

Ecological Assessment

Emerald Estate, Plainland

The Trustee for Sunstone Homes Australia Trust

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Abbreviations and Definitions

Term	Meaning
Biome	Biome Consulting Pty Ltd
Endemic Species	Endemic species are those native to a single defined geographic location
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
Exotic Species	Refers to all species of both flora and fauna that are introduced to Australia.
Fauna	Refers to all animal species
Flora	Refers to all plant species
MEV	Matter of environmental value
MNES	Matter of national environmental value
MSES	Matter of state environmental value
MLES	Matter of local environmental value
Native species	Species of flora or fauna indigenous to Australia
NCA	<i>Nature Conservation Act 1992</i>
Planning Scheme	Laidley Shire Planning Scheme
RE	Regional Ecosystem. Defined as a vegetation community that is consistently associated with a particular combination of geology, landform, and soil.
The site	39 Pat's Road & 10 Scheiwe Road, Plainland; Lot 2 on RP192001 & Lot 1 on RP192001
Threatened species	Species listed under the NCA or EPBC Act as having a conservation status of near threatened, vulnerable, endangered, or critically endangered.
VMA	<i>Vegetation Management Act 1999</i>



Executive Summary

A residential subdivision is being proposed over two adjacent lots at 39 Pat's Road and 10 Scheiwe Road, Plainland: Lot 2 on RP192001 and Lot 1 on RP192001 respectively. This ecological assessment has been prepared to investigate the environmental constraints, determine the impacts on matters of ecological value and propose strategies to mitigate any impacts.

The development has been designed to conserve the mapped high ecological value areas via their inclusion within an environmental covenant. Areas of the highest ecological value include steeper slopes with retained canopy trees and one specimen of Ooline (*Cadellia pentastylis*), which is listed as vulnerable under the *Nature Conservation (Plants) Regulation 2020*.

The covenant covers an area of 45,831 m². Rehabilitation of this area will improve fauna linkages and movement opportunities, especially less mobile species, and re-establish pre-clearing regional ecosystems and thereby, enhance habitat values.

A Covenant Restoration Management Plan has been prepared to guide the rehabilitation and ongoing management of the covenant which will be retained in private ownership.

Any work on a waterway or drainage features must comply with the *Accepted development requirements for operational work that is constructing or raising waterway barrier works*. If waterway barrier work is not able to meet the accepted development requirements, the development must be referred to the State Assessment Referral Agency (SARA). As the on-site drainage lines are to be filled, before any works being undertaken, it is suggested that a pre-lodgement application is made to SARA to seek further advice from the Department of Agriculture and Fisheries.



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1 Introduction

A 39-lot residential subdivision (Emerald Estate) is being proposed over two adjacent lots at 39 Pat's Road and 10 Scheiwe Road, Plainland: Lot 2 on RP192001 and Lot 1 on RP192001 respectively (hereafter collectively referred to as "the site").

The site is within the Lockyer Valley local government area and the development will be assessed against the Laidley Shire Council Planning Scheme.

This Ecological Assessment has been prepared to identify the matters of environmental significance on the subject site. The report has also informed the development layout so that it does not cause unacceptable impacts on the environment.

This report includes a desktop assessment and presents the results of a field investigation. These investigations provide the baseline data to which potential impacts from the development have been evaluated.

1.1 Report Scope

The Ecological Assessment has the following scope:

- Desktop review of databases and state and federal environmental policy documents;
- Flora survey to identify:
 - plant species;
 - the presence of any conservation significant species;
 - dominant vegetation associations and their level of integrity;
 - the presence of any regional ecosystems; and
 - areas of weed infestation and disturbance.
- Map vegetation communities and locations of any significant species;
- Fauna survey to identify the presence of any conservation significant species or their habitat;
- Identification of any matters of ecological value which are impacted by the proposed development, for example, areas of significant vegetation or fauna habitat;
- An assessment of potential impacts upon any matters of ecological value;
- Provide recommendations of mitigation and management measures that may be employed to minimise the environmental impacts of the development, including rehabilitation; and
- Identification of any required specialist reports or permits.



2 Site Specifics

The following sections describe the site and current conditions.

2.1 Site Location

The subject site is two adjacent lots located in the suburb or Plainland in the Lockyer Valley Regional Council local government area. Lot 1 on RP192001 has a street address of 10 Scheiwe Road and has an area of 105,400 m². Lot 2 on RP192001 has a street address of 39 Pat's Road and has an area of 103,600 m².

Figure 2.1 shows the location of the site in the surrounding landscape.

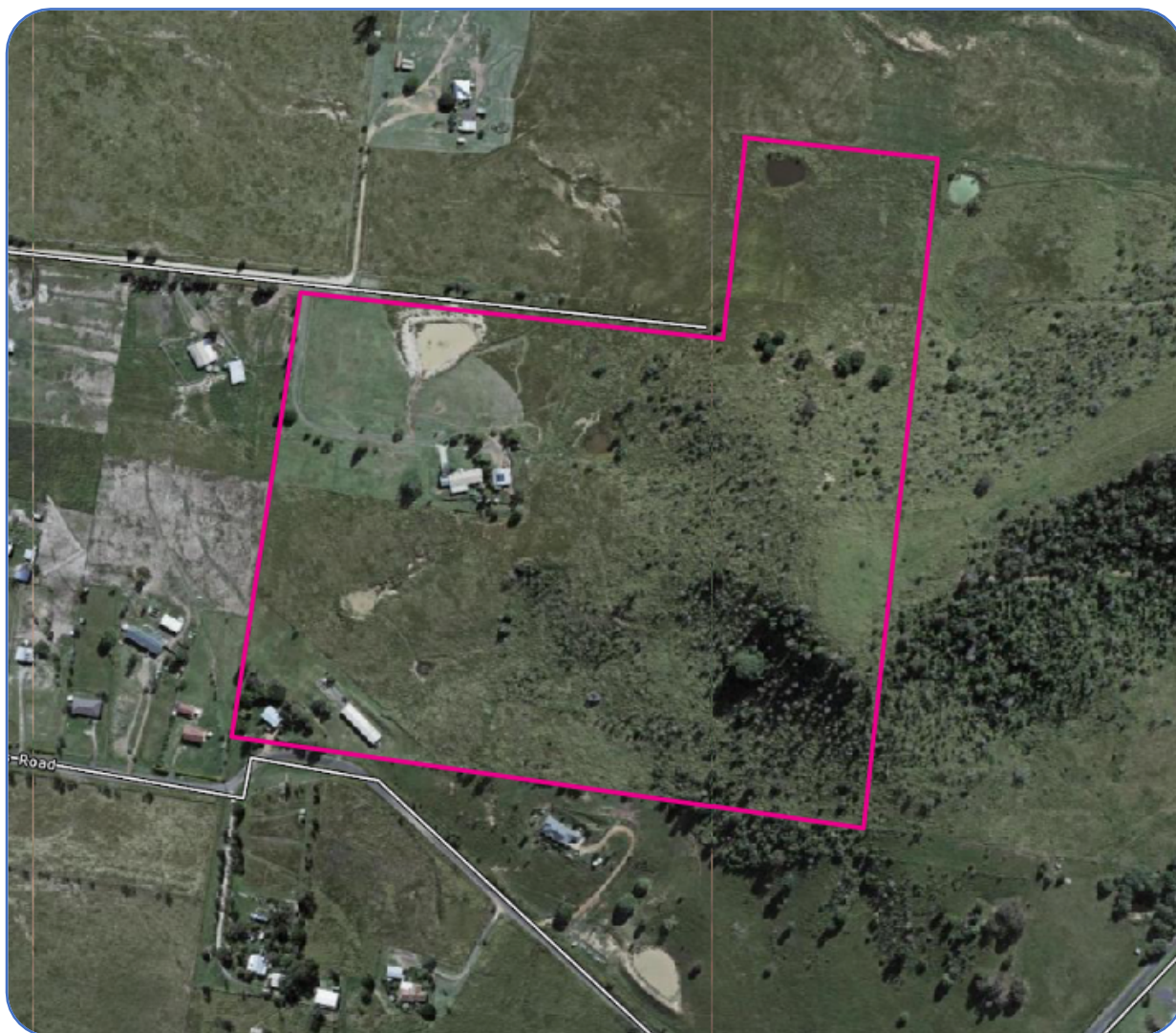


Figure 2.1 Site Location (Qld Globe, 2022)

2.2 Current and Surrounding Land Use

The site is improved by residential dwellings and associated outbuildings (e.g. sheds). Vegetation on the site is dominated by exotic ground cover species with retained native canopy trees in isolated locations.

The site is zone Rural Residential. Rural lots surround the subject site.



2.3 Topography

The western portion of the site is gently sloping, with the lowest elevation of 130 m ASL in the southwestern corner. The eastern half of the site rises steeply to the highest point of 220 m ASL on a ridge (Figure 2.2).



Figure 2.2 Topography (Qld Globe, 2022)

2.4 Soils and Geology

The Atlas of Australian Soils describes the site as ‘strongly rolling to hilly country on calcareous sediments with some steep-sided basaltic residuals.’ The general soil description is black smooth ped earths.



3 Legislative and Planning Constraints


Several acts, policies and guidelines apply to the assessment, planning and management of environmental values on the study site.

Table 3.1 provides an overview of the constraints and identifies the relevant provisions and actions to be undertaken.

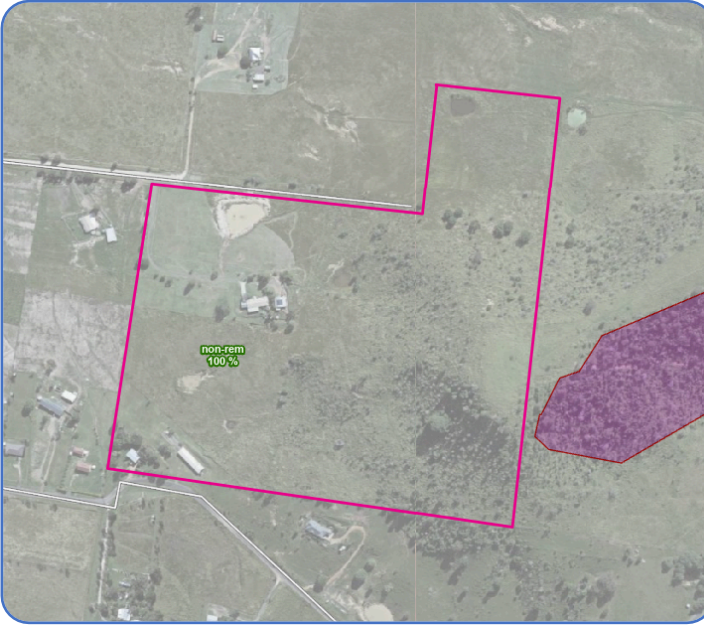
Table 3.1 Constraints Summary

Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
FEDERAL			
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	N/A	<p>Threatened species and ecological communities are defined as Matters of National Environmental Significance (MNES). Where significant impacts to MNES are likely, referral to the Australian Government Minister for Environment is required, for assessment against EPBC Act.</p> <p>Protected Matters database search identified known records within 2 km of the site of:</p> <ul style="list-style-type: none"> • One endangered species; • Three vulnerable species; and • One threatened ecological community. 	<p>Likelihood of Occurrence assessment – Refer to Section 5.</p> <p>Targeted site survey required for species with the potential to occur on the site – Refer to Section 7.</p> <p>Prepare assessment against EPBC Act if significant residual impact likely to occur.</p>
STATE			
<i>Nature Conservation (Animals) Regulation 2020</i> <i>Nature Conservation (Plants) Regulation 2020</i>	N/A	<p>The schedules of the Nature Conservation Regulations list threatened (that is critically endangered, endangered, vulnerable) or near threatened species.</p> <p>Wild Net database search identified no threatened species within 2 km of the site.</p>	No further action required.

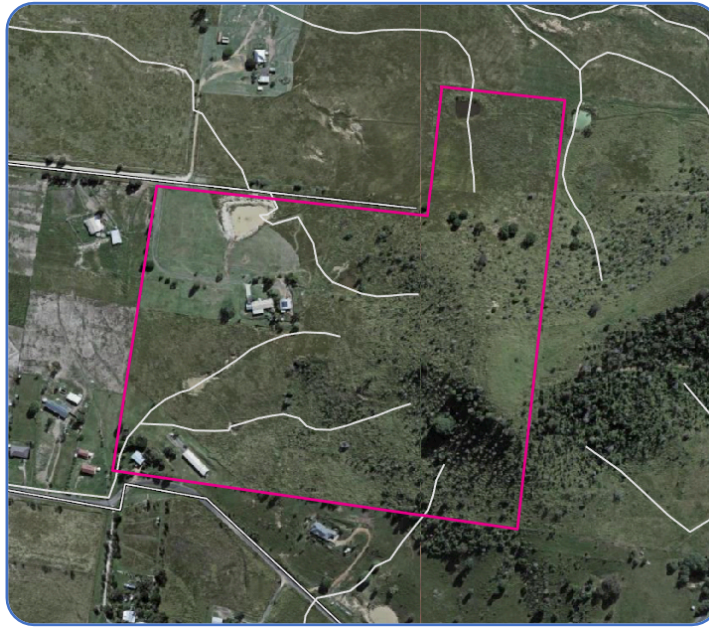


Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
<p><i>Vegetation Management Act 1999</i> (VMA)</p>	 <p>LEGEND:</p> <p> — Site boundary Category C Category X </p>	<p>The <i>Vegetation Management Act 1999</i> (VMA) regulates the clearing of remnant vegetation (Category B), high-value regrowth vegetation (Category C), and high-value vegetation near regrowth watercourses (Category R) across Queensland.</p> <p>Regulated vegetation is mapped as regional ecosystem types. The <i>Vegetation Management Regulation</i> lists the conservation status of each regional ecosystem.</p> <p>Where clearing cannot be avoided, or no exemptions apply, clearing is to comply with the Accepted Development Clearing Code or State Code 16. Offsets may be applicable.</p>	<p>No regulated vegetation is mapped over the site. No further action is required.</p>

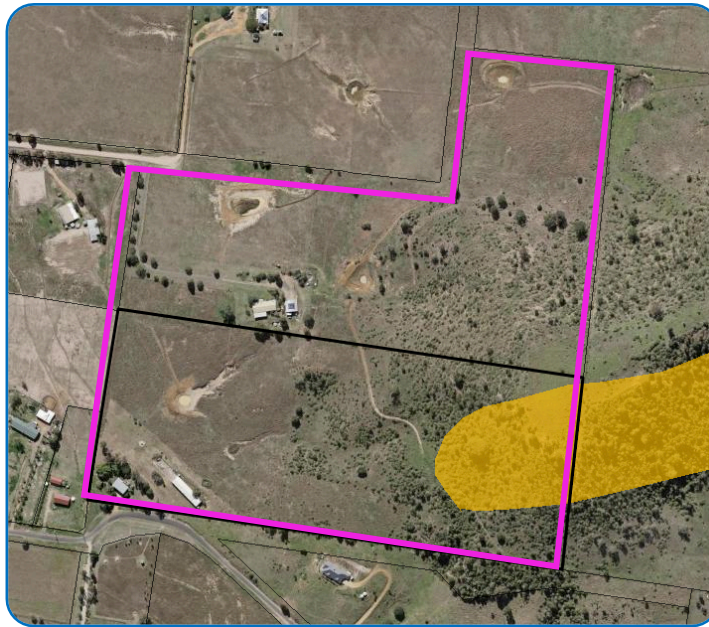


Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
	 <p>LEGEND: — Site boundary Endangered RE</p>		
<i>Biosecurity Act 2014</i>	N/A	Under the Biosecurity Act, weeds are categorised into prohibited, restricted, and other invasive plants. Action should be taken to limit the impact of invasive plants on the environment by reducing, controlling, or containing them.	Site survey to identify weed species occurring on the site – Refer to Section 6.

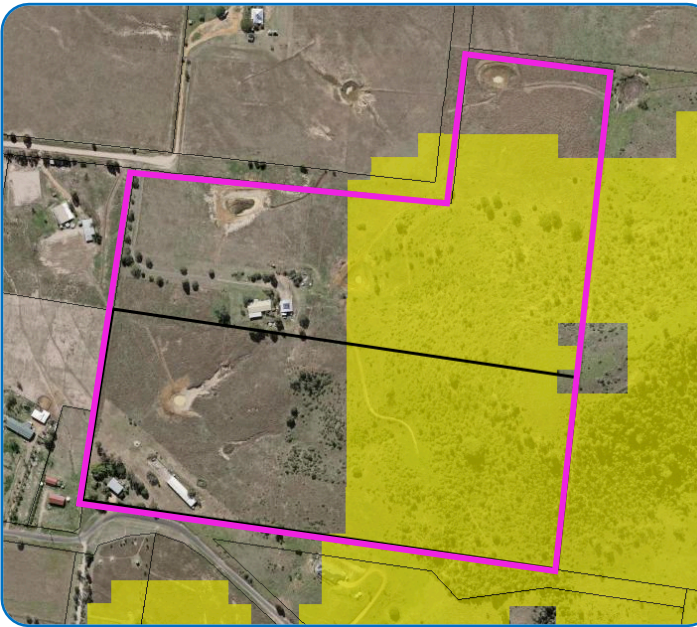


Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
<p><i>Water Act 2000</i></p>	 <p>LEGEND:</p> <p>— Site boundary — Unmapped waterway</p>	<p>The <i>Water Act 2000</i> protects vegetation within watercourses, whereby a permit is required for destroying vegetation, excavating, or placing fill in a watercourse, lake, or spring.</p> <p>Under Part 8, Division 1 of the <i>Water Act 2000</i>, a Riverine Protection Permit must be sought to place fill in a watercourse where the fill exceeds 150 cubic meters.</p>	<p>Determine if the watercourses on the site meet with the definition of a waterway under the Water Act. If so, determine if a Riverine Protection Permit is required.</p>
<p><i>Fisheries Act 1994</i></p>	<p>N/A</p>	<p>Waterway barrier works are regulated under the <i>Fisheries Act 1994</i> when barriers to fish movement, including partial barriers, are installed across waterways.</p> <p>There are allowances for self-assessment of low impact minor, temporary and regularly re-built waterway barriers. Other types of waterway barrier work are subject to the development approval process and provisions of State Code 18 must be addressed.</p> <p>Where works are proposed in a waterway, an assessment is to be made on the impacts on fish passage. This applies to</p>	<p>Determine if there will be impacts on a waterway or drainage feature. Assess impacts to fish passage and refer the application to the Department of Agriculture and Fisheries if necessary.</p>



Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
		all waterways and drainage features, not just those as mapped as having a risk for waterway barrier works.	
LAIDLEY SHIRE PLANNING SCHEME			
Biodiversity areas of ecological significance	 <p data-bbox="331 1021 448 1053">LEGEND:</p> <p data-bbox="331 1085 481 1141"> — Site boundary </p> <p data-bbox="504 1085 739 1141"> High ecological significance </p>	<p data-bbox="1048 375 1686 470">Development within areas of ecological significance is to be compatible with natural landforms and these areas are to be protected from degradation.</p> <p data-bbox="1048 478 1686 542">Vegetation within areas of high ecological significance is to be protected and ecological processes maintained.</p>	<p data-bbox="1709 375 2083 534">Ground-truth mapped areas of matters of high ecological significance and determine appropriate measures to mitigate any unavoidable impacts.</p>



Legislative Constraint	Mapping Extent	Relevant Provisions	Actions to be taken
Steep slopes	 <p>LEGEND:</p> <p>— Site boundary Slopes >15%</p>	The planning scheme requires that development does not impact land with slopes greater than 15%.	Determine if development will impact land with a slope of more than 15%.



4 Development Proposal

The concept reconfiguration of a lot plan has been prepared for the proposed development (Figure 4.1). Thirty-nine residential lots will be created over the subject site, plus an additional two lots for stormwater detention.

Building envelopes have been nominated to make use of the existing cleared areas and to avoid the steepest areas of the site.

The areas of mapped environmental significance have been incorporated into an environmental covenant to protect these areas in perpetuity.



Figure 4.1 Concept Plan of Development (Zone, 2022)



5 Database Review

To identify the threatened species and ecosystems potentially occurring on or near the site, database searches were undertaken. The results of these database searches helped inform the targeted searches for threatened species during the field assessment.

5.1 Protected Matters Database Search

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters search tool enables searches for Matters of National Environmental Significance (MNES) in a specified area. The search results are generated from recovery plan information, vegetation maps, and remote sensing imagery, which is used to model occurrences, often utilising two-kilometre grid cells. As a consequence, within the search area, species or ecological communities are ranked as: *known to occur*, *likely to occur* or *may occur*.

Results of this database search (using a 2 km radius from the centre of the site) identified four threatened species or species' habitat, *known to occur*, within the search area (Table 5.1).

In addition, the endangered ecological community; Brigalow (*Acacia harpophylla* dominant and co-dominant), is known to occur within 2 km of the site.

The full results of this database search are presented in Appendix A.

Table 5.1 Protected Matters Search Results

Scientific Name	Common Name	Status
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	V
<i>Hirundapus caudacutus</i>	White-throated Needletail	V
<i>Phascolarctos cinereus</i>	Koala	E
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V

Status: CE= critically endangered, E= endangered, V= vulnerable

5.2 Wildlife Online

The Queensland Government Wildlife Online database has been populated by survey results submitted to the Department of Environment and Science by employees of the department, consultants, and members of the public.

The database was interrogated to identify flora and fauna recorded in the local area that is listed as near threatened or threatened under the Queensland *Nature Conservation (Animal) Regulation 2020* or *Nature Conservation (Plants) Regulation 2020*. The search area was limited to a 2 km radius from a central site coordinate (Latitude: -27.5882, Longitude: 152.4177).

No threatened species have previously been recorded within the search area (Appendix B).

5.3 Likelihood of Threatened Fauna Occurrence

Table 5.3 lists the threatened fauna species obtained from the Protected Matters and Wildlife Online database searches, as discussed above, together with a likelihood of occurrence for each species.



Each species' likely occurrence was initially based on a desktop assessment, knowledge of the species' ecology and professional judgement. The evaluation of species occurrence was revisited following field investigations which determined habitat availability.

Four terms for the likelihood of occurrence are used in this report:

- Known = the species has been observed on the site.
- Potential = suitable habitat for a species occurs on the site.
- Unlikely = a very low to low probability that a species uses the site.
- No = habitat on-site and in the vicinity, is unsuitable for the species.



Table 5.2 Threatened Fauna – Assessment of Likelihood of Occurrence

Scientific Name	Common Name	Status*	Ecology	Likelihood of Occurrence
Birds				
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	V#	<p>The potential distribution of this sub-species of Squatter Pigeon extends southwards from the Burdekin-Lynd divide to south-east Queensland, south-west to Stanthorpe. It is generally found west of the Great Dividing Range (Department of Environment (DE), 2022).</p> <p>This species' habitat is generally defined as open forests to sparse, open woodlands and scrub that is mostly dominated in the overstorey by <i>Eucalyptus</i>, <i>Corymbia</i>, <i>Acacia</i> or <i>Callitris</i> species. It is usually found within 3 km of water (DE, 2022).</p>	<p>NO</p> <p>Suitable habitat for this species is not present on the subject site.</p>
<i>Hirundapus caudacutus</i>	White-throated Needletail	V, V#	<p>White-throated Needletail breeds in Asia, from central and south-eastern Siberia and Mongolia, east to the Maritime Territories of Russia, Sakhalin, and the Kuril Islands and south to northern Japan and north-eastern China (Department of Energy and Environment (DE), 2019).</p> <p>Most White-throated Needletails spend the non-breeding season in Australasia. It is widespread in eastern and south-eastern Australia, from the islands in Torres Strait and the tip of Cape York south to Tasmania (DE, 2019).</p> <p>In Australia, the White-throated Needletail is almost exclusively aerial. The species forages aerially, at heights up to 'cloud level', above a wide variety of habitats ranging from heavily treed forests to open habitats, such as farmland, heathland, or mudflats (DE, 2019).</p>	<p>NO</p> <p>This species is likely to forage above the site. However, as it is almost exclusively aerial, the site itself does not provide specific habitat.</p>
Mammals				
<i>Phascolarctos cinereus</i>	Koala	V, E#	<p>The Koala inhabits dry open sclerophyll forests and woodlands occurring on fertile soils (Van Dyck, 1995; Menkhorst and Knight, 2001; Environmental Protection Agency (EPA), 2006). Communities containing denser vegetation and larger trees are generally preferred; however, Koala can also inhabit less optimal habitats such as young forests, highly fragmented vegetation communities, and small remnants (EPA, 2006).</p> <p>Koala mainly feed on <i>Eucalyptus</i> species, along with some <i>Corymbia</i>, <i>Angophora</i>, <i>Lophostemon</i>, <i>Melaleuca</i>, and <i>Leptospermum</i> species (EPA, 2006).</p>	<p>POSSIBLE</p> <p>Isolated canopy trees have been retained on the steep areas of the site, some of which are known Koala habitat trees. The ridge has discontinuous connectivity to bushland areas where Koala were most recently been recorded in 2009 (Wildnet data, 2022).</p>



Scientific Name	Common Name	Status*	Ecology	Likelihood of Occurrence
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V#	<p>The Grey-headed Flying-fox occurs in the coastal belt from Rockhampton to Melbourne. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, <i>Melaleuca</i> swamps and <i>Banksia</i> woodlands (Eby, 1998). None of the vegetation communities used by the Grey-headed Flying-fox produces continuous foraging resources throughout the year, so the species selectively forage where food is available. As a result, patterns of occurrence and relative abundance within its distribution vary widely between seasons and between years. At a local scale, the species is generally present intermittently and irregularly (Eby & Lunney, 2002).</p> <p>The Grey-headed Flying-fox roosts in aggregations of various sizes on exposed branches. They most frequently travel around 15 km from a roost site to feed (Tidemann, 1998), although can travel up to 50 km as food resources change (Eby, 1991).</p>	<p>POSSIBLE</p> <p>Seasonal foraging habitat (flowering gums) for this species is present on the site on the steeper slopes.</p> <p>No flying-foxes camps are present.</p>

Status:

Queensland *Nature Conservation Act 1992*: E = endangered, V = vulnerable, NT = near threatened.

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: CE# = critically endangered, E# = endangered, V# = vulnerable, CD# = conservation dependent, I# = introduced species.



6 Vegetation Field Survey

A flora survey to ground truth floristic characteristics of the sites' vegetation communities was undertaken on 4 February 2022. The results of this survey are presented in the following sections.

6.1 Methodology

Flora survey methods generally followed the guidelines for the survey of regional ecosystems and vegetation communities (Neldner et al., 2017). Due to the lack of consolidated vegetation, the flora survey was undertaken by a random meander to ensure the greatest possible coverage of the site.

6.2 Endemic Flora Species

A total of 47 endemic species were recorded on the site (Table 6.1). Endemic species are those that are native to a particular region or vegetation community.

Table 6.1 Endemic Flora Recorded

Scientific Name	Common Name
<i>Acacia elata</i>	Cedar Wattle
<i>Acacia harpophylla</i>	Brigalow
<i>Acacia maidenii</i>	Maiden's Wattle
<i>Acacia pendula</i>	Weeping Myall
<i>Acacia saligna</i>	Golden Wreath Wattle
<i>Alphitonia excelsa</i>	Red Ash
<i>Alternanthera dentata</i>	Purple Knight
<i>Atriplex semibaccata</i>	Creeping Saltbush
<i>Azolla filiculoides</i>	Red Azolla
<i>Bothriochloa decipiens</i> var. <i>decipiens</i>	Pitted Bluegrass
<i>Brachychiton populneus</i>	Kurrajong
<i>Bursaria incana</i> var. <i>incana</i>	
<i>Cadellia pentastylis</i>	Broad-leaved Leopard Tree
<i>Callitris columellaris</i>	White Cypress Pine
<i>Capillipedium spicigerum</i>	Scented Top
<i>Carex fascicularis</i>	Tassel Sedge
<i>Carissa ovata</i>	Currant Bush
<i>Cassinia laevis</i>	Tall Cassinia
<i>Chloris truncata</i>	A Windmill Grass
<i>Chrysocephalum apiculatum</i>	Yellow Buttons
<i>Clerodendrum floribundum</i>	Lolly Bush
<i>Cyperus difformis</i>	Rice Sedge



Scientific Name	Common Name
<i>Cyperus exaltatus</i>	Tall Flat-Sedge
<i>Cyperus gracilis</i>	Whisker Sedge
<i>Dichanthium sericeum</i>	
<i>Diospyros fasciculosa</i>	Grey Ebony
<i>Eclipta prostrata</i>	White Eclipta
<i>Epaltes australis</i>	Epaltes
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Eustrephus latifolius</i>	Wombat Berry
<i>Ficus rubiginosa</i>	Rusty Fig
<i>Flindersia australis</i>	Crow's Ash
<i>Flindersia collina</i>	Broad-leaved Leopard Tree
<i>Geijera parviflora</i>	Wilga
<i>Ipomoea plebeia</i>	Bell Vine
<i>Juncus usitatus</i>	Common Rush
<i>Ludwigia peploides</i>	Water Primrose
<i>Mallotus claoxyloides</i>	Green Kamala
<i>Melia azedarach var. australasica</i>	White Cedar
<i>Myoporum debilis</i>	Winter Apple
<i>Parsonsia brisbanensis</i>	Brisbane Silkpod
<i>Paspalidium distans</i>	Shotgrass
<i>Persicaria attenuata</i>	Smartweed
<i>Sclerolaena spp.</i>	Prickle Bush
<i>Spirodela punctata</i>	Thin Duckweed
<i>Typha orientalis</i>	Broad-Leaf Bulrush
<i>Vittadinia pustulata</i>	Warty New Holland Daisy

6.3 Conservation Significant Flora and Ecological Communities

For this report, conservation significant flora has been defined as a species that is:

- Scheduled as critically endangered, endangered, vulnerable or conservation dependent under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); and/or
- Scheduled as critically endangered, endangered, vulnerable, or near threatened under the Queensland *Nature Conservation Act 1992* (NCA).

One species of conservation significance was identified on the site; *Cadellia pentastylis* (Ooline). This species is listed as vulnerable under both Commonwealth and state legislation.

No threatened ecological communities occur on the site.



6.3.1 Ooline

Ooline is a tree growing to 10m (rarely to 25m) with dark, hard, and scaly bark. It was once widespread in the bottle tree-dominated softwood scrubs, Brigalow and Belah communities of central and southern Queensland and north-western New South Wales. It is now restricted in distribution from near Duaringa west of Rockhampton to the NSW border in Queensland and on the western edge of the Northwest Slopes north of Gunnedah in northern New South Wales (Queensland Government, 2022).

In most areas of its range, Ooline grows on the moderately fertile soils preferred for agriculture and pasture development (Queensland Government, 2022).

Under the *Nature Conservation Act 1992*, it is illegal to destroy Ooline in Queensland and clearing of trees is prohibited by law. If it is necessary to remove this specimen, a permit is required from the Department of Environment and Science and an impact assessment will need to be prepared. Offsets will be applicable.

The location of this specimen is indicated by the white dot in Figure 6.1.



Figure 6.1 Ooline Location

6.4 Vegetation Community

One vegetation community was identified on the site:

- Vegetation Community 1 – Paddocks with isolated canopy trees.

This community is largely devoid of native woody vegetation, having had a long history of agricultural land use. Pasture grasses dominate the vegetation (Figure 6.1).



Isolated native canopy trees have been retained on the steeper slopes and sapling regrowth is evident (Figure 6.2).

Four dams are also present in this vegetation community, and these are described in greater detail in the following section.



Figure 6.2 Open paddocks



Figure 6.3 Regrowth on steeper slopes



6.5 Dams and Watercourses

Four dams are present on the site which have been used for stock watering and irrigation (refer to Figure 2.1).

While the banks of the dams are grassed, there is very little surrounding woody native vegetation. Vegetation surrounding the dams comprises aquatic and semi-aquatic species as well as pasture grasses.



Figure 6.4 Dam located in the central west



Figure 6.5 Dam located in the north-west



There were no obvious watercourses on the site, with the dams receiving inflows via shallow swales or overland flow.

6.6 Weed Incursions

In its broadest definition, a weed is a plant out of place. The state government has applied a hierarchical system of classification to invasive plants according to their estimated economic and environmental impacts. Each level of classification prescribes legal obligations designed to control the spread of declared invasive plants. Other plants that are simply exotic or non-endemic to an area may be considered less invasive or non-invasive but are nonetheless 'out of place' depending on the given context or land use purpose.

In the context of this ecological assessment, a weed is a plant that is not endemic to any given natural area or vegetation unit being assessed.

A total of 34 non-endemic species were recorded for the site. Seven of these species are listed as 'restricted invasive plants' and two are listed as 'other invasive plants' under the Queensland *Biosecurity Act 2014* (Table 6.2).

By law, all landholders have a general biosecurity obligation to take reasonable and practical steps to minimise the risks associated with invasive plants under their control. Restricted invasive plants must not be given away, sold, or released into the environment without a permit.

Table 6.2 Non-endemic Flora Species Recorded

Scientific Name	Common Name	Qld Status
<i>Acanthospermum hispidum</i>	Star Burr	
<i>Alternanthera pungens</i>	Khaki Weed	
<i>Asparagus africanus</i>	Climbing Asparagus	RIP
<i>Aster subulatus</i>	Wild Aster	
<i>Axonopus compressus</i>	Broad-Leaved Carpet Grass	
<i>Bryophyllum delagoense</i>	Mother Of Millions	RIP
<i>Chloris gayana</i>	Rhodes Grass	OIP
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Conyza bonariensis</i>	Flax-leaf Fleabane	
<i>Corymbia torelliana</i>	Cadagi	
<i>Crotalaria incana</i>	Woolly Rattlepod	
<i>Crotalaria lanceolata</i>	Lance Crotalaria	
<i>Cynodon dactylon</i>	Scutch Grass	
<i>Galinsoga parviflora</i>	Potato Weed	
<i>Gomphocarpus physocarpus</i>	Balloon Cotton Bush	
<i>Lantana camara</i>	Lantana	RIP
<i>Lantana montevidensis</i>	Creeping Lantana	RIP
<i>Lycium ferocissimum</i>	African Boxthorn	RIP
<i>Macroptilium atropurpureum</i>	Siratro	



Scientific Name	Common Name	Qld Status
<i>Macroptilium lathyroides</i>	Phasey Bean	
<i>Medicago sativa</i>	Lucerne	
<i>Megathyrsus maximus var. maximus</i>	Guinea Grass	
<i>Melinis repens</i>	Red Natal Grass	
<i>Opuntia sp.</i>	Prickly Pear	RIP
<i>Paspalum orbiculare</i>	Paspalum Grass	
<i>Salvia coccinea</i>	Red Salvia	
<i>Senecio madagascariensis</i>	Fireweed	RIP
<i>Sida cordifolia</i>	Flannel Weed	
<i>Sporobolus africanus</i>	Parramatta Grass	RIP
<i>Stylosanthes guianensis</i>	Stylo	
<i>Verbena aristogera</i>	Moss Verbena	
<i>Verbena officinalis</i>	Common Verbena	
<i>Xanthium pungens</i>	Noogoora Burr	OIP
<i>Zinnia peruviana</i>	Wild Zinnia	

Status: Species listed under the Queensland *Biosecurity Act 2014*, where:

RIP = Restricted invasive plants must not be given away, sold, or released into the environment without a permit. The Biosecurity Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants under their control. At a local level, each local government must have a biosecurity plan that covers invasive plants and animals in its area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws.

OIP = Other invasive plants are not prohibited or restricted, however, by law, everyone has a general biosecurity obligation to take reasonable and practical steps to minimise the risks associated with invasive plants under their control. Local governments must have a biosecurity plan that covers invasive plants and animals in their area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws.



7 Habitat Assessment & Fauna Survey

With consideration given to the information obtained from the desktop assessments, a habitat assessment and targeted surveys for threatened species were undertaken on 4 February 2022.

7.1 Habitat Assessment

To provide an overview of the site's habitat values, a habitat assessment was undertaken. The results are presented in Table 7.1.

Table 7.1 Habitat Assessment Summary

Habitat Feature	Present	Comments
Hollow-bearing trees, including dead stags	No	No hollow-bearing trees were identified.
Bush rock and rocky outcrops	No	
Large trees with basal cavities	No	
Logs	No	
Wetlands, streams, rivers, dams, and other water bodies – permanent or intermittent	Yes	Dams are present and are fed by overland flows and swale drains.
Nests and roosts	Yes	An active nest of a Pheasant Coucal and a thornbill (chicks present) were observed.
Sap feed trees for the Yellow-bellied Glider and Squirrel Glider	No	
Distinctive scats (e.g., those of Spotted-tailed Quoll or Koala)	No	No Koala scats were found.
Preferred koala food trees present: Tallowwood (<i>E. microcorys</i>), Forest Red Gum (<i>E. tereticornis</i>), Grey Gum (<i>E. propinqua</i> / <i>E. biturbinata</i>), Red Stringybark (<i>E. resinifera</i>)	Yes	Isolated <i>Eucalyptus tereticornis</i> were recorded on the steeper slopes.
Latrine and den sites of the Spotted-tailed Quoll	No	
She-oak species present	No	
Presence of chewed she-oak cones	No	
Flying-fox camps	No	
Microchiropteran bat subterranean roosts (caves, culverts, tunnels, and disused mine shafts)	No	
Areas that can act as corridors for fauna movement.	Potential	The site has barriers typical of rural lots such as fences and domestic animals. The steeper areas of the site, where isolated canopy trees have been retained in the highest densities, may facilitate fauna movement.
Degree of connectivity (e.g., contiguous, fragmented)	Fragmented	The site is maintained pasture with scattered canopy trees. The areas of the site where trees have been retained have discontinuous connectivity with bushland external to the site.



Habitat Feature	Present	Comments
DISTURBANCE:		
Fire	No	
Weeds Low: Absent or only occasional in their occurrence Moderate: Comprising a moderate proportion of ground storey/mid-storey vegetation High: Weeds comprise the highest proportion of vegetation or occur in dense patches	High	Exotic pasture grasses dominated the site.
Grazing	Yes	
Logging/clearing	Yes	The site has been historically cleared of native vegetation. Isolated canopy trees have been retained, most notably on the steeper slopes.
Pollution (e.g., storage of chemicals, litter, car bodies)	Minor	Machinery parts are present in some locations.
Regular slashing/mowing	Yes	The entire site is regularly slashed.

7.2 Targeted Searches for Conservation Significant Species

This section provides an overview of the specific techniques employed to search for threatened species recorded in the local area (refer to Section 5). General fauna survey methodology (e.g. visual and auditory searches) was conducted for all other threatened species not specified below.

7.2.1 Koala Survey Methodology

Searches were made for Koala scats to determine habitat utilisation of the site. Faecal pellets of Koala and their distinctive scratch marks on smooth-barked trees, are readily identifiable and allow for past as well as present habitat occupancy to be evaluated. Both scats and scratch marks persist for a reasonable period post-departure of the animal from the area (Woosnam-Merchez et al., 2012). The identification of traces of Koala allows for the presence of this species to be confirmed and involved minimal habitat disturbance.

Searches were made for scats under randomly chosen Koala habitat trees. Koala habitat trees are those from the genera that are *Angophora*, *Corymbia*, *Eucalyptus*, *Lophostemon* or *Melaleuca*.

7.2.2 Survey Limitations

The fauna survey that was undertaken provides an overview of the species present and detectable on the subject site at the time of the survey. Weather and time constraints impact the detectability of some species. Failure to detect a species during a single survey does not mean it is absent from the site. It cannot be confidently claimed a target species is absent from a site without repeated seasonal surveys.

It is recognised that the full inventory of fauna species utilising the site would not have been recorded. Although assessments of habitat and species ecology do provide an additional



measure to predict the presence of species, there are no methodologies that can be used to predict, with absolute certainty, the absence of a species from potential habitat. There may be species that utilise habitats within the region like those on-site but have not been detected due to their occasional usage of the habitat types, rarity, or cryptic nature.

Despite these limitations, the survey effort provides a level of fauna assessment that is commensurate with the requirements associated with the preparation of an ecological assessment as per the Laidley Shire Council Planning Scheme Policies.

7.2.3 Conservation Significant Fauna

An assessment of the likelihood of occurrence of conservation significant species determined from the desktop assessment was presented in Table 5.3.

Potential foraging habitat was identified for the Grey-headed Flying-fox (*Pteropus poliocephalus*) and Koala (*Phascolarctos cinereus*). However, no evidence of either species was recorded during the site investigation. The most recent records of Koala in the local area (within 5 km of the site) were from 2009 (Wildnet data, Queensland Government, 2022).

7.3 Habitat Features

While paddocks are not considered to be of high ecological value due to the lack of woody vegetation, they do provide habitat for grassland species, such as a variety of seed-eating birds (e.g. quails, pipits, finches, wrens, grassbirds), as well as snakes, skinks, and rodents.

Retained mature trees provide a foraging resource for folivores, insectivores and nectivores. *Eucalyptus tereticornis* is one of the retained canopy species on the steeply sloped land and is known as a preferred Koala feed tree.

No hollow-bearing trees were observed. It is, however, acknowledged that ground-based surveys of tree hollows often give poor estimates of hollow abundance (Koch, 2008; Rayner et al., 2011). Small hollows, hollows high off the ground and those facing upwards are more likely to be missed during ground-based surveys (Koch, 2008).



8 Impact Assessment and Mitigation Measures

Matters of ecological value (MEV) on the site have been identified through a desktop assessment and verified through a field investigation. These MEV's have been identified as:

- Steep slopes;
- Areas of high ecological significance; and
- A threatened flora species (Ooline).

The following sections discuss the impacts on those MEV listed above in greater detail and provide clarification on how these impacts are to be avoided, mitigated, or compensated within the proposed development.

8.1 Steep Slopes

As was identified in Table 3.1, slopes of greater than 15% are mapped over the site. This area has been refined (Figure 8.1). As is also shown in Figure 8.1, the proposed building envelopes have been located in the flattest areas.

The Laidley Planning Scheme requires that development does not impact or have the potential to impact the land with slopes greater than 15%. The steepest areas of the site have been incorporated into the environmental covenant.

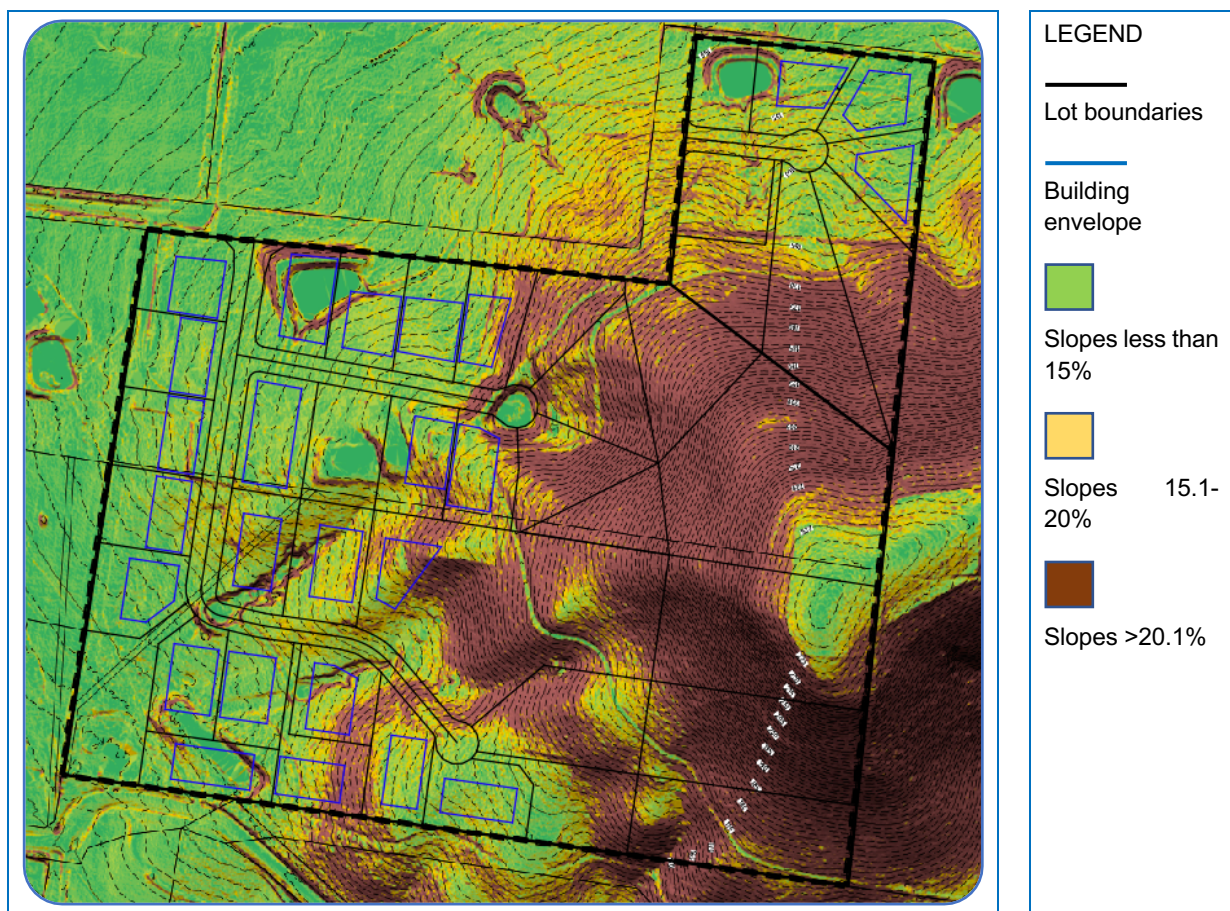


Figure 8.1 Steep slopes and development layout (Zone, 2022)



8.2 Mapped areas of high ecological significance

As identified in Table 3.1, an area of high ecological significance is mapped over a portion of the site. The mapping overlay does not identify the features that are of high ecological significance, nor does it correspond to a regional ecosystem or Koala habitat mapping.

Field investigations did not identify any features or confirmed habitat values within this area. Notably, no threatened flora species or threatened fauna habitat were recorded in the mapped area of high ecological significance.

Despite the limited ecological significance of this area, it has been retained and protected in perpetuity through the proposed environmental covenant. A Covenant Rehabilitation Management Plan has been prepared for the site (under separate cover) which details how the area is to be maintained and protected.

As is shown in Figure 8.2, there will be no impacts on the mapped area of high ecological significance.

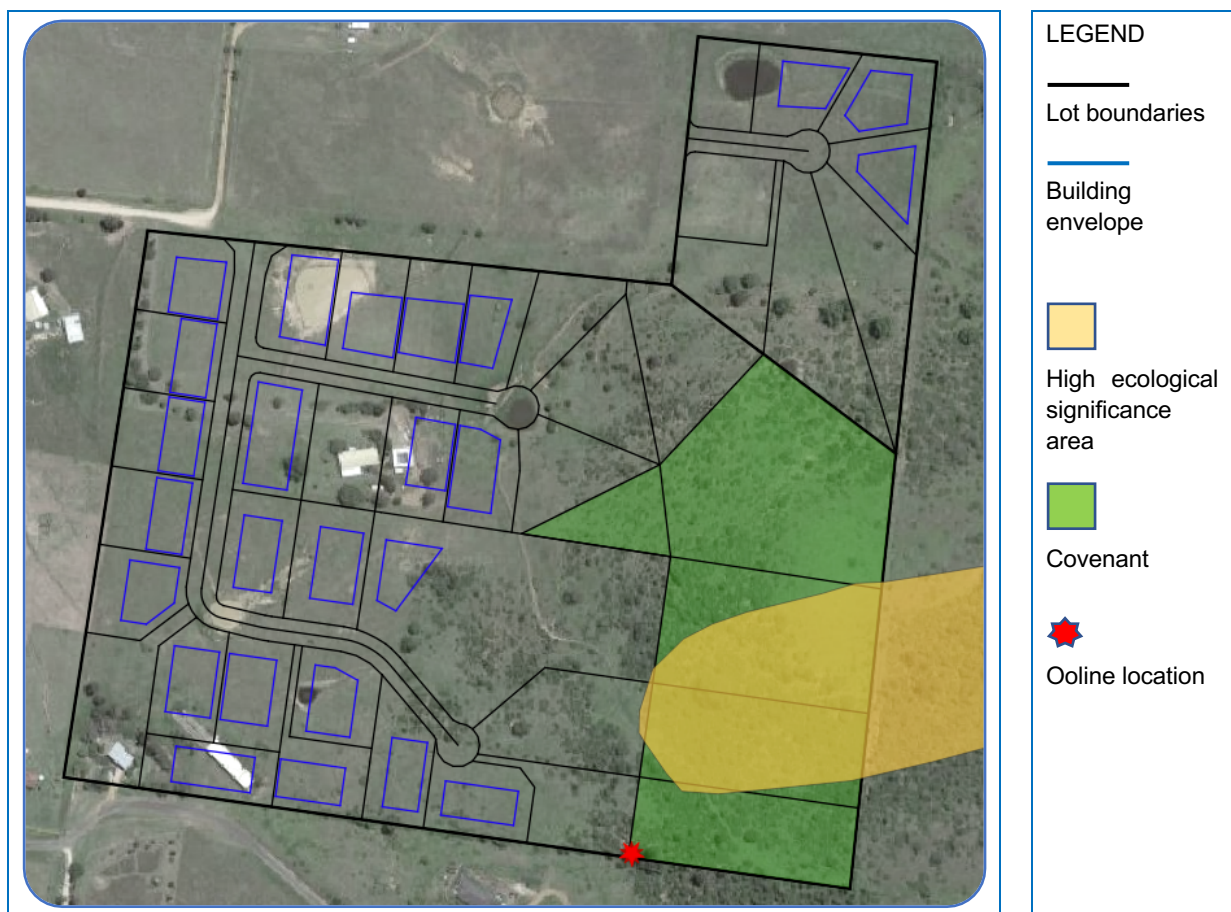


Figure 8.2 High ecological significance areas

8.3 Vegetation

The building envelopes have been located in existing cleared areas of the site. The threatened flora specimen (Ooline) has been avoided and protected within an environmental covenant (as shown in Figure 8.2).



8.4 Waterways

As illustrated in Table 3.1, waterways are shown as ‘not yet mapped’ under the *Water Act 2000*. In addition, while these waterways are not mapped as a hazard to fish passage under the *Fisheries Act 1994*, fish passage needs to be considered.

The definition of a waterway within each act differs. A summary is provided in Table 8.1.

Table 8.1 Waterway Definitions

Legislation	Definition
<p><i>Water Act 2000</i> Chapter 1, Part 2, Section 5</p>	<p>A watercourse is a river, creek, or other stream, including a stream in the form of an anabranch or a tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events—</p> <ul style="list-style-type: none"> a) in a natural channel, whether artificially modified or not; or b) in an artificial channel that has changed the course of the stream. <p>However, a watercourse does not include a drainage feature.</p> <p>Schedule 4 of the <i>Water Act 2000</i> defines a drainage feature as:</p> <ul style="list-style-type: none"> a) if a feature is identified on the watercourse identification map as a drainage feature—the feature identified on the map; or b) otherwise—a natural landscape feature, including a gully, drain, drainage depression or other erosion feature that— <ul style="list-style-type: none"> i. is formed by the concentration of, or operates to confine or concentrate, overland flow water during and immediately after rainfall events; and ii. flows for only a short duration after a rainfall event, regardless of the frequency of flow events; and iii. commonly, does not have enough continuing flow to create a riverine environment.
<p><i>Fisheries Act 1994</i></p>	<p>The definition of a waterway under the <i>Fisheries Act 1994</i> includes a river, creek, stream, watercourse, drainage feature, or inlet of the sea.</p> <p>The Fisheries Act refers to a watercourse and drainage feature as defined under the <i>Water Act 2000</i>.</p> <p>Fish passage needs to be considered in all waterways, not just those shown in the waterway barrier works mapping layer.</p> <p>The attributes that define a waterway that provides fish passage must have at least one of the following:</p> <ol style="list-style-type: none"> 1. Defined bed and banks The bed and banks need to be continuous upstream and downstream of the site. 2. An extended, if non-permanent, period of flow Flow must continue beyond the duration of a rain event and have some reliability attached to rainfall. 3. Flow adequacy The flow needs to be sufficient to sustain basic ecological processes and habitats and to maintain biodiversity within or across the feature. 4. Fish habitat at, or upstream of, the site Periodic connectivity to upstream and off-stream fish habitat.

An assessment of the waterways on the site has determined that they meet the definition of a drainage feature as they are generally shallow swales that direct water to the dams after rain. No riverine environment has been established. In this instance, a riverine environment is defined by the presence of vegetation normally associated with waterways and/or wetlands (riparian vegetation).



Riparian vegetation grows along banks of a waterway extending to the edge of the floodplain. This includes the emergent aquatic plants growing at the edge of the waterway channel and the ground cover plants, shrubs and trees within the riparian zone.

Riparian vegetation often shows zonation in the plant species present as the environment changes from permanently or seasonally aquatic habitats in the waterway channel and floodplain wetlands to frequently flooded habitats along the banks and close to the channel, to drier habitats at the edge of the floodplain.

Vegetation through the site was homogenous, with no noticeable distinction between the species growing within or adjacent to the swales to elsewhere on the site.

8.4.1 Fish Passage

Waterway barrier works may inhibit the free movement of fish along waterways which is necessary for the survival and productivity of many species of Queensland fish. The loss of access to habitat has caused a decline in the distribution of native fish populations. It is therefore essential that the development of new or raising of existing waterway barriers are designed to provide adequate fish passage.

Constructing or raising waterway barriers works on any waterway, not just those mapped as having a risk to fish passage, needs to comply with the accepted development requirements. Details of these requirements are available in the *Accepted development requirements for operational work that is constructing or raising waterway barrier works* (Department of Agriculture and Fisheries, 2018). If waterway barrier work is not able to meet the accepted development requirements, the development must be referred to the State Assessment Referral Agency (SARA).

Given the site drainage features are in the upper catchment, infilling is not likely to adversely affect fish passage upstream. The online dams also compromise downstream fish movement. Nonetheless, as the drainage features are to be filled, prior to any works being undertaken, it is suggested that a pre-lodgement application is made to SARA to seek further advice from the Department of Agriculture and Fisheries.

8.5 Construction and Operation Impacts and Mitigation

8.5.1 Construction Phase Impacts

Disturbances to ground-cover vegetation as well as the movement of vehicles and any construction machinery during the construction phase will result in an increased risk of erosion and sediment export from the site. Other potential impacts on water quality could arise from construction site litter (e.g. construction material packaging, food packaging) and pollutants (e.g. fuel and/or oil spills, cement slurry, asphalt primer). Direct impacts associated with these processes include deposition of sediment in watercourses and decreases in water quality in downstream receiving environments. Potential indirect impacts include the destabilisation of downstream aquatic ecosystems, resulting in adverse impacts to aquatic organisms, and weed invasion in areas of substrate created by sediment deposition.

8.5.2 Construction Phase Mitigation Measures

The following provides general measures that are to be undertaken to mitigate environmental impacts during the construction phase of the development:



- Designation and marking of transport routes across the site to ensure minimal vegetation disturbance;
- An Erosion and Sediment Control Management Plan should be prepared before the commencement of construction;
- Sediment fences are to be erected at the base of all batters to prevent sediment-laden stormwater from flowing into the waterways/dams;
- Progressive revegetation of filled and disturbed areas is to occur;
- Sediment fences are to be erected around any soil stockpiles;
- Regular inspections are to be undertaken soon as practicable after storm events to check and maintain controls;
- Sediment is to be removed from fences when controls are 40% full and at the completion of construction. All material is to be reused or stored on-site in a controlled manner, or taken off-site for re-use or disposal at a licensed waste disposal facility;
- Monitoring of water quality is to occur to determine the effectiveness of the sediment and erosion control measures and guide reactive management where required;
- During construction all areas of exposed soils allowing dust generation are to be suitably treated by mulching of soils and watering;
- Road accesses are to be regularly cleaned to prevent the transmission of soil on vehicle wheels and eliminate any build-up of typical road dirt and tyre dust from delivery vehicles;
- Adequate waste disposal facilities are to be provided and maintained on-site to cater for all waste materials;
- Erosion and sediment controls are to remain installed and maintained throughout the construction phase of the development;
- Vehicle servicing is to be conducted off-site in a suitable location to avoid the risk of fuel/chemical spillage; and
- Machinery used in weed-infested areas needs to be quarantined or thoroughly cleaned before use in areas of little or no weed infestation.

8.5.3 Operational Phase Impacts

The establishment of infrastructure and hardstand areas will result in increases in the extent of impervious surfaces within the site. The increase in impervious surfaces will generate additional stormwater runoff from the site during the operational phase, resulting in a concomitant increase in sediment and pollutant export.

8.5.4 Operational Phase Mitigation Measures

The following provides general measures to mitigate environmental impacts during the operational phase of the development:

- It is recommended that the runoff is minimized through the installation of water tanks to harvest rainwater. Gross pollutant traps are to be installed on stormwater drains;
- Undergrowth and ground vegetation is to be established as soon as possible after construction. In particular, surface grass cover, leaf litter and mulch are to be reinstated and maintained to minimise erosion and runoff; and
- Install and maintain appropriate sediment control devices.



9 Conclusions

This report has been prepared to address the requirements of the Laidley Shire Planning Scheme.

Despite having limited native vegetation cover and connectivity to consolidated bushland in the local area, the site is known to be used by a variety of disturbance tolerant species, common in agricultural areas.

The development layout and the positioning of the building envelopes have been designed to utilise existing cleared areas of the site and conserve areas of the site mapped as having high ecological value.

The development creates an opportunity to redress land degradation through the restoration of steep land and increasing habitat availability for wildlife. An environmental covenant is proposed over the restoration area to ensure its protection in perpetuity.

It is concluded that the proposed development generally complies with the requirements of the Laidley Shire Planning Scheme Specific Outcomes for environmental constraints.

9.1 Compliance with Specific Outcomes of the Planning Scheme

The following provides a summary of how the development complies with the specific outcomes identified in the Laidley Shire Planning Scheme.

Table 9.1 Compliance with Planning Scheme

Specific Outcome	Compliance
Steep Slopes	
Development does not impact or have the potential to impact on land with slopes greater than 15%	As is demonstrated in Section 8, the steepest areas of the site have been incorporated into the environmental covenant. Building envelopes have been nominated in the less steep areas of the site.
High Ecological Significance	
Nature conservation values of the ecologically significant native vegetation areas are maintained	There will be no impacts on any field-verified matter of ecological significance. The proposed environmental covenant protects the mapped ecologically significant area.
Significant biodiversity areas are protected through the design and management of the proposed development	The building envelopes have been located to avoid mapped high ecological significance areas. Where nominated, the building envelopes have been located on existing cleared areas of the site where elevation changes are lowest. The proposed environmental covenant protects areas of steep land and known and potential habitat for threatened species.
Flora and fauna are protected to ensure the maintenance and protection of habitat and wildlife areas or corridors	The steepest slopes have the highest density of retained native woody vegetation and are protected from development via an environmental covenant. The steep slopes have a disjunct connection with bushland areas external to the site and hence, corridors are maintained.



Specific Outcome	Compliance
Development is managed to ensure there is no increase in erosion, sedimentation, or salinity	Mitigation measures have been identified in this report to manage erosion and sediment movement during the construction and operational phases of the development.
Ecologically significant native vegetation areas are only cleared to establish a dwelling house, necessary fence, road or other built infrastructure and no suitable alternative site exists.	<p>Nominated building envelopes avoid the field-verified ecologically significant areas of the site and have been located within existing cleared areas of the site. Internal roads are also located within existing cleared areas to prevent unnecessary vegetation removal.</p> <p>The Covenant Rehabilitation Management Plan prepared for the site recommends that if fencing is required within the covenant, it is to be fauna friendly.</p> <p>The one threatened flora species recorded on the site is located in a copse of vegetation adjacent to an existing fence. It is on the edge of the proposed covenant.</p>



10 References

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Appendix A

Protected Matters Search Results



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: 25-Feb-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	36
Listed Migratory Species:	15

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

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 <http://www.environment.gov.au/heritage>

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)

[[Resource Information](#)]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	50 - 100km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

[[Resource Information](#)]

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

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

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In buffer area only
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species

[[Resource Information](#)]

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

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area

MAMMAL

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

PLANT

Scientific Name	Threatened Category	Presence Text	Buffer Status
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area	In feature area
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phebalium distans Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhaponticum australe Austral Cornflower, Native Thistle [22647]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat may occur within area	In feature area
Sarcochilus weinthalii Blotched Sarcochilus, Weinthals Sarcanth [12673]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area

REPTILE

Scientific Name	Threatened Category	Presence Text	Buffer Status
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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Migratory Marine Birds

Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
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Migratory Terrestrial Species

Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
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Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
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Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area	In feature area
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Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
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Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
--	--	---	-----------------

Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
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Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area	In feature area
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Migratory Wetlands Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Inland Rail Helidon to Calvert, Qld	2017/7883	Controlled Action	Assessment Approach	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Construction & Operation 275/330kV Transmission Line	2006/2820	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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Appendix B

Wildlife Online Search Results



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -27.5882
Longitude: 152.4177
Distance: 2
Email: nadya@biomeconsulting.com.au
Date submitted: Friday 25 Feb 2022 14:57:33
Date extracted: Friday 25 Feb 2022 15:00:03

There were no records retrieved for your selection

Disclaimer

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Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (<https://www.qld.gov.au/environment/plants-animals/species-information/wildnet>) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.