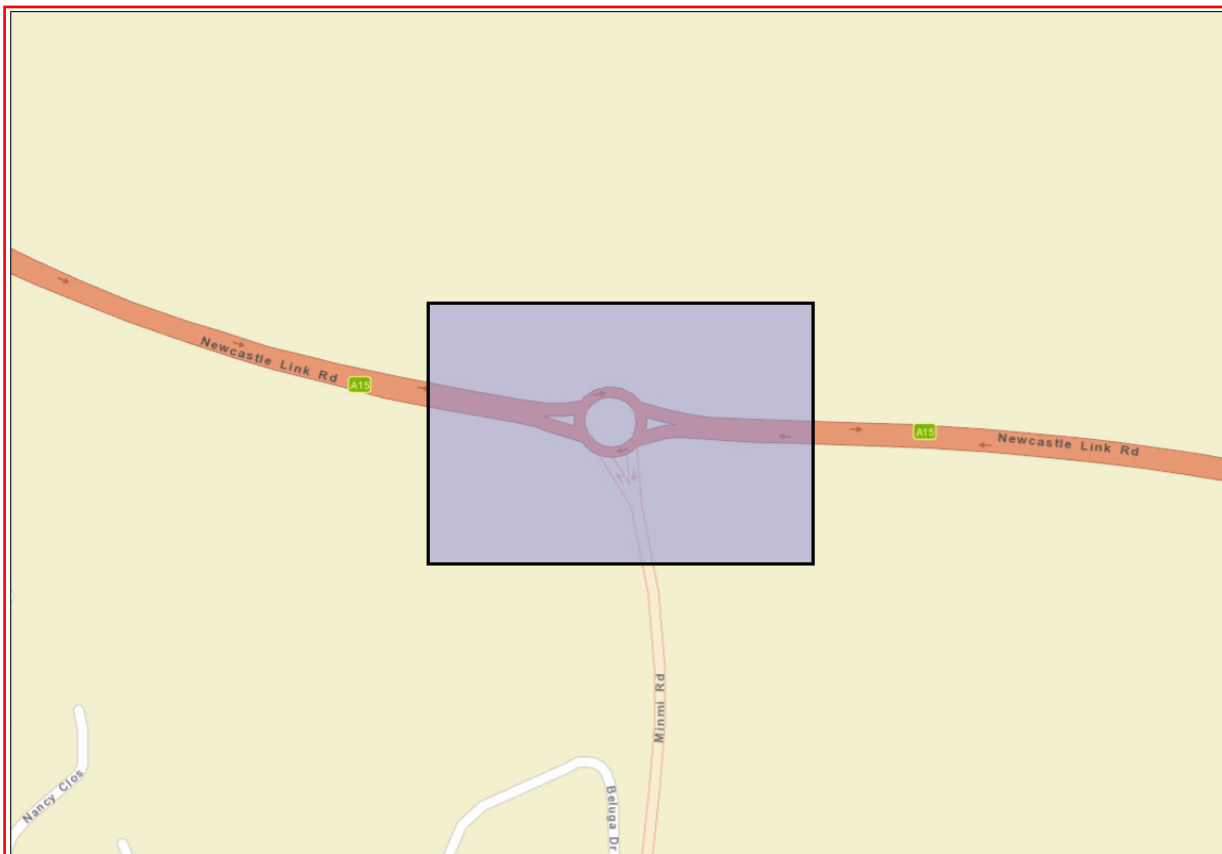
Attention: Georgia Brennan

Email: georgia.brennan@transport.nsw.gov.au

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lat, Long From : -32.9039, 151.6204 - Lat, Long To : -32.9017, 151.6242, conducted by Georgia Brennan on 10 January 2024.**

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



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## Appendix D: Biodiversity desktop search results

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) ,Commonwealth listed or Protected Entities in selected area [North: -32.85 West: 151.61 East: 151.71 South: -32.95] returned a total of 24,483 records of 505 species.

Report generated on 2/02/2024 1:37 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachidae	3134	<i>Crinia signifera</i>		Common Eastern Froglet	P		254	
Animalia	Amphibia	Myobatrachidae	3117	<i>Pseudophryne bibronii</i>		Bibron's Toadlet	P		1	
Animalia	Amphibia	Myobatrachidae	3118	<i>Pseudophryne coriacea</i>		Red-backed Toadlet	P		53	
Animalia	Amphibia	Myobatrachidae	T119	<i>Pseudophryne sp.</i>			P		1	
Animalia	Amphibia	Myobatrachidae	3035	<i>Uperoleia fusca</i>		Dusky Toadlet	P		7	
Animalia	Amphibia	Myobatrachidae	3158	<i>Uperoleia laevigata</i>		Smooth Toadlet	P		7	
Animalia	Amphibia	Limnodynastidae	3001	<i>Adelotus brevis</i>		Tusked Frog	P		2	
Animalia	Amphibia	Limnodynastidae	3061	<i>Limnodynastes peronii</i>		Brown-striped Frog	P		165	
Animalia	Amphibia	Limnodynastidae	3063	<i>Limnodynastes tasmaniensis</i>		Spotted Grass Frog	P		38	
Animalia	Amphibia	Limnodynastidae	3112	<i>Platyplectrum ornatum</i>		Ornate Burrowing Frog	P		1	
Animalia	Amphibia	Hylidae	3166	<i>Litoria aurea</i>		Green and Golden Bell Frog	E1,P	V	808	<a href="#">Species Description PDF file</a>
Animalia	Amphibia	Hylidae	3171	<i>Litoria caerulea</i>		Green Tree Frog	P		62	
Animalia	Amphibia	Hylidae	3180	<i>Litoria dentata</i>		Bleating Tree Frog	P		7	
Animalia	Amphibia	Hylidae	3183	<i>Litoria fallax</i>		Eastern Dwarf Tree Frog	P		144	
Animalia	Amphibia	Hylidae	3184	<i>Litoria freycineti</i>		Freycinet's Frog	P		2	
Animalia	Amphibia	Hylidae	3190	<i>Litoria jervisiensis</i>		Jervis Bay Tree Frog	P		1	
Animalia	Amphibia	Hylidae	3191	<i>Litoria latopalmata</i>		Broad-palmed Frog	P		17	
Animalia	Amphibia	Hylidae	3199	<i>Litoria nasuta</i>		Rocket Frog	P		2	
Animalia	Amphibia	Hylidae	3204	<i>Litoria peronii</i>		Peron's Tree Frog	P		85	
Animalia	Amphibia	Hylidae	3206	<i>Litoria phyllochroa</i>		Leaf-green Tree Frog	P		1	
Animalia	Amphibia	Hylidae	3214	<i>Litoria tyleri</i>		Tyler's Tree Frog	P		40	
Animalia	Amphibia	Hylidae	3215	<i>Litoria verreauxii</i>		Verreaux's Frog	P		5	
Animalia	Reptilia	Cheloniidae	2006	<i>Natator depressus</i>		Flatback Turtle	P		2	
Animalia	Reptilia	Chelidae	2017	<i>Chelodina longicollis</i>		Eastern Snake-necked Turtle	P		78	
Animalia	Reptilia	Chelidae	2951	<i>Emydura macquarii macquarii</i>		Macquarie River Turtle	P		2	
Animalia	Reptilia	Chelidae	9057	<i>Emydura sp.</i>		Unidentified Emydura	P		2	
Animalia	Reptilia	Scincidae	2417	<i>Bellatorias major</i>		Land Mullet	P		3	
Animalia	Reptilia	Scincidae	2559	<i>Concinnia tenuis</i>		Barred-sided Skink	P		7	
Animalia	Reptilia	Scincidae	2375	<i>Ctenotus robustus</i>		Robust Ctenotus	P		9	

Animalia	Reptilia	Scincidae	2866	<i>Cyclodomorphus michaeli</i>	Mainland She-oak Skink	P	3
Animalia	Reptilia	Scincidae	2557	<i>Eulamprus quoyii</i>	Eastern Water-skink	P	17
Animalia	Reptilia	Scincidae	2441	<i>Hemiergis decresiensis</i>	Three-toed Earless Skink	P	1
Animalia	Reptilia	Scincidae	2450	<i>Lampropholis delicata</i>	Dark-flecked Garden Sunskink	P	55
Animalia	Reptilia	Scincidae	2451	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink	P	8
Animalia	Reptilia	Scincidae	T117	<i>Lampropholis sp.</i>	unidentified grass skink	P	1
Animalia	Reptilia	Scincidae	2542	<i>Saiphos equalis</i>	Three-toed Skink	P	16
Animalia	Reptilia	Scincidae	2580	<i>Tiliqua scincoides</i>	Eastern Blue-tongue	P	224
Animalia	Reptilia	Scincidae	5056	<i>Tiliqua scincoides scincoides</i>		P	3
Animalia	Reptilia	Agamidae	2194	<i>Amphibolurus muricatus</i>	Jacky Lizard	P	9
Animalia	Reptilia	Agamidae	2252	<i>Intellagama lesueurii</i>	Eastern Water Dragon	P	48
Animalia	Reptilia	Agamidae	5075	<i>Intellagama lesueurii lesueurii</i>	Eastern Water Dragon	P	1
Animalia	Reptilia	Agamidae	2177	<i>Pogona barbata</i>	Bearded Dragon	P	13
Animalia	Reptilia	Varanidae	2271	<i>Varanus gouldii</i>	Gould's Goanna	P	4
Animalia	Reptilia	Varanidae	9056	<i>Varanus sp.</i>	Unidentified Goanna	P	1
Animalia	Reptilia	Varanidae	2283	<i>Varanus varius</i>	Lace Monitor	P	24
Animalia	Reptilia	Typhlopidae	2599	<i>Anilius nigrescens</i>	Blackish Blind Snake	P	2
Animalia	Reptilia	Typhlopidae	2603	<i>Anilius proximus</i>	Proximus Blind Snake	P	1
Animalia	Reptilia	Typhlopidae	T112	<i>Anilius sp.</i>	blind snake	P	1
Animalia	Reptilia	Pythonidae	2625	<i>Morelia spilota</i>	Carpet & Diamond Pythons	P	4
Animalia	Reptilia	Pythonidae	5095	<i>Morelia spilota mcdowelli</i>	Eastern Carpet Python	P	1
Animalia	Reptilia	Pythonidae	5096	<i>Morelia spilota spilota</i>	Diamond Python	P	19
Animalia	Reptilia	Colubridae	2633	<i>Dendrelaphis punctulatus</i>	Common Tree Snake	P	43
Animalia	Reptilia	Elapidae	2640	<i>Acanthophis antarcticus</i>	Common Death Adder	P	1
Animalia	Reptilia	Elapidae	2647	<i>Cacophis squamulosus</i>	Golden-crowned Snake	P	21
Animalia	Reptilia	Elapidae	2655	<i>Demansia psammophis</i>	Yellow-faced Whip Snake	P	5
Animalia	Reptilia	Elapidae	2674	<i>Hemiaspis signata</i>	Black-bellied Swamp Snake	P	11
Animalia	Reptilia	Elapidae	2693	<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake	P	183
Animalia	Reptilia	Elapidae	9075	<i>Pseudechis sp.</i>	Unidentified Black Snake	P	3
Animalia	Reptilia	Elapidae	T033	<i>Pseudonaja sp.</i>	Unidentified Brown Snake	P	1
Animalia	Reptilia	Elapidae	2699	<i>Pseudonaja textilis</i>	Eastern Brown Snake	P	21
Animalia	Aves	Casuariidae	0001	<i>Dromaius novaehollandiae</i>	Emu	P	1
Animalia	Aves	Megapodiidae	0008	<i>Alectura lathami</i>	Australian Brush-turkey	P	23
Animalia	Aves	Phasianidae	9046	<i>Coturnix sp.</i>	Unidentified Quail	P	6
Animalia	Aves	Phasianidae	0012	<i>Synoicus chinensis</i>	King Quail	P	2

Animalia	Aves	Phasianidae	0011	<i>Synoicus ypsilophora</i>	Brown Quail	P	8	
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>	Magpie Goose	V,P	69	<a href="#">Species Description PDF file</a>
Animalia	Aves	Anatidae	0210	<i>Anas castanea</i>	Chestnut Teal	P	111	
Animalia	Aves	Anatidae	0211	<i>Anas gracilis</i>	Grey Teal	P	44	
Animalia	Aves	Anatidae	0209	<i>Anas querquedula</i>	Garganey	P	C,J,K	1
Animalia	Aves	Anatidae	0212	<i>Anas rhynchotis</i>	Australasian Shoveler	P	8	
Animalia	Aves	Anatidae	0208	<i>Anas superciliosa</i>	Pacific Black Duck	P	177	
Animalia	Aves	Anatidae	0215	<i>Aythya australis</i>	Hardhead	P	18	
Animalia	Aves	Anatidae	0217	<i>Biziura lobata</i>	Musk Duck	P	3	
Animalia	Aves	Anatidae	0202	<i>Chenonetta jubata</i>	Australian Wood Duck	P	186	
Animalia	Aves	Anatidae	0203	<i>Cygnus atratus</i>	Black Swan	P	125	
Animalia	Aves	Anatidae	0204	<i>Dendrocygna arcuata</i>	Wandering Whistling-Duck	P	42	
Animalia	Aves	Anatidae	0205	<i>Dendrocygna eytoni</i>	Plumed Whistling-Duck	P	17	
Animalia	Aves	Anatidae	0213	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	P	4	
Animalia	Aves	Anatidae	0216	<i>Oxyura australis</i>	Blue-billed Duck	V,P	4	<a href="#">Species Description PDF file</a>
Animalia	Aves	Anatidae	0214	<i>Stictonetta naevosa</i>	Freckled Duck	V,P	11	<a href="#">Species Description PDF file</a>
Animalia	Aves	Anatidae	0207	<i>Tadorna tadornoides</i>	Australian Shelduck	P	1	
Animalia	Aves	Podicipedidae	0062	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	P	3	
Animalia	Aves	Podicipedidae	0061	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	P	49	
Animalia	Aves	Columbidae	0033	<i>Chalcophaps indica</i>	Emerald Dove	P	5	
Animalia	Aves	Columbidae	0028	<i>Columba leucomela</i>	White-headed Pigeon	P	6	
Animalia	Aves	Columbidae	0031	<i>Geopelia cuneata</i>	Diamond Dove	P	2	
Animalia	Aves	Columbidae	0032	<i>Geopelia humeralis</i>	Bar-shouldered Dove	P	22	
Animalia	Aves	Columbidae	9931	<i>Geopelia striata</i>	Peaceful Dove	P	4	
Animalia	Aves	Columbidae	0044	<i>Leucosarcia melanoleuca</i>	Wonga Pigeon	P	6	
Animalia	Aves	Columbidae	0027	<i>Lopholaimus antarcticus</i>	Topknot Pigeon	P	8	
Animalia	Aves	Columbidae	0029	<i>Macropygia phasianella</i>	Brown Cuckoo-Dove	P	8	
Animalia	Aves	Columbidae	0043	<i>Ocyphaps lophotes</i>	Crested Pigeon	P	141	
Animalia	Aves	Columbidae	0034	<i>Phaps chalcoptera</i>	Common Bronzewing	P	2	
Animalia	Aves	Columbidae	0035	<i>Phaps elegans</i>	Brush Bronzewing	P	1	
Animalia	Aves	Columbidae	0025	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V,P	3	<a href="#">Species Description PDF file</a>

Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P		4	<a href="#">Species Description PDF file</a>
Animalia	Aves	Columbidae	0023	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P		2	<a href="#">Species Description PDF file</a>
Animalia	Aves	Podargidae	0313	<i>Podargus strigoides</i>	Tawny Frogmouth	P		562	
Animalia	Aves	Caprimulgidae	0330	<i>Eurostopodus mystacalis</i>	White-throated Nightjar	P		5	
Animalia	Aves	Aegothelidae	0317	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	P		8	
Animalia	Aves	Apodidae	0335	<i>Apus pacificus</i>	Fork-tailed Swift	P	C,J,K	4	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>	White-throated Needletail	P	V,C,J,K	5	<a href="#">Species Description PDF file</a>
Animalia	Aves	Procellariidae	0069	<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	P	J	2	
Animalia	Aves	Procellariidae	0071	<i>Ardenna tenuirostris</i>	Short-tailed Shearwater	P	C,J,K	2	
Animalia	Aves	Procellariidae	0971	<i>Pterodroma solandri</i>	Providence Petrel	V,P		1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Anhingaidae	8731	<i>Anhinga novaehollandiae</i>	Australasian Darter	P		25	
Animalia	Aves	Phalacrocoracidae	0100	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	P		49	
Animalia	Aves	Phalacrocoracidae	0096	<i>Phalacrocorax carbo</i>	Great Cormorant	P		31	
Animalia	Aves	Phalacrocoracidae	T021	<i>Phalacrocorax sp.</i>	Unidentified Cormorant	P		2	
Animalia	Aves	Phalacrocoracidae	0097	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	P		42	
Animalia	Aves	Phalacrocoracidae	0099	<i>Phalacrocorax varius</i>	Pied Cormorant	P		20	
Animalia	Aves	Pelecanidae	0106	<i>Pelecanus conspicillatus</i>	Australian Pelican	P		55	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		46	<a href="#">Species Description PDF file</a>
Animalia	Aves	Ardeidae	0186	<i>Ardea intermedia</i>	Intermediate Egret	P		329	
Animalia	Aves	Ardeidae	0189	<i>Ardea pacifica</i>	White-necked Heron	P		7	
Animalia	Aves	Ardeidae	T179	<i>Ardea/Egretta sp.</i>	Unidentified Egret	P		23	
Animalia	Aves	Ardeidae	0197	<i>Botaurus poiciloptilus</i>	Australasian Bittern	E1,P	E	6	<a href="#">Species Description PDF file</a>
Animalia	Aves	Ardeidae	0977	<i>Bubulcus ibis</i>	Cattle Egret	P		882	
Animalia	Aves	Ardeidae	8712	<i>Casmerodius modesta</i>	Eastern Great Egret	P		133	
Animalia	Aves	Ardeidae	0185	<i>Egretta garzetta</i>	Little Egret	P		121	
Animalia	Aves	Ardeidae	0188	<i>Egretta novaehollandiae</i>	White-faced Heron	P		109	
Animalia	Aves	Ardeidae	8703	<i>Ixobrychus dubius</i>	Australian Little Bittern	P		2	
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		1	<a href="#">Species Description PDF file</a>

Animalia	Aves	Ardeidae	0192	<i>Nycticorax caledonicus</i>	Nankeen Night Heron	P	17	
Animalia	Aves	Threskiornithidae	0182	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	P	17	
Animalia	Aves	Threskiornithidae	0181	<i>Platalea regia</i>	Royal Spoonbill	P	47	
Animalia	Aves	Threskiornithidae	T029	<i>Platalea sp.</i>	Spoonbill sp	P	6	
Animalia	Aves	Threskiornithidae	0178	<i>Plegadis falcinellus</i>	Glossy Ibis	P	28	
Animalia	Aves	Threskiornithidae	0179	<i>Threskiornis moluccus</i>	Australian White Ibis	P	110	
Animalia	Aves	Threskiornithidae	0180	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	P	26	
Animalia	Aves	Accipitridae	0222	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	P	11	
Animalia	Aves	Accipitridae	0221	<i>Accipiter fasciatus</i>	Brown Goshawk	P	12	
Animalia	Aves	Accipitridae	0220	<i>Accipiter novaehollandiae</i>	Grey Goshawk	P	26	
Animalia	Aves	Accipitridae	0224	<i>Aquila audax</i>	Wedge-tailed Eagle	P	8	
Animalia	Aves	Accipitridae	0234	<i>Aviceda subcristata</i>	Pacific Baza	P	21	
Animalia	Aves	Accipitridae	0219	<i>Circus approximans</i>	Swamp Harrier	P	37	
Animalia	Aves	Accipitridae	0232	<i>Elanus axillaris</i>	Black-shouldered Kite	P	23	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	32	<a href="#">Species Description PDF file</a>
Animalia	Aves	Accipitridae	0227	<i>Haliastur indus</i>	Brahminy Kite	P	1	
Animalia	Aves	Accipitridae	0228	<i>Haliastur sphenurus</i>	Whistling Kite	P	54	
Animalia	Aves	Accipitridae	0225	<i>Hieraetus morphnoides</i>	Little Eagle	V,P	7	<a href="#">Species Description PDF file</a>
Animalia	Aves	Accipitridae	0230	<i>^^Lophoictinia isura</i>	Square-tailed Kite	V,P,3	2	<a href="#">Species Description PDF file</a>
Animalia	Aves	Accipitridae	0229	<i>Milvus migrans</i>	Black Kite	P	7	
Animalia	Aves	Accipitridae	8739	<i>^^Pandion cristatus</i>	Eastern Osprey	V,P,3	3	<a href="#">Species Description PDF file</a>
Animalia	Aves	Falconidae	0239	<i>Falco berigora</i>	Brown Falcon	P	4	
Animalia	Aves	Falconidae	0240	<i>Falco cenchroides cenchroides</i>	Nankeen Kestrel	P	18	
Animalia	Aves	Falconidae	0235	<i>Falco longipennis</i>	Australian Hobby	P	8	
Animalia	Aves	Falconidae	0237	<i>Falco peregrinus</i>	Peregrine Falcon	P	6	
Animalia	Aves	Falconidae	0238	<i>Falco subniger</i>	Black Falcon	V,P	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Rallidae	0059	<i>Fulica atra</i>	Eurasian Coot	P	48	
Animalia	Aves	Rallidae	0056	<i>Gallinula tenebrosa</i>	Dusky Moorhen	P	77	
Animalia	Aves	Rallidae	0046	<i>Hypotaenidia philippensis</i>	Buff-banded Rail	P	10	
Animalia	Aves	Rallidae	0058	<i>Porphyrio porphyrio</i>	Purple Swamphen	P	139	



Animalia	Aves	Rallidae	0049	<i>Porzana fluminea</i>	Australian Spotted Crake	P		13	
Animalia	Aves	Rallidae	0050	<i>Porzana pusilla</i>	Baillon's Crake	P		16	
Animalia	Aves	Rallidae	0051	<i>Porzana tabuensis</i>	Spotless Crake	P		13	
Animalia	Aves	Rallidae	0055	<i>Tribonyx ventralis</i>	Black-tailed Native-hen	P		2	
Animalia	Aves	Recurvirostridae	0146	<i>Himantopus himantopus</i>	Black-winged Stilt	P		53	
Animalia	Aves	Recurvirostridae	0148	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet	P		6	
Animalia	Aves	Charadriidae	0140	<i>Charadrius bicinctus</i>	Double-banded Plover	P		1	
Animalia	Aves	Charadriidae	0139	<i>Charadrius mongolus</i>	Lesser Sand-plover	V,P	E,C,J,K	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Charadriidae	0144	<i>Elseyaornis melanops</i>	Black-fronted Dotterel	P		30	
Animalia	Aves	Charadriidae	0132	<i>Erythronyctes alba</i>	Red-knee Dotterel	P		28	
Animalia	Aves	Charadriidae	8006	<i>Pluvialis fulva</i>	Pacific Golden Plover	P	C,J,K	1	
Animalia	Aves	Charadriidae	0136	<i>Pluvialis squatarola</i>	Grey Plover	P	C,J,K	8	
Animalia	Aves	Charadriidae	0133	<i>Vanellus miles</i>	Masked Lapwing	P		265	
Animalia	Aves	Charadriidae	0134	<i>Vanellus miles novaehollandiae</i>	[Spur-winged Plover]	P		5	
Animalia	Aves	Jacaniidae	0171	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		6	<a href="#">Species Description PDF file</a>
Animalia	Aves	Rostratulidae	0170	<i>Rostratula australis</i>	Australian Painted Snipe	E1,P	E	8	<a href="#">Species Description PDF file</a>
Animalia	Aves	Scolopacidae	0163	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	P	C,J,K	27	
Animalia	Aves	Scolopacidae	0161	<i>Calidris ferruginea</i>	Curlew Sandpiper	E1,P	CE,C,J,K	4	<a href="#">Species Description PDF file</a>
Animalia	Aves	Scolopacidae	0978	<i>Calidris melanotos</i>	Pectoral Sandpiper	P	J,K	3	
Animalia	Aves	Scolopacidae	0162	<i>Calidris ruficollis</i>	Red-necked Stint	P	C,J,K	3	
Animalia	Aves	Scolopacidae	0168	<i>Gallinago hardwickii</i>	Latham's Snipe	P	J,K	119	
Animalia	Aves	Scolopacidae	0149	<i>Numenius madagascariensis</i>	Eastern Curlew	P	CE,C,J,K	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Scolopacidae	0154	<i>Tringa glareola</i>	Wood Sandpiper	P	C,J,K	18	
Animalia	Aves	Scolopacidae	0158	<i>Tringa nebularia</i>	Common Greenshank	P	C,J,K	6	
Animalia	Aves	Scolopacidae	0159	<i>Tringa stagnatilis</i>	Marsh Sandpiper	P	C,J,K	9	
Animalia	Aves	Turnicidae	0014	<i>Turnix varius</i>	Painted Button-quail	P		1	
Animalia	Aves	Laridae	0110	<i>Chlidonias hybrida</i>	Whiskered Tern	P		3	
Animalia	Aves	Laridae	0125	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	P		155	
Animalia	Aves	Laridae	0111	<i>Gelochelidon nilotica</i>	Gull-billed Tern	P	C	2	
Animalia	Aves	Laridae	0112	<i>Hydroprogne caspia</i>	Caspian Tern	P	J	2	

Animalia	Aves	Laridae	0115	<i>Thalasseus bergii</i>	Crested Tern	P	J	2	
Animalia	Aves	Cacatuidae	0269	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	P		298	
Animalia	Aves	Cacatuidae	0271	<i>Cacatua sanguinea</i>	Little Corella	P		38	
Animalia	Aves	Cacatuidae	T187	<i>Cacatua sp.</i>		P		36	
Animalia	Aves	Cacatuidae	0272	<i>Cacatua tenuirostris</i>	Long-billed Corella	P		6	
Animalia	Aves	Cacatuidae	0268	^^ <i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V,P,3	E	3	<a href="#">Species Description PDF file</a>
Animalia	Aves	Cacatuidae	8862	^ <i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V,P,2	V	4	<a href="#">Species Description PDF file</a>
Animalia	Aves	Cacatuidae	9070	<i>Calyptorhynchus sp.</i>	Unidentified Black-cockatoo	P		2	
Animalia	Aves	Cacatuidae	0273	<i>Eolophus roseicapilla</i>	Galah	P		116	
Animalia	Aves	Cacatuidae	8867	<i>Eolophus roseicapilla albiceps</i>		P		4	
Animalia	Aves	Cacatuidae	0274	<i>Nymphicus hollandicus</i>	Cockatiel	P		7	
Animalia	Aves	Cacatuidae	0267	<i>Zanda funereus</i>	Yellow-tailed Black-Cockatoo	P		15	
Animalia	Aves	Psittacidae	0281	<i>Alisterus scapularis</i>	Australian King-Parrot	P		60	
Animalia	Aves	Psittacidae	0280	<i>Aprosmictus erythropterus</i>	Red-winged Parrot	P		1	
Animalia	Aves	Psittacidae	0258	<i>Glossopsitta concinna</i>	Musk Lorikeet	P		18	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		5	<a href="#">Species Description PDF file</a>
Animalia	Aves	Psittacidae	0309	<i>Lathamus discolor</i>	Swift Parrot	E1,P	CE	6	<a href="#">Species Description PDF file</a>
Animalia	Aves	Psittacidae	K/SH	<i>Parrot Hybrid</i>	King/Superb Parrot	P		1	
Animalia	Aves	Psittacidae	0282	<i>Platycercus elegans</i>	Crimson Rosella	P		44	
Animalia	Aves	Psittacidae	0288	<i>Platycercus eximius</i>	Eastern Rosella	P		230	
Animalia	Aves	Psittacidae	T039	<i>Platycercus sp.</i>	Unidentified Rosella	P		77	
Animalia	Aves	Psittacidae	0295	<i>Psephotus haematonotus</i>	Red-rumped Parrot	P		12	
Animalia	Aves	Psittacidae	0256	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	P		40	
Animalia	Aves	Psittacidae	9947	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	P		753	
Animalia	Aves	Psittacidae	9076	<i>Trichoglossus/Glossopsitta sp.</i>	Unidentified Lorikeet	P		52	
Animalia	Aves	Cuculidae	0338	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	P		38	
Animalia	Aves	Cuculidae	0339	<i>Cacomantis variolosus</i>	Brush Cuckoo	P		15	
Animalia	Aves	Cuculidae	0349	<i>Centropus phasianinus</i>	Pheasant Coucal	P		5	
Animalia	Aves	Cuculidae	0342	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	P		14	
Animalia	Aves	Cuculidae	0343	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	P		7	
Animalia	Aves	Cuculidae	8922	<i>Cuculus optatus</i>	Oriental Cuckoo	P	C,J,K	2	

Animalia	Aves	Cuculidae	0347	<i>Eudynamys orientalis</i>	Eastern Koel	P	30	
Animalia	Aves	Cuculidae	8930	<i>Eudynamys orientalis cyanocephala</i>		P	1	
Animalia	Aves	Cuculidae	0337	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	P	5	
Animalia	Aves	Cuculidae	0348	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	P	56	
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>	Barking Owl	V,P,3	2	<a href="#">Species Description PDF file</a>
Animalia	Aves	Strigidae	9922	<i>Ninox novaeseelandiae</i>	Southern Boobook	P	24	
Animalia	Aves	Strigidae	0248	<i>Ninox strenua</i>	Powerful Owl	V,P,3	79	<a href="#">Species Description PDF file</a>
Animalia	Aves	Tytonidae	9923	<i>Tyto javanica</i>	Eastern Barn Owl	P	20	
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3	6	<a href="#">Species Description PDF file</a>
Animalia	Aves	Alcedinidae	0319	<i>Ceyx azureus</i>	Azure Kingfisher	P	9	
Animalia	Aves	Alcedinidae	0322	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	P	454	
Animalia	Aves	Alcedinidae	0324	<i>Todiramphus macleayii</i>	Forest Kingfisher	P	1	
Animalia	Aves	Alcedinidae	0326	<i>Todiramphus sanctus</i>	Sacred Kingfisher	P	117	
Animalia	Aves	Meropidae	0329	<i>Merops ornatus</i>	Rainbow Bee-eater	P	1	
Animalia	Aves	Coraciidae	0318	<i>Eurystomus orientalis</i>	Dollarbird	P	51	
Animalia	Aves	Pittidae	0352	<i>Pitta versicolor</i>	Noisy Pitta	P	1	
Animalia	Aves	Menuridae	0350	<i>Menura novaehollandiae</i>	Superb Lyrebird	P	3	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V,P	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Climacteridae	0558	<i>Cormobates leucophaea</i>	White-throated Treecreeper	P	45	
Animalia	Aves	Ptilonorhynchidae	0676	<i>Ailuroedus crassirostris</i>	Green Catbird	P	2	
Animalia	Aves	Ptilonorhynchidae	0679	<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird	P	25	
Animalia	Aves	Ptilonorhynchidae	0684	<i>Sericulus chrysocephalus</i>	Regent Bowerbird	P	10	
Animalia	Aves	Maluridae	0529	<i>Malurus cyaneus</i>	Superb Fairy-wren	P	474	
Animalia	Aves	Maluridae	0536	<i>Malurus lamberti</i>	Variagated Fairy-wren	P	72	
Animalia	Aves	Maluridae	9038	<i>Malurus sp.</i>	Unidentified Fairy-wren	P	1	
Animalia	Aves	Maluridae	0526	<i>Stipiturus malachurus</i>	Southern Emu-wren	P	7	
Animalia	Aves	Acanthizidae	0486	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	P	15	
Animalia	Aves	Acanthizidae	8245	<i>Acanthiza chrysorrhoa leighi</i>		P	1	
Animalia	Aves	Acanthizidae	0470	<i>Acanthiza lineata</i>	Striated Thornbill	P	25	
Animalia	Aves	Acanthizidae	0471	<i>Acanthiza nana</i>	Yellow Thornbill	P	52	

Animalia	Aves	Acanthizidae	0475	<i>Acanthiza pusilla</i>	Brown Thornbill	P		79	
Animalia	Aves	Acanthizidae	0484	<i>Acanthiza reguloides</i>	Buff-rumped Thornbill	P		1	
Animalia	Aves	Acanthizidae	0460	<i>Gerygone levigaster</i>	Mangrove Gerygone	P		6	
Animalia	Aves	Acanthizidae	0454	<i>Gerygone mouki</i>	Brown Gerygone	P		26	
Animalia	Aves	Acanthizidae	0453	<i>Gerygone olivacea</i>	White-throated Gerygone	P		6	
Animalia	Aves	Acanthizidae	0493	<i>Neosericornis citreogularis</i>	Yellow-throated Scrubwren	P		1	
Animalia	Aves	Acanthizidae	0505	<i>Origma solitaria</i>	Rockwarbler	P		1	
Animalia	Aves	Acanthizidae	0488	<i>Sericornis frontalis</i>	White-browed Scrubwren	P		273	
Animalia	Aves	Acanthizidae	0494	<i>Sericornis magnirostra</i>	Large-billed Scrubwren	P		1	
Animalia	Aves	Pardalotidae	0565	<i>Pardalotus punctatus</i>	Spotted Pardalote	P		59	
Animalia	Aves	Pardalotidae	T023	<i>Pardalotus sp.</i>	Unidentified Pardalote	P		1	
Animalia	Aves	Pardalotidae	0976	<i>Pardalotus striatus</i>	Striated Pardalote	P		16	
Animalia	Aves	Meliphagidae	0591	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	P		53	
Animalia	Aves	Meliphagidae	0638	<i>Anthochaera carunculata</i>	Red Wattlebird	P		34	
Animalia	Aves	Meliphagidae	0710	<i>Anthochaera chrysoptera</i>	Little Wattlebird	P		13	
Animalia	Aves	Meliphagidae	0603	<i>^Anthochaera phrygia</i>	Regent Honeyeater	E4A,P,2	CE	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Meliphagidae	T210	<i>Anthochaera sp.</i>	Unidentified Wattlebird	P		18	
Animalia	Aves	Meliphagidae	0614	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	P		96	
Animalia	Aves	Meliphagidae	0641	<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	P		11	
Animalia	Aves	Meliphagidae	0448	<i>Epthianura albifrons</i>	White-fronted Chat	V,P		13	<a href="#">Species Description PDF file</a>
Animalia	Aves	Meliphagidae	0619	<i>Lichenostomus melanops</i>	Yellow-tufted Honeyeater	P		1	
Animalia	Aves	Meliphagidae	0597	<i>Lichmera indistincta</i>	Brown Honeyeater	P		32	
Animalia	Aves	Meliphagidae	0634	<i>Manorina melanocephala</i>	Noisy Miner	P		299	
Animalia	Aves	Meliphagidae	0633	<i>Manorina melanophrys</i>	Bell Miner	P		81	
Animalia	Aves	Meliphagidae	0605	<i>Meliphaga lewinii</i>	Lewin's Honeyeater	P		153	
Animalia	Aves	Meliphagidae	0583	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	P		5	
Animalia	Aves	Meliphagidae	0578	<i>Melithreptus lunatus</i>	White-naped Honeyeater	P		19	
Animalia	Aves	Meliphagidae	0586	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	P		33	
Animalia	Aves	Meliphagidae	0617	<i>Nesoptilotis leucotis</i>	White-eared Honeyeater	P		3	
Animalia	Aves	Meliphagidae	0646	<i>Philemon citreogularis</i>	Little Friarbird	P		3	
Animalia	Aves	Meliphagidae	0645	<i>Philemon corniculatus</i>	Noisy Friarbird	P		26	
Animalia	Aves	Meliphagidae	0632	<i>Phylidonyris niger</i>	White-cheeked Honeyeater	P		24	
Animalia	Aves	Meliphagidae	8339	<i>Phylidonyris niger niger</i>		P		3	
Animalia	Aves	Meliphagidae	0631	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	P		5	

Animalia	Aves	Meliphagidae	0585	<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	P	11	
Animalia	Aves	Meliphagidae	0613	<i>Ptilotula fusca</i>	Fuscous Honeyeater	P	1	
Animalia	Aves	Meliphagidae	0625	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	P	2	
Animalia	Aves	Meliphagidae	0589	<i>Sugomel nigrum</i>	Black Honeyeater	P	1	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Falcunculidae	0416	<i>Falcunculus frontatus frontatus</i>	Eastern Shrike-tit	P	2	
Animalia	Aves	Psophodidae	0421	<i>Psophodes olivaceus</i>	Eastern Whipbird	P	98	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P	11	<a href="#">Species Description PDF file</a>
Animalia	Aves	Campephagidae	0424	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	P	113	
Animalia	Aves	Campephagidae	8525	<i>Coracina novaehollandiae melanops</i>		P	4	
Animalia	Aves	Campephagidae	0425	<i>Coracina papuensis</i>	White-bellied Cuckoo-shrike	P	1	
Animalia	Aves	Campephagidae	0429	<i>Edolisoma tenuirostris</i>	Cicadabird	P	10	
Animalia	Aves	Campephagidae	0430	<i>Lalage sueurii</i>	White-winged Triller	P	6	
Animalia	Aves	Pachycephalidae	0408	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	P	33	
Animalia	Aves	Pachycephalidae	0398	<i>Pachycephala pectoralis</i>	Golden Whistler	P	90	
Animalia	Aves	Pachycephalidae	0401	<i>Pachycephala rufiventris</i>	Rufous Whistler	P	36	
Animalia	Aves	Pachycephalidae	8426	<i>Pachycephala rufiventris rufiventris</i>		P	1	
Animalia	Aves	Oriolidae	0671	<i>Oriolus sagittatus</i>	Olive-backed Oriole	P	45	
Animalia	Aves	Oriolidae	0432	<i>Sphecotheres vieilloti</i>	Australasian Figbird	P	33	
Animalia	Aves	Oriolidae	8534	<i>Sphecotheres vieilloti vieilloti</i>		P	1	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P	2	<a href="#">Species Description PDF file</a>
Animalia	Aves	Artamidae	0543	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	P	82	
Animalia	Aves	Artamidae	0544	<i>Artamus personatus</i>	Masked Woodswallow	P	1	
Animalia	Aves	Artamidae	0545	<i>Artamus superciliosus</i>	White-browed Woodswallow	P	4	
Animalia	Aves	Artamidae	0700	<i>Cracticus nigrogularis</i>	Pied Butcherbird	P	46	
Animalia	Aves	Artamidae	8495	<i>Cracticus nigrogularis nigrogularis</i>		P	1	
Animalia	Aves	Artamidae	T022	<i>Cracticus sp.</i>	Unidentified Butcherbird	P	44	
Animalia	Aves	Artamidae	0702	<i>Cracticus torquatus</i>	Grey Butcherbird	P	76	
Animalia	Aves	Artamidae	8489	<i>Cracticus torquatus torquatus</i>		P	1	
Animalia	Aves	Artamidae	0705	<i>Gymnorhina tibicen</i>	Australian Magpie	P	692	

Animalia	Aves	Artamidae	8499	<i>Gymnorhina tibicen tibicen</i>		P		1	
Animalia	Aves	Artamidae	0694	<i>Strepera graculina</i>	Pied Currawong	P		71	
Animalia	Aves	Artamidae	T906	<i>Strepera sp.</i>		P		10	
Animalia	Aves	Artamidae	0697	<i>Strepera versicolor</i>	Grey Currawong	P		2	
Animalia	Aves	Dicruridae	0673	<i>Dicrurus bracteatus</i>	Spangled Drongo	P		5	
Animalia	Aves	Rhipiduridae	0361	<i>Rhipidura albiscapa</i>	Grey Fantail	P		153	
Animalia	Aves	Rhipiduridae	8447	<i>Rhipidura albiscapa alisteri</i>		P		3	
Animalia	Aves	Rhipiduridae	0364	<i>Rhipidura leucophrys</i>	Willie Wagtail	P		138	
Animalia	Aves	Rhipiduridae	0362	<i>Rhipidura rufifrons</i>	Rufous Fantail	P		29	
Animalia	Aves	Corvidae	0930	<i>Corvus coronoides</i>	Australian Raven	P		175	
Animalia	Aves	Corvidae	9902	<i>Corvus orru</i>	Torresian Crow	P		13	
Animalia	Aves	Corvidae	9067	<i>Corvus sp.</i>	Unidentified Corvid	P		13	
Animalia	Aves	Monarchidae	0415	<i>Grallina cyanoleuca</i>	Magpie-lark	P		242	
Animalia	Aves	Monarchidae	0373	<i>Monarcha melanopsis</i>	Black-faced Monarch	P		17	
Animalia	Aves	Monarchidae	0366	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	P		2	
Animalia	Aves	Monarchidae	9955	<i>Myiagra inquieta</i>	Restless Flycatcher	P		1	
Animalia	Aves	Monarchidae	0365	<i>Myiagra rubecula</i>	Leaden Flycatcher	P		4	
Animalia	Aves	Monarchidae	0375	<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	P		1	
Animalia	Aves	Corcoracidae	0693	<i>Corcorax melanorhamphos</i>	White-winged Chough	P		9	
Animalia	Aves	Petroicidae	0392	<i>Eopsaltria australis</i>	Eastern Yellow Robin	P		120	
Animalia	Aves	Petroicidae	8367	<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin	E1,P	E	1	<a href="#">Species Description PDF file</a>
Animalia	Aves	Petroicidae	0377	<i>Microeca fascinans</i>	Jacky Winter	P		1	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>	Scarlet Robin	V,P		3	<a href="#">Species Description PDF file</a>
Animalia	Aves	Petroicidae	0384	<i>Petroica rosea</i>	Rose Robin	P		7	
Animalia	Aves	Cisticolidae	0525	<i>Cisticola exilis</i>	Golden-headed Cisticola	P		302	
Animalia	Aves	Acrocephalidae	0524	<i>Acrocephalus australis</i>	Australian Reed-Warbler	P		995	
Animalia	Aves	Acrocephalidae	8584	<i>Acrocephalus australis australis</i>		P		4	
Animalia	Aves	Locustellidae	0509	<i>Cincloramphus mathewsi</i>	Rufous Songlark	P		2	
Animalia	Aves	Locustellidae	0523	<i>Cincloramphus timoriensis</i>	Tawny Grassbird	P		80	
Animalia	Aves	Locustellidae	0522	<i>Poodytes gramineus</i>	Little Grassbird	P		219	
Animalia	Aves	Hirundinidae	0357	<i>Hirundo neoxena</i>	Welcome Swallow	P		133	
Animalia	Aves	Hirundinidae	8568	<i>Hirundo neoxena neoxena</i>		P		6	



Animalia	Aves	Hirundinidae	0879	<i>Hirundo rustica</i>	Barn Swallow	P	C,J,K	3	
Animalia	Aves	Hirundinidae	0360	<i>Petrochelidon ariel</i>	Fairy Martin	P		75	
Animalia	Aves	Hirundinidae	0359	<i>Petrochelidon nigricans</i>	Tree Martin	P		8	
Animalia	Aves	Zosteropidae	0574	<i>Zosterops lateralis</i>	Silvereye	P		428	
Animalia	Aves	Dicaeidae	0564	<i>Dicaeum hirundinaceum</i>	Mistletoebird	P		26	
Animalia	Aves	Estrildidae	0657	<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	P		48	
Animalia	Aves	Estrildidae	0661	<i>Neochmia modesta</i>	Plum-headed Finch	P		3	
Animalia	Aves	Estrildidae	0662	<i>Neochmia temporalis</i>	Red-browed Finch	P		552	
Animalia	Aves	Estrildidae	8621	<i>Neochmia temporalis temporalis</i>		P		2	
Animalia	Aves	Motacillidae	0647	<i>Anthus novaeseelandiae</i>	Australian Pipit	P		28	
Animalia	Aves	Motacillidae	0781	<i>Motacilla alba lugens</i>	Black-backed Wagtail	P		1	
Animalia	Aves	Motacillidae	0877	<i>Motacilla flava</i>	Yellow Wagtail	P	C,J,K	2	
Animalia	Mammalia	Ornithorhynchidae	1001	<i>Ornithorhynchus anatinus</i>	Platypus	P		1	
Animalia	Mammalia	Tachyglossidae	1003	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	P		109	
Animalia	Mammalia	Dasyuridae	T093	<i>Antechinus sp.</i>	Unidentified Antechinus	P		3	
Animalia	Mammalia	Dasyuridae	1674	<i>Antechinus stuartii</i>	Brown Antechinus	P		35	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	4	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Dasyuridae	1061	<i>Sminthopsis murina</i>	Common Dunnart	P		1	
Animalia	Mammalia	Peramelidae	1093	<i>Isoodon macrourus</i>	Northern Brown Bandicoot	P		10	
Animalia	Mammalia	Peramelidae	T081	<i>Isoodon/Peramelas sp.</i>	unidentified Bandicoot	P		7	
Animalia	Mammalia	Peramelidae	1097	<i>Perameles nasuta</i>	Long-nosed Bandicoot	P		4	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	10	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Vombatidae	1165	<i>Vombatus ursinus</i>	Bare-nosed Wombat	P		11	
Animalia	Mammalia	Burramyidae	1150	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V,P		1	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Petauridae	1138	<i>Petaurus breviceps</i>	Sugar Glider	P		76	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		59	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Petauridae	T084	<i>Petaurus sp.</i>	Glider	P		1	
Animalia	Mammalia	Pseudocheiridae	1133	<i>Petauroides volans</i>	Southern Greater Glider	E1,P	E	1	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Pseudocheiridae	1129	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum	P		693	

Animalia	Mammalia	Acrobatidae	1147	<i>Acrobates pygmaeus</i>	Feathertail Glider	P		35	
Animalia	Mammalia	Phalangeridae	T082	<i>Trichosurus sp.</i>	brushtail possum	P		256	
Animalia	Mammalia	Phalangeridae	1113	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	P		304	
Animalia	Mammalia	Macropodidae	T108	<i>Macropod sp.</i>	unidentified macropod	P		4	
Animalia	Mammalia	Macropodidae	1265	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	P		53	
Animalia	Mammalia	Macropodidae	T085	<i>Macropus sp.</i>	kangaroo / wallaby	P		65	
Animalia	Mammalia	Macropodidae	1261	<i>Notamacropus rufogriseus</i>	Red-necked Wallaby	P		16	
Animalia	Mammalia	Macropodidae	1242	<i>Wallabia bicolor</i>	Swamp Wallaby	P		43	
Animalia	Mammalia	Pteropodidae	1282	<i>Pteropus alecto</i>	Black Flying-fox	P		17	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	251	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Pteropodidae	1281	<i>Pteropus scapulatus</i>	Little Red Flying-fox	P		4	
Animalia	Mammalia	Pteropodidae	T087	<i>Pteropus sp.</i>	Flying-fox	P		45	
Animalia	Mammalia	Rhinolophidae	1303	<i>Rhinolophus megaphyllus</i>	Eastern Horseshoe-bat	P		17	
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		7	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Molossidae	1324	<i>Austronomus australis</i>	White-striped Freetail-bat	P		38	
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		100	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Molossidae	T454	<i>Molossidae sp.</i>	unidentified mastiff bat	P		4	
Animalia	Mammalia	Molossidae	1938	<i>Ozimops ridei</i>	Eastern Free-tailed Bat	P		58	
Animalia	Mammalia	Vespertilionidae	1353	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	10	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Vespertilionidae	1349	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	P		119	
Animalia	Mammalia	Vespertilionidae	1351	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	P		40	
Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		17	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		31	<a href="#">Species Description PDF file</a>
Animalia	Mammalia	Vespertilionidae	1335	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	P		26	
Animalia	Mammalia	Vespertilionidae	1334	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	P		11	
Animalia	Mammalia	Vespertilionidae	T092	<i>Nyctophilus sp.</i>	long-eared bat	P		23	

Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P	18	<a href="#">Species Description PDF file</a>	
Animalia	Mammalia	Vespertilionidae	1365	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	P	17		
Animalia	Mammalia	Vespertilionidae	T089	<i>Scotorepens sp.</i>	Unidentified broad-nosed bat	P	17		
Animalia	Mammalia	Vespertilionidae	1022	<i>Vespadelus darlingtoni</i>	Large Forest Bat	P	10		
Animalia	Mammalia	Vespertilionidae	1377	<i>Vespadelus pumilus</i>	Eastern Forest Bat	P	15		
Animalia	Mammalia	Vespertilionidae	1378	<i>Vespadelus regulus</i>	Southern Forest Bat	P	3		
Animalia	Mammalia	Vespertilionidae	T088	<i>Vespadelus sp.</i>	Unidentified Eptesicus	P	11		
Animalia	Mammalia	Vespertilionidae	1025	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P	6	<a href="#">Species Description PDF file</a>	
Animalia	Mammalia	Vespertilionidae	1379	<i>Vespadelus vulturinus</i>	Little Forest Bat	P	76		
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P	123	<a href="#">Species Description PDF file</a>	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P	65	<a href="#">Species Description PDF file</a>	
Animalia	Mammalia	Muridae	T104	<i>Muridae sp.</i>	unidentified murid rodent	P	1		
Animalia	Mammalia	Muridae	1395	<i>Rattus fuscipes</i>	Bush Rat	P	17		
Animalia	Mammalia	Muridae	1398	<i>Rattus lutreolus</i>	Swamp Rat	P	4		
Animalia	Mammalia	Muridae	T094	<i>Rattus sp.</i>	rat	P	3		
Plantae	Flora	Arecaceae	6458	<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	P	3		
Plantae	Flora	Arecaceae	1221	<i>Livistona australis</i>	Cabbage Palm	P	10		
Plantae	Flora	Aspleniaceae	8031	<i>Asplenium australasicum</i>	Bird's Nest Fern	P	3		
Plantae	Flora	Asteliaceae	1018	<i>Cordyline stricta</i>	Narrow-leaved Palm Lily	P	1		
Plantae	Flora	Asteraceae	1643	<i>Rutidosia heterogama</i>	Heath Wrinklewort	V	V	1	<a href="#">Species Description PDF file</a>
Plantae	Flora	Cyatheaceae	8074	<i>Cyathea australis</i>	Rough Treefern	P	2		
Plantae	Flora	Cyatheaceae	8076	<i>Cyathea cooperi</i>	Straw Treefern	P	4		
Plantae	Flora	Cyperaceae	2442	<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	P	11		
Plantae	Flora	Doryanthaceae	1019	<i>Doryanthes excelsa</i>	Gynea Lily	P	8		
Plantae	Flora	Elaeocarpaceae	6205	<i>Tetradlea glandulosa</i>		V		1	<a href="#">Species Description PDF file</a>
Plantae	Flora	Elaeocarpaceae	6206	<i>Tetradlea juncea</i>	Black-eyed Susan	V	V	2200	<a href="#">Species Description PDF file</a>

Plantae	Flora	Juncaginaceae	3363	<i>Maundia triglochinosoides</i>		V		34	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	9619	<i>Angophora inopina</i>	Charmhaven Apple	V	V	581	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	4007	<i>Callistemon linearifolius</i>	Netted Bottle Brush	V,3		3	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	4204	<i>Kunzea ambigua</i>	Tick Bush	P		3	
Plantae	Flora	Myrtaceae	6809	<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	V	8	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	4283	<i>Rhodamnia rubescens</i>	Scrub Turpentine	E4A	CE	8	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	4284	<i>Rhodomyrtus psidioides</i>	Native Guava	E4A	CE	1	<a href="#">Species Description PDF file</a>
Plantae	Flora	Myrtaceae	4293	<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	E1	V	2	<a href="#">Species Description PDF file</a>
Plantae	Flora	Orchidaceae	4351	<i>Acianthus caudatus</i>	Mayfly Orchid	P		1	
Plantae	Flora	Orchidaceae	4353	<i>Acianthus fornicatus</i>	Pixie Caps	P		27	
Plantae	Flora	Orchidaceae	ACIA	<i>Acianthus spp.</i>	Mosquito Orchid	P		3	
Plantae	Flora	Orchidaceae	4373	<i>Caladenia carnea</i>	Pink Fingers	P		2	
Plantae	Flora	Orchidaceae	6703	<i>Caladenia catenata</i>	White Caladenia	P		17	
Plantae	Flora	Orchidaceae	12069	<i>Caladenia platichila</i>		P		1	
Plantae	Flora	Orchidaceae	4387	<i>Caladenia testacea</i>	Honey Caladenia	P		3	
Plantae	Flora	Orchidaceae	4390	<i>Calochilus campestris</i>	Copper Beard Orchid	P		2	
Plantae	Flora	Orchidaceae	4394	<i>Calochilus paludosus</i>	Red Beard Orchid	P		1	
Plantae	Flora	Orchidaceae	4395	<i>Calochilus robertsonii</i>	Purplish Beard Orchid	P		3	
Plantae	Flora	Orchidaceae	CALO	<i>Calochilus spp.</i>		P		1	
Plantae	Flora	Orchidaceae	4402	<i>Chiloglottis reflexa</i>		P		2	
Plantae	Flora	Orchidaceae	CHIL	<i>Chiloglottis spp.</i>		P		12	
Plantae	Flora	Orchidaceae	4403	<i>Chiloglottis trapeziformis</i>	Thick-lip Bird Orchid	P		5	
Plantae	Flora	Orchidaceae	4410	<i>Corybas pruinosus</i>	Toothed Helmet Orchid	P		2	
Plantae	Flora	Orchidaceae	CORY	<i>Corybas spp.</i>		P		6	
Plantae	Flora	Orchidaceae	4414	<i>Cryptostylis erecta</i>	Tartan Tongue Orchid	P		1	
Plantae	Flora	Orchidaceae	4417	<i>Cryptostylis subulata</i>	Large Tongue Orchid	P		3	
Plantae	Flora	Orchidaceae	4419	<i>Cymbidium suave</i>	Snake Orchid	P		3	
Plantae	Flora	Orchidaceae	6889	<i>Cyrtostylis reniformis</i>	Gnat Orchid	P		1	

Plantae	Flora	Orchidaceae	4420	<i>Dendrobium aemulum</i>	Ironbark Orchid	P		1	
Plantae	Flora	Orchidaceae	4426	<i>Dendrobium linguiforme</i>	Tongue Orchid	P		15	
Plantae	Flora	Orchidaceae	4435	<i>Dendrobium teretifolium</i>	Rat's Tail Orchid	P		1	
Plantae	Flora	Orchidaceae	7887	<i>Dipodium punctatum</i>		P		3	
Plantae	Flora	Orchidaceae	DIPO	<i>Dipodium spp.</i>		P		6	
Plantae	Flora	Orchidaceae	7888	<i>Dipodium variegatum</i>		P		1	
Plantae	Flora	Orchidaceae	4441	<i>Diuris aurea</i>		P		1	
Plantae	Flora	Orchidaceae	4456	<i>Diuris sulphurea</i>	Tiger Orchid	P		1	
Plantae	Flora	Orchidaceae	4460	<i>Eriochilus cucullatus</i>	Parson's Bands	P		1	
Plantae	Flora	Orchidaceae	4472	<i>Lyperanthus suaveolens</i>	Brown Beaks	P		1	
Plantae	Flora	Orchidaceae	7622	<i>Microtis parviflora</i>	Slender Onion Orchid	P		2	
Plantae	Flora	Orchidaceae	4473	<i>Microtis unifolia</i>	Common Onion Orchid	P		2	
Plantae	Flora	Orchidaceae	11839	<i>Petalochilus minor</i>		P		1	
Plantae	Flora	Orchidaceae	4483	<i>Plectorrhiza tridentata</i>	Tangle Orchid	P		1	
Plantae	Flora	Orchidaceae	4494	<i>Prasophyllum brevilabre</i>	Short-lipped Leek Orchid	P		1	
Plantae	Flora	Orchidaceae	4535	<i>Pterostylis acuminata</i>	Pointed Greenhood	P		1	
Plantae	Flora	Orchidaceae	4538	<i>Pterostylis alveata</i>	Coastal Greenhood	P		1	
Plantae	Flora	Orchidaceae	4539	<i>Pterostylis baptistii</i>	King Greenhood	P		7	
Plantae	Flora	Orchidaceae	4545	<i>Pterostylis curta</i>	Blunt Greenhood	P		2	
Plantae	Flora	Orchidaceae	4558	<i>Pterostylis longicurva</i>	Long-tongued Greenhood	P		1	
Plantae	Flora	Orchidaceae	4559	<i>Pterostylis longifolia</i>	Tall Greenhood	P		7	
Plantae	Flora	Orchidaceae	4562	<i>Pterostylis nutans</i>	Nodding Greenhood	P		21	
Plantae	Flora	Orchidaceae	4573	<i>Pterostylis rufa</i>	Rusty Hood	P		1	
Plantae	Flora	Orchidaceae	PTER	<i>Pterostylis spp.</i>	Greenhood	P		8	
Plantae	Flora	Orchidaceae	8968	<i>Thelymitra ixioides</i> var. <i>ixioides</i>	Dotted Sun Orchid	P		1	
Plantae	Flora	Orchidaceae	THEL	<i>Thelymitra spp.</i>		P		2	
Plantae	Flora	Polypodiaceae	8159	<i>Platyserium bifurcatum</i>	Elkhorn Fern	P		3	
Plantae	Flora	Potamogetonaceae	6339	<i>Zannichellia palustris</i>		E1		9	<a href="#">Species Description PDF file</a>
Plantae	Flora	Proteaceae	5349	<i>Banksia spinulosa</i>	Hairpin Banksia	P		10	
Plantae	Flora	Proteaceae	7509	<i>Banksia spinulosa</i> var. <i>collina</i>		P		25	
Plantae	Flora	Proteaceae	10009	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flower Grevillea	V	V	8	<a href="#">Species Description PDF file</a>
Plantae	Flora	Proteaceae	5433	<i>Isopogon anemonifolius</i>	Broad-leaf Drumsticks	P		4	
Plantae	Flora	Proteaceae	5445	<i>Lomatia silaifolia</i>	Crinkle Bush	P		12	

Plantae	Flora	Proteaceae	9823	<i>Persoonia laurina</i> <i>subsp. laurina</i>		P	2
Plantae	Flora	Proteaceae	5462	<i>Persoonia levis</i>	Broad-leaved Geebung	P	25
Plantae	Flora	Proteaceae	5463	<i>Persoonia linearis</i>	Narrow-leaved Geebung	P	48
Plantae	Flora	Proteaceae	5479	<i>Petrophile pulchella</i>	Conesticks	P	2
Plantae	Flora	Proteaceae	5490	<i>Xylomelum pyriforme</i>	Woody Pear	P	1
Plantae	Flora	Pteridaceae	7997	<i>Adiantum aethiopicum</i>	Common Maidenhair	P	68
Plantae	Flora	Pteridaceae	7999	<i>Adiantum formosum</i>	Giant Maidenhair	P	17
Plantae	Flora	Pteridaceae	8000	<i>Adiantum hispidulum</i>	Rough Maidenhair	P	17
Plantae	Flora	Pteridaceae	11226	<i>Adiantum hispidulum</i> <i>hispidulum</i> var. <i>hispidulum</i>	Rough Maidenhair	P	2
Plantae	Flora	Pteridaceae	8001	<i>Adiantum silvaticum</i>		P	1
Plantae	Flora	Rutaceae	5751	<i>Boronia polygalifolia</i>	Dwarf Boronia	P	5
Plantae	Flora	Xanthorrhoeaceae	8771	<i>Xanthorrhoea fulva</i>		P	3
Plantae	Flora	Xanthorrhoeaceae	8751	<i>Xanthorrhoea glauca</i> <i>subsp. glauca</i>		P	10
Plantae	Flora	Xanthorrhoeaceae	8770	<i>Xanthorrhoea latifolia</i>		P	19
Plantae	Flora	Xanthorrhoeaceae	9309	<i>Xanthorrhoea latifolia</i> <i>subsp. latifolia</i>		P	8
Plantae	Flora	Xanthorrhoeaceae	6318	<i>Xanthorrhoea macronema</i>		P	9
Plantae	Flora	Xanthorrhoeaceae	6319	<i>Xanthorrhoea media</i>		P	3
Plantae	Flora	Xanthorrhoeaceae	6321	<i>Xanthorrhoea resinosa</i>		P	1
Plantae	Flora	Xanthorrhoeaceae	XANT	<i>Xanthorrhoea</i> <i>spp.</i>		P	7
Plantae	Flora	Zamiaceae	6327	<i>Macrozamia communis</i>	Burrawang	P	25
Plantae	Flora	Zamiaceae	10528	<i>Macrozamia flexuosa</i>		P	8
Plantae	Flora	Zamiaceae	10525	<i>Macrozamia reducta</i>		P	5
Plantae	Flora	Zamiaceae	6335	<i>Macrozamia spiralis</i>		P	1





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-Feb-2024

[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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	1
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	5
<a href="#">Listed Threatened Species:</a>	90
<a href="#">Listed Migratory Species:</a>	63

## 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.

<a href="#">Commonwealth Lands:</a>	27
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	73
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	3
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Nationally Important Wetlands:</a>	3
<a href="#">EPBC Act Referrals:</a>	31
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	1
<a href="#">Bioregional Assessments:</a>	1
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

### Wetlands of International Importance (Ramsar Wetlands) [\[ Resource Information \]](#)

Ramsar Site Name	Proximity	Buffer Status
<a href="#">Hunter estuary wetlands</a>	Within 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
<a href="#">Central Hunter Valley eucalypt forest and woodland</a>	Critically Endangered	Community may occur within area	In feature area
<a href="#">Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</a>	Endangered	Community may occur within area	In feature area
<a href="#">Kurri sand swamp woodland of the Sydney Basin bioregion</a>	Endangered	Community may occur within area	In feature area
<a href="#">River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria</a>	Critically Endangered	Community likely to occur within area	In feature area

### Listed Threatened Species [\[ Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>BIRD</b>			
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Ardenna grisea</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Callocephalon fimbriatum</a> Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calyptorhynchus lathami lathami</a> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
<a href="#">Climacteris picumnus victoriae</a> Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Limosa lapponica baueri</a> Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In feature area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Melanodryas cucullata cucullata</a> South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Pycnoptilus floccosus</a> Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Stagonopleura guttata</a> Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri platei</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>FISH</b>			
<a href="#">Epinephelus daemeli</a>			
Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<b>FROG</b>			
<a href="#">Litoria aurea</a>			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Mixophyes balbus</a>			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Uperoleia mahonyi</a>			
Mahony's Toadlet [89189]	Endangered	Species or species habitat may occur within area	In feature area
<b>MAMMAL</b>			
<a href="#">Chalinolobus dwyeri</a>			
Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a>			
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
<a href="#">Notamacropus parma</a>			
Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Petauroides volans</a>			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Petaurus australis australis</a>			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Petrogale penicillata</a>			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#"><u>Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</u></a>			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#"><u>Potorous tridactylus tridactylus</u></a>			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Pseudomys novaehollandiae</u></a>			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Pteropus poliocephalus</u></a>			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<b>PLANT</b>			
<a href="#"><u>Angophora inopina</u></a>			
Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Caladenia tessellata</u></a>			
Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Commersonia prostrata</u></a>			
Dwarf Kerrawang [87152]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#"><u>Cryptostylis hunteriana</u></a>			
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Cynanchum elegans</u></a>			
White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Diuris praecox</u></a>			
Newcastle Doubletail [55086]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#"><u>Eucalyptus camfieldii</u></a>			
Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Eucalyptus parramattensis subsp. decadens</a> Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Euphrasia arguta</a> [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Grevillea parviflora subsp. parviflora</a> Small-flower Grevillea [64910]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Grevillea shiressii</a> [19186]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Melaleuca biconvexa</a> Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Persicaria elatior</a> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Prasophyllum sp. Wybong (C.Phelps ORG 5269)</a> a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Pterostylis gibbosa</a> Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Rhizanthella slateri</a> Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Rhodamnia rubescens</a> Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Rhodomyrtus psidioides</a> Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Rutidosia heterogama</a> Heath Wrinklewort [13132]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Syzygium paniculatum</a> Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Tetraloche juncea</a> Black-eyed Susan [21407]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Thelymitra adorata</a> Wyong Sun Orchid [84724]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

## REPTILE

<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

## SHARK

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
<b>Listed Migratory Species</b> [ <a href="#">Resource Information</a> ]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>Migratory Marine Birds</b>			
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<a href="#">Ardena grisea</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<b>Migratory Marine Species</b>			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<b>Migratory Terrestrial Species</b>			
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
<b>Migratory Wetlands Species</b>			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Roosting known to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area	In feature area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area	In feature area
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur within area	In feature area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]	Vulnerable	Roosting known to 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 - Australian Postal Corporation Commonwealth Land - Australian Postal Corporation [11633]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Postal Corporation [11690]	NSW	In buffer area only
<b>Communications, Information Technology and the Arts - Telstra Corporation Limited</b>		
Commonwealth Land - Australian Telecommunications Commission [11672]	NSW	In feature area
Commonwealth Land - Australian Telecommunications Commission [11700]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11671]	NSW	In feature area
Commonwealth Land - Telstra Corporation Limited [11689]	NSW	In buffer area only
<b>Defence</b>		
Commonwealth Land - Defence Service Homes Corporation [11693]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11692]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11640]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11696]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11695]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11694]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11699]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11698]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11673]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11691]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11697]	NSW	In feature area
<b>Defence - Defence Housing Authority</b>		
Commonwealth Land - Defence Housing Authority [16170]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16171]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16172]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16173]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16165]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16166]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16168]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16169]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [16167]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11639]	NSW	In feature area

## Listed Marine Species [ [Resource Information](#) ]

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>Bird</b>			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Ardenna grisea as Puffinus griseus</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea antipodensis gibsoni as Diomedea gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area	In feature area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area	In feature area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area	In feature area
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Philomachus pugnax</a> Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
<a href="#">Pterodroma cervicalis</a> White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Recurvirostra novaehollandiae</a> Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Sterna striata</a> White-fronted Tern [799]		Migration route may occur within area	In feature area
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri platei as Thalassarche sp. nov.</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Tringa brevipes as Heteroscelus brevipes</a> Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
<b>Reptile</b>			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

## Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	Buffer Status
Blue Gum Hills	Regional Park	NSW	In feature area
Hexham Swamp	NRS Addition - Gazettal in Progress	NSW	In feature area
Hunter Wetlands	National Park	NSW	In buffer area only

Regional Forest Agreements	[ <a href="#">Resource Information</a> ]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
<a href="#">North East NSW RFA</a>	New South Wales	In feature area

Nationally Important Wetlands			[ <a href="#">Resource Information</a> ]
Wetland Name	State	Buffer Status	
<a href="#">Hexham Swamp</a>	NSW	In feature area	
<a href="#">Kooragang Nature Reserve</a>	NSW	In buffer area only	
<a href="#">Shortland Wetlands Centre</a>	NSW	In buffer area only	

EPBC Act Referrals					[ <a href="#">Resource Information</a> ]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
<a href="#">Kooragang Wetland Rehabilitation Project</a>	2007/3220	Controlled Action	Post-Approval	In buffer area only	
<a href="#">Newcastle inner city bypass Rankin Park to Jesmond NSW</a>	2015/7550	Controlled Action	Post-Approval	In feature area	
<a href="#">New dual carriageway from F3 Fwy to Branxton Link</a>	2007/3431	Controlled Action	Post-Approval	In buffer area only	



Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<b>Controlled action</b>				
<a href="#">Port Site and Materials Handling Development</a>	2001/242	Controlled Action	Completed	In feature area
<a href="#">Protech Cold Mill Facility</a>	2001/274	Controlled Action	Post-Approval	In feature area
<a href="#">Remediation Works, Kooragang island waste facility emplacement facility NSW</a>	2011/5920	Controlled Action	Completed	In buffer area only
<a href="#">River Dredging Operations</a>	2001/249	Controlled Action	Completed	In feature area
<a href="#">Terminal 4 Coal Export Terminal Project, Kooragang Island</a>	2011/6029	Controlled Action	Post-Approval	In buffer area only
<b>Not controlled action</b>				
<a href="#">Abel Coal Project</a>	2007/3695	Not Controlled Action	Completed	In buffer area only
<a href="#">Blue Gum Vista Estate Residential development off Minmi Road</a>	2004/1507	Not Controlled Action	Completed	In buffer area only
<a href="#">Controlling Water Levels in Shortland Wetlands</a>	2010/5468	Not Controlled Action	Completed	In buffer area only
<a href="#">Fort Scratchley refurbishment works</a>	2005/2283	Not Controlled Action	Completed	In feature area
<a href="#">Geological exploration and historical research of convict coal mines beneath For</a>	2004/1421	Not Controlled Action	Completed	In feature area
<a href="#">Green &amp; Golden Bell Frog Habitat Enhancement Project</a>	2004/1795	Not Controlled Action	Completed	In feature area
<a href="#">Hunter Natural Gas Pipeline</a>	2004/1902	Not Controlled Action	Completed	In feature area
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area
<a href="#">Industrial and Residential Subdivision, Minmi and Black Hill, Lower Hunter</a>	2008/4603	Not Controlled Action	Completed	In feature area
<a href="#">Newcastle Inner City Bypass - Sandgate to Shortland</a>	2007/3633	Not Controlled Action	Completed	In buffer area only
<a href="#">Northlakes Estate Residential Subdivision</a>	2009/5111	Not Controlled Action	Completed	In feature area
<a href="#">Proposed Residential Subdivision</a>	2005/2127	Not Controlled Action	Completed	In buffer area only



Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<b>Not controlled action</b>				
<a href="#">Queensland Hunter Gas Pipeline, approximately 833 km in length</a>	2008/4620	Not Controlled Action	Completed	In buffer area only
<a href="#">Revised alignment Hunter Natural Gas Pipeline</a>	2005/2470	Not Controlled Action	Completed	In feature area
<a href="#">Richmond Vale Rail Trail</a>	2019/8568	Not Controlled Action	Completed	In feature area
<a href="#">sale of property located at 96, Hunter Street</a>	2003/1097	Not Controlled Action	Completed	In feature area
<a href="#">Sandgate Rail Grade Separation</a>	2005/1948	Not Controlled Action	Completed	In feature area
<a href="#">Tomago to Tomaree Electricity Supply Upgrade</a>	2003/1023	Not Controlled Action	Completed	In feature area
<b>Not controlled action (particular manner)</b>				
<a href="#">Kooragang Island coal export terminal</a>	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<a href="#">Kooragang Island Waste Emplacement Facility Closure Works</a>	2012/6464	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<a href="#">Rehabilitation of Hexham Swamp</a>	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
<a href="#">TransGrid 132kV Power Transmission Line</a>	2002/794	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<b>Referral decision</b>				
<a href="#">Residential Development and 132kV Sub-transmission Line Relocation</a>	2008/4574	Referral Decision	Completed	In buffer area only
<b>Biologically Important Areas</b>				
Scientific Name		Behaviour	Presence	Buffer Status
Dolphins				
<a href="#">Tursiops aduncus</a>				
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Foraging	Known to occur	In buffer area only
<b>Bioregional Assessments</b>				
SubRegion	BioRegion	Website		Buffer Status

SubRegion	BioRegion	Website	Buffer Status
Hunter	Northern Sydney Basin	<a href="#">BA website</a>	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

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- Other groups and individuals

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

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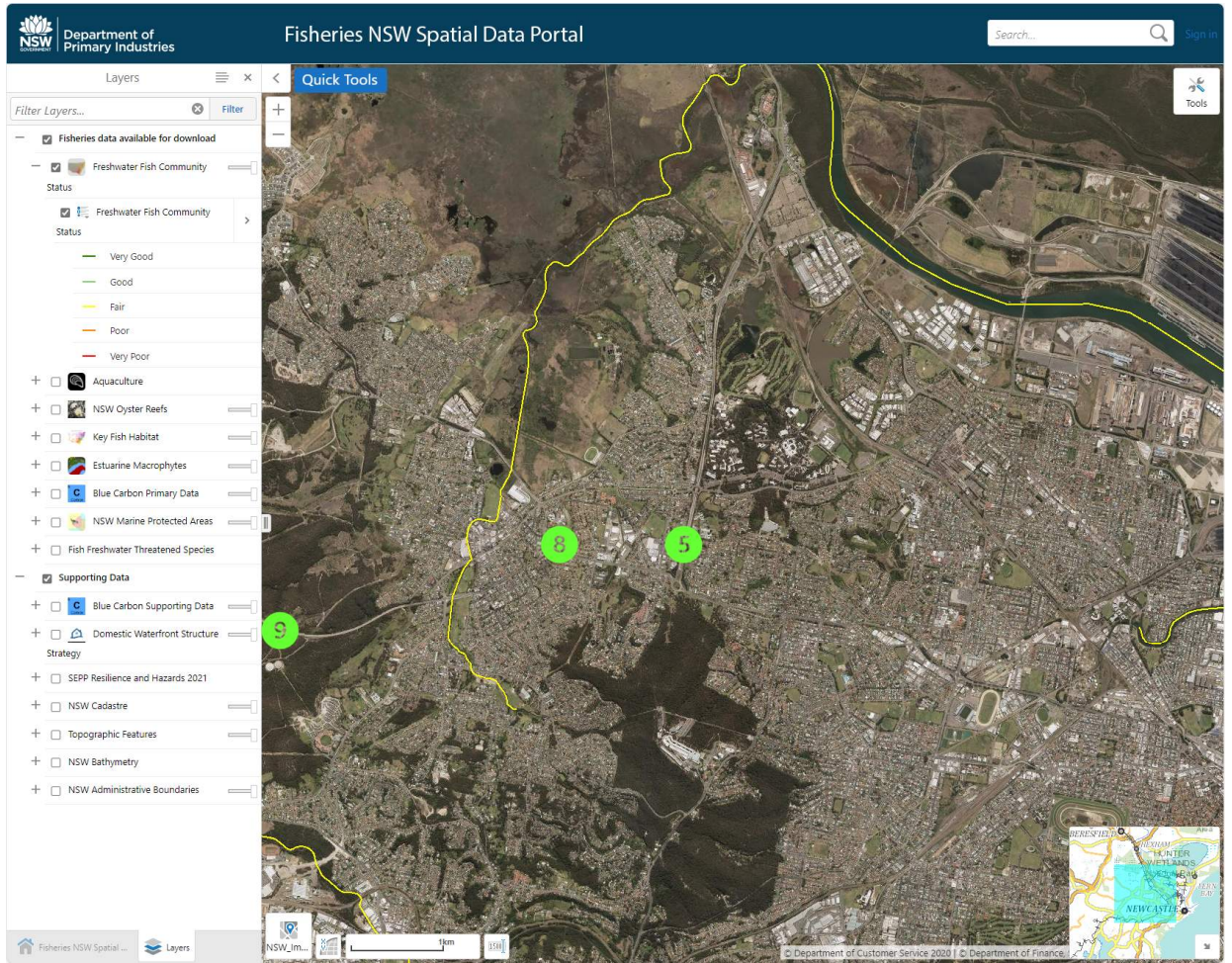
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### Fisheries MSW Spatial Data Portal search



Minor works review of environmental factors



## DPI Weedwise Search – Hunter 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 Hunter region.

**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 Regional recommended measure
<i>Eragrostis curvula</i>	African lovegrass	Regional recommended measure
<i>Olea europaea subsp. cuspidata</i>	African olive	Exclusion zone
<i>Alternanthera philoxeroides</i>	Alligator weed	Prohibition on certain dealings
<i>Eichhornia azurea</i>	Anchored water hyacinth	Prohibited Matter
<i>Sagittaria calycina var. calycina</i>	Arrowhead	Regional recommended measure
<i>Asparagus virgatus</i>	Asparagus fern	Regional recommended measure
<i>Tamarix aphylla</i>	Athel pine	Prohibition on certain dealings.
<i>Chrysanthemoides monilifera subsp. rotundata</i>	Bitou bush	Prohibition on certain dealings
<i>Centaurea x moncktonii</i>	Black knapweed	Prohibited Matter
<i>Robinia pseudoacacia</i>	Black locust	Exclusion zone
<i>Salix nigra</i>	Black willow	Prohibition on certain dealings
<i>Rubus fruticosus species aggregate</i>	Blackberry	Prohibition on certain dealings Regional recommended measure
<i>Opuntia rufida</i>	Blind cactus	Prohibition on certain dealings Regional recommended measure
<i>Heliotropium amplexicaule</i>	Blue heliotrope	Regional recommended measure
<i>Vinca major</i>	Blue periwinkle	Regional recommended measure
<i>Chrysanthemoides monilifera subsp. Monilifera</i>	Boneseed	Prohibition on certain dealings
<i>Cylindropuntia fulgida var. mamillata</i>	Boxing glove cactus	Prohibition on certain dealings Regional recommended measure
<i>Asparagus asparagoides</i>	Bridal creeper	Prohibition on certain dealings
<i>Asparagus declinatus</i>	Bridal veil creeper	Prohibited matter
<i>Schinus terebinthifolius</i>	Broad-leaf pepper tree	Regional recommended measure
<i>Orobancha species</i>	Broomrapes	Prohibition matter
<i>Cylindropuntia tunicata</i>	Brown-spined Hudson pear	Regional recommended measure
<i>Opuntia microdasys</i>	Bunny ears cactus	Prohibition on certain dealings Regional recommended measure
<i>Cabomba caroliniana</i>	Cabomba	Prohibition on certain dealings

Scientific Name	Common name	Biosecurity duty
		Regional recommended measure
<i>Cinnamomum camphora</i>	Camphor laurel	Regional recommended measure
<i>Austrocylindropuntia cylindrica</i>	Cane cactus	Prohibition on certain dealings Regional recommended measure
<i>Genista monspessulana</i>	Cape broom	Prohibition on certain dealings 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 Regional recommended measure
<i>Nassella neesiana</i>	Chilean needle grass	Prohibition on certain dealings Regional recommended measure
<i>Celtis sinensis</i>	Chinese celtis	Regional recommended measure
<i>Persicaria chinensis</i>	Chinese knotweed	Regional recommended measure
<i>Triadica sebifera</i>	Chinese tallow tree	Exclusion zone 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 Regional recommended measure
<i>Asparagus plumosus</i>	Climbing asparagus fern	Prohibition on certain dealings
<i>Erythrina crista-galli</i>	Cockspur coral tree	Regional recommended measure
<i>Opuntia stricta</i>	Common pear	Prohibition on certain dealings Regional recommended measure
<i>Hyparrhenia hirta</i>	Cooltai grass	Regional recommended measure
<i>Barleria repens</i>	Coral creeper	Regional recommended measure
<i>Cotoneaster glaucophyllus</i>	Cotoneaster	Regional recommended measure
<i>Ageratina adenophora</i>	Crofton weed	Regional recommended measure
<i>Hygrophila polysperma</i>	East Indian hygrophila	Regional recommended measure
<i>Amelichloa caudata</i>	Espartillo-broad kernel	Regional recommended measure
<i>Amelichloa brachychaeta</i>	Espartillo-narrow kernel	Regional recommended measure
<i>Myriophyllum spicatum</i>	Eurasian water milfoil	Prohibition matter
<i>Austrocylindropuntia subulata</i>	Eve's needle cactus	Prohibition on certain dealings Regional recommended measure
<i>Senecio madagascariensis</i>	Fireweed	Prohibition on certain dealings
<i>Genista linifolia</i>	Flax-leaf broom	Prohibition on certain dealings
<i>Asparagus densiflorus</i>	Foxtail fern	Prohibition on certain dealings
<i>Limnobium laevigatum</i>	Frogbit	Prohibition matter
<i>Galenia pubescens</i>	Galenia	Exclusion zone
<i>Andropogon gayanus</i>	Gamba grass	Prohibition matter
<i>Solanum chrysotrichum</i>	Giant devil's fig	Regional recommended measure
<i>Sporobolus fertilis</i>	Giant Parramatta grass	Regional recommended measure
<i>Sporobolus pyramidalis</i>	Giant rat's tail grass	Regional recommended measure
<i>Arundo donax</i>	Giant reed	Regional recommended measure
<i>Gloriosa superba</i>	Glory lily	Regional recommended measure
<i>Ulex europaeus</i>	Gorse	Prohibition on certain dealings Regional recommended measure
<i>Cestrum parqui</i>	Green cestrum	Regional recommended measure
<i>Salix cinerea</i>	Grey sallow	Prohibition on certain dealings
<i>Asparagus aethiopicus</i>	Ground asparagus	Prohibition on certain dealings Regional recommended measure
<i>Baccharis halimifolia</i>	Groundsel bush	Regional recommended measure
<i>Harrisia</i> species	Harrisia cactus	Regional recommended measure
<i>Hieracium</i> species	Hawkweeds - Hieraciums	Prohibited matter
<i>Pilosella</i> species	Hawkweeds - Pilosellas	Prohibited Matter
<i>Gleditsia triacanthos</i>	Honey locust	Regional recommended measure
<i>Equisetum</i> species	Horsetails	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

Scientific Name	Common name	Biosecurity duty
<i>Hymenachne amplexicaulis</i> and hybrids	Hymenachne	Prohibition on certain dealings 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>Pueraria lobata</i>	Kudzu	Regional recommended measure
<i>Lagarosiphon major</i>	Lagarosiphon	Prohibited Matter
<i>Lantana camara</i>	Lantana	Prohibition on certain dealings Regional recommended measure
<i>Pereskia aculeata</i>	Leaf cactus	Regional recommended measure
<i>Ludwigia longifolia</i>	Long-leaf willow primrose	Regional recommended measure
<i>Ludwigia peruviana</i>	Ludwigia	Regional recommended measure
<i>Anredera cordifolia</i>	Madeira vine	Prohibition on certain dealings
<i>Berberis lomariifolia</i>	Mahonia	Regional recommended measure
<i>Prosopis</i> species	Mesquite	Prohibition on certain dealings
<i>Nassella tenuissima</i>	Mexican feather grass	Prohibited Matter
<i>Miconia</i> species	Miconia	Prohibited Matter
<i>Mikania micrantha</i>	Mikania vine	Prohibited Matter
<i>Mimosa pigra</i>	Mimosa	Prohibited Matter
<i>Asparagus macowanii</i>	Ming asparagus fern	Regional recommended measure
<i>Ageratina riparia</i>	Mistflower	Regional recommended measure
<i>Bryophyllum</i> species	Mother-of-millions	Regional recommended measure
<i>Pilosella officinarum</i>	Mouse-ear hawkweed	Prohibited Matter
<i>Caesalpinia decapetala</i>	Mysore thorn	Regional recommended measure
<i>Carduus nutans</i> subsp. <i>nutans</i>	Nodding thistle	Regional recommended measure
<i>Pilosella aurantiaca</i>	Orange hawkweed	Prohibited Matter
<i>Leucanthemum vulgare</i>	Oz-eye daisy	Regional recommended measure
<i>Cortaderia</i> species	Pampas grass	Regional recommended measure Exclusion zone
<i>Parkinsonia aculeata</i>	Parkinsonia	Prohibition on certain dealings Control Order
<i>Parthenium hysterophorus</i>	Parthenium weed	Prohibited Matter Prohibition on certain dealings
<i>Echium plantagineum</i>	Paterson's curse	Exclusion zone
<i>Bocconia frutescens</i>	Plume poppy	Regional recommended measure
<i>Annona glabra</i>	Pond apple	Prohibited Matter
<i>Vachellia nilotica</i>	Prickly acacia	Prohibited Matter
<i>Austrocylindropuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Cylindropuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Opuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Crotalaria beddomeana</i>	Rattlepod	Regional recommended measure
<i>Toxicodendron succedaneum</i>	Rhus tree	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 Regional recommended measure
<i>Euphorbia paralias</i>	Sea spruce	Regional recommended measure
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	Regional recommended measure
<i>Nassella trichotoma</i>	Serrated tussock	Prohibition of certain dealings

Scientific Name	Common name	Biosecurity duty
		<b>Regional recommended measure</b>
<i>Chromolaena odorata</i>	Siam weed	<b>Prohibited Matter</b>
<i>Limonium hyblaenum</i>	Sicilian sea lavender	<b>Regional recommended measure</b>
<i>Asparagus falcatus</i>	Sicklethorn	<b>Regional recommended measure</b>
<i>Solanum elaeagnifolium</i>	Silverleaf nightshade	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Opuntia monacantha</i>	Smooth tree pear	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Asparagus scandens</i>	Snakefeather	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Juncus acutus</i>	Spiny rush	<b>Regional recommended measure</b>
<i>Limnobiium spongia</i>	Spongeplant	<b>Prohibited Matter</b>
<i>Centaurea stoebe</i> subsp. <i>micranthos</i>	Spotted knapweed	<b>Prohibited Matter</b>
<i>Hypericum perforatum</i>	St John's Wort	<b>Regional recommended measure</b>
<i>Solanum sisymbriifolium</i>	Sticky nightshade	<b>Regional recommended measure</b>
<i>Heterotheca grandiflora</i>	Telegraph weed	<b>Regional recommended measure</b>
<i>Opuntia aurantiaca</i>	Tiger pear	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Ailanthus altissima</i>	Tree-of-heaven	<b>Regional recommended measure</b>
<i>Solanum viarum</i>	Tropical soda-apple	<b>Control Order</b>
<i>Opuntia tomentosa</i>	Velvety tree pear	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Trapa</i> species	Water caltrop	<b>Prohibited Matter</b>
<i>Eichhornia crassipes</i>	Water hyacinth	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Pistia stratiotes</i>	Water lettuce	<b>Regional recommended measure</b>
<i>Stratiotes aloides</i>	Water soldier	<b>Prohibited Matter</b>
<i>Heteranthera zosterifolia</i>	Water star grass	<b>Regional recommended measure</b>
<i>Opuntia robusta</i>	Wheel cactus	Prohibition on certain dealings <b>Regional recommended measure</b>
<i>Rubus niveus</i>	White blackberry	<b>Regional recommended measure</b>
<i>Salix</i> species	Willows	Prohibition on certain dealings
<i>Striga</i> species	Witchweeds	<b>Prohibited Matter</b>
<i>Tecoma stans</i>	Yellow bells	<b>Regional recommended measure</b>
<i>Limnocharis flava</i>	Yellow burrhead	<b>Prohibited Matter</b>



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