Natural Area
CONSULTING MANAGEMENT SERVICES

City of Rockingham

Kulija Road and Baldivis Road

Intersection Upgrade

Reconnaissance Survey 2026

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Quality management system registered to ISO 9001:2015
Occupational health and safety management system registered to ISO 45001:2018

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V1	July 2026	Minor Amendments	LE	ZS	Released
V2	July 2026	Minor Amendments	LE	ZS	Released

Executive Summary

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Rockingham to undertake a reconnaissance flora survey, basic fauna survey and black cockatoo assessment. The survey area covers the proposed area for future widening works at the Kulija Road and Baldivis Road intersection. The environmental survey will support the identification of environmental values, inform future detailed survey requirements, and assist in preparing environmental approval documentation associated with the proposed road construction works.

The environmental assessment across the survey area determined:

- A total of 65 flora species (taxa) were recorded from 27 families during the field survey, comprising of 27 (42 %) introduced (weeds), 36 (55 %) native species and 2 (3 %) dubious species.
- No threatened or priority flora was recorded within the survey boundary.
- Two declared pests were identified within the survey site: **Gomphocarpus fruticosus* (Narrowleaf Cottonbush) and **Solanum linnaeanum.*
- Four vegetation types were recorded within the survey area, including:
    - *Acacia rostellifera* and *Melaleuca huegelii* Shrubland.
    - *Eucalyptus* spp. Woodland.
    - Mixed Introduced Grassland.
    - *Typha orientalis* Closed Rushland.
- No threatened or priority ecological communities were observed within the survey boundary.
- A total of 16 fauna species from 15 families were observed on site.
- Two introduced species were recorded, **Vulpes vulpes* (Red Fox: Declared Pest) and **Gallus gallus domesticus* (Chicken).
- One conservation significant species, *Isoodon fusciventer* (Quenda, P4) was observed on site.
- Two potential black cockatoo habitat trees were recorded on site, however, contain no potentially suitable breeding hollows.
- A foraging quality score of six for Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*), Carnaby's Cockatoo (*Zanda latirostris*) and Baudin's Cockatoo (*Zanda baudinii*).

Recommendations for the development of Kulija Road and Baldivis Road intersection include the following:

- The retention of mature trees should be prioritised as they provide critical natural habitat for black cockatoos.
- The removal of declared pests on site prior to any construction works is recommended to minimise harmful impacts, reduce numbers, and prevent further spread.
- Development of a construction environmental management plan to ensure appropriate weed, soil and land management are implemented during any clearing works.
- The development footprint should be minimised to reduce clearing of vegetation and, where practicable, confined to existing cleared or degraded areas.
- Revegetate the area using site specific native species following development however, black cockatoo foraging species should not be planted within 10 m of the road due to the associated risk of attracting black cockatoos into a hazardous environment.
- Further information regarding the presence of acid sulfate soils and mitigation requirements may be required.

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1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Rockingham to undertake a reconnaissance flora survey, basic fauna survey and black cockatoo assessment. The survey area covers the proposed area for future widening works at the Kulija Road and Baldivis Road intersection. The environmental survey will support the identification of environmental values, inform future detailed survey requirements, and assist in preparing environmental approval documentation associated with the proposed road construction works.

1.1 Location

The survey area extends over 4.6 ha and is situated at the intersection of Kulija Road and Baldivis Road. The site is located approximately 38 km south of the Perth Central Business District within the suburb of Baldivis in the City of Rockingham (Figure 1). The survey area does not occur within an Environmentally Sensitive Area (Department of Water and Environmental Regulation (DWER), 2021).

1.2 Scope

The scope of works included:

- Desktop assessment of available data (including NatureMap, Department of Biodiversity, Conservation and Attractions (DBCA), and Protected Matters Search Tool (PMST) databases) to identify potential conservation significant flora and fauna species, and threatened or priority ecological communities (DBCA, 2026a, 2026b, 2026c, 2026d; Department of Climate Change, Energy, the Environment, and Water (DCCEEW), 2026b).
- Undertake a reconnaissance flora and vegetation survey in accordance with the methodology outlined in *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority (EPA), 2016).
- Basic fauna survey recording direct and indirect evidence of fauna species and habitat as outlined in the *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020).
- Identification of potential foraging, roosting, and breeding habitat for Black Cockatoo species, as described by the (Department of Agriculture, Water and the Environment, (DAWE, 2022). *Referral guideline for three WA threatened black cockatoo species*.

1.3 Legislative Context

State and Federal environment-related laws impact how environmental values are governed in Western Australia. The following legislation and policies are relevant to this report.

1.3.1 Relevant Legislation

***Aboriginal Heritage Act 1972* (WA)**

The Aboriginal Heritage Act 1972 (WA) makes provision for the recognition, protection, conservation, and preservation of Aboriginal heritage in Western Australia.

***Biodiversity Conservation Act 2016* (WA)**

The *Biodiversity Conservation Act 2016* (WA) (BC Act) aims to protect and conserve biodiversity as well as to promote the ecologically sustainable use of biodiversity components in the State. The BC Act provides the statute relating to conservation and legal protection of flora, fauna, and ecological communities. The BC Act follows the principles of ecologically sustainable development, detailing that decision-making processes should effectively integrate long-term and short-term economic, environmental, social, and equity considerations.

***Environmental Protection Act 1986* (WA)**

The *Environmental Protection Act 1986* (WA) (EP Act) provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement, and management of the environment connected with the foregoing. The Environmental Protection Authority (EPA) is established under this act and provides a structured policy framework that is consistent with the EP A*ct*. The EPA produces the guidelines and procedures associated with conducting environmental assessments in line with the EP Act.

***Environment Protection and Biodiversity Conservation Act 1999* (Cth)**

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) serves to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. The primary objective of the EPBC Act is to promote the conservation of biodiversity and the sustainable use of natural resources while allowing for ecologically sustainable development. The EPBC Act allows for the creation of conservation agreements between the Australian government and individuals, communities, or organisations to support the conservation of biodiversity.

***Heritage Act 2018* (WA)**

The *Heritage Act 2018* (WA) recognises the importance of and promotes understanding and appreciation of Western Australia's cultural heritage; and provides for the identification and documentation of places of cultural heritage significance and for the conservation, use, development and adaptation of such places.

***Soil and Land Conservation Act 1945* (WA)**

The *Soil and Land Conservation Act 1945* (WA) serves to conserve soil and land resources, and to mitigate the impacts of erosion, salinity, and flooding. This Act outlines the mitigation and prevention of land degradation, promoting soil conservation and land management and the administration of Land Conservation District Committees (LCDC). The Commissioner of Soil and Land Conservation appoint members under the Act.

1.3.2 Relevant Planning and Policy

Australia's Biodiversity Conservation Strategy 2010-2030

Australia's Biodiversity Conservation Strategy 2010-2030 aims to protect biological diversity and maintain ecological processes and systems (Natural Resource Management Ministerial Council, 2010).

Australian Pest Animal Strategy

The Australian Pest Animal Strategy (Invasive Plants and Animals Committee, 2016a) provides national guidance on best practice vertebrate pest animal management in striving towards the national vision of

protecting Australia's economy, environment and social wellbeing from the impact of pest animals it reaffirms agrees national pest management principles and sets national goals and priorities that will improve Australia's overall ability to prevent and respond to new pest animal incursions and manage the negative impact of established pest animals.

Australian Weeds Strategy 2017-2027

The Australian Weeds Strategy 2017-2027 provides a strategic framework for managing weeds at a national level (Invasive Plants and Animals Committee, 2016b). As part of the implementation of the National Weeds Strategy, 32 Weeds of National Significance are identified as nationally agreed priority plant species for control and management based on the criteria of invasiveness and impact characteristics, potential and current area of spread and economic, environmental, and social impacts.

Threatened Species Action Plan 2022-2032

The Threatened Species Action Plan 2022-2032 outlines the Federal Government's approach to protect, manage and restore Australia's threatened species and important natural places (DCCEEW, 2022).

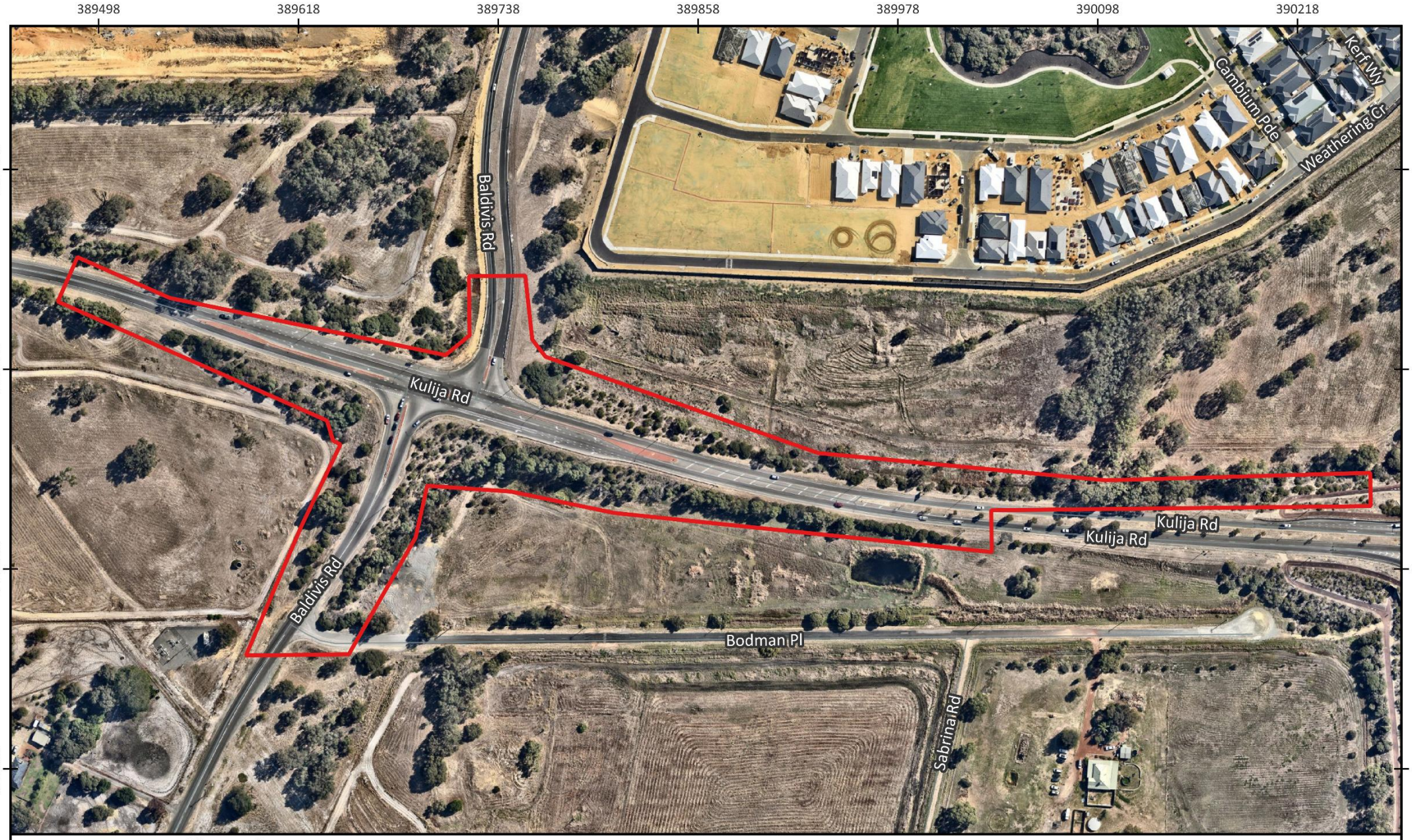


Figure 1:
Site Location

Baldivis, Western Australia

Legend
Survey Area

Client:	City of Rockingham
Date:	02/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

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2.0 Site Characteristics

2.1 Regional Context

The survey site is located within the Swan Coastal Plain (SWA02) Interim Biogeographic Regionalisation of Australia (IBRA) subregion (DCCEEW, 2026a). This region is characterised by woodlands on low lying coastal plains. Soils are generally comprised of sands, with formation through colluvial or aeolian actions. Where heath and/or Tuart woodlands are recorded on limestone, Banksia and Jarrah woodland on quaternary marine dunes, and Marri woodlands on colluvial and alluvial sand (Mitchell *et al*., 2002).

2.2 Climate

The survey site is within the Mediterranean climatic zone, which is characterised by dry, hot summers and cool, wet winters. According to the Bureau of Meteorology (BoM, 2026), Garden Island HSF, site number 009256, the long-term average climate conditions for the region are:

- Average rainfall of 619.7 mm per annum, with the majority of rainfall between June and July (2001 - 2026).
- Average maximum temperature range of 17.9 °C in winter to 28.4 °C in summer (2001 - 2026).
- Average minimum temperature ranging from 11.3 °C in winter to 19.4°C in summer (2001 - 2026).

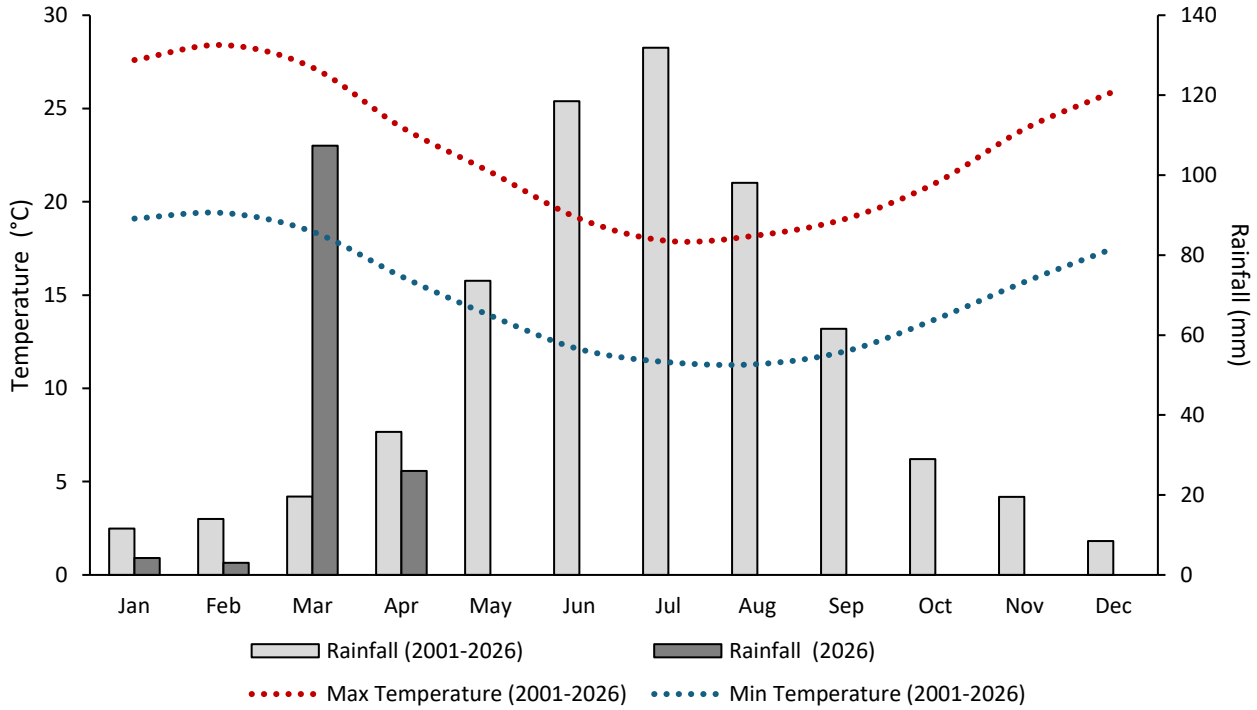


Figure 2: Temperature and rainfall data for the Garden Island HSF, site number 009256. Source: BoM, 2026.

2.3 Topography and Soils

A total of four soil types were identified within the survey site, being the Pinjarra P4 Phase, Spearwood S1b Phase, Spearwood S2a Phase, and the Spearwood S4a Phase (Department of Primary Industries and Regional Development (DPIRD), 2022) (Table 1 and Figure 3). The site ranges from 4 m Australian Height Datum (AHD) in the eastern half of the survey site and gently rises to 18 m AHD in the western end of the survey area (DPIRD, 2019).

Table 1: Soil types within the survey site

Name	Symbol	Description
Pinjarra P4 Phase	213Pj__P4	Poorly drained flats, sometimes with gilgai microrelief and with moderately deep to deep black, olive grey and some yellowish-brown cracking clays and less commonly non-cracking friable clays with generally acidic subsoils
Spearwood S1b Phase	211Sp__S1b	Dune ridges with deep siliceous yellow-brown sands or pale sands with yellow-brown subsoil and slopes up to 15%
Spearwood S2a Phase	211Sp__S2a	Lower slopes of dune ridge are moderately deep to deep with siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrops.
Spearwood S4a Phase	211Sp__S4a	Flat to gently undulating sandplain with deep, pale and sometimes bleached, sands with yellow-brown subsoils

2.4 Vegetation Complex

Two vegetation complexes exist within the survey site boundary: the Karrakatta Complex-Central and South and the Serpentine River Complex (DBCA, 2018a). Vegetation descriptions and the percentage remaining of each vegetation complex in both the Swan Coastal Plain IBRA region and the City of Rockingham local government areas have been provided in Table 2 and presented in Figure 4.

Table 2: Vegetation complexes within the survey site

Name	Description[1]	Extent Remaining (%)[2]	
		IBRA	LGA
Karrakatta Complex-Central and South	Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - Corymbia calophylla (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - *Banksia* species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River.	22.50	25.79
Serpentine River Complex	Closed scrub of *Melaleuca* species and fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca rhaphiophylla* (Swamp Paperbark) along streams.	8.98	9.44

Source: [1]Heddle *et al.*, 1980, [2]Government of Western Australia, 2025.

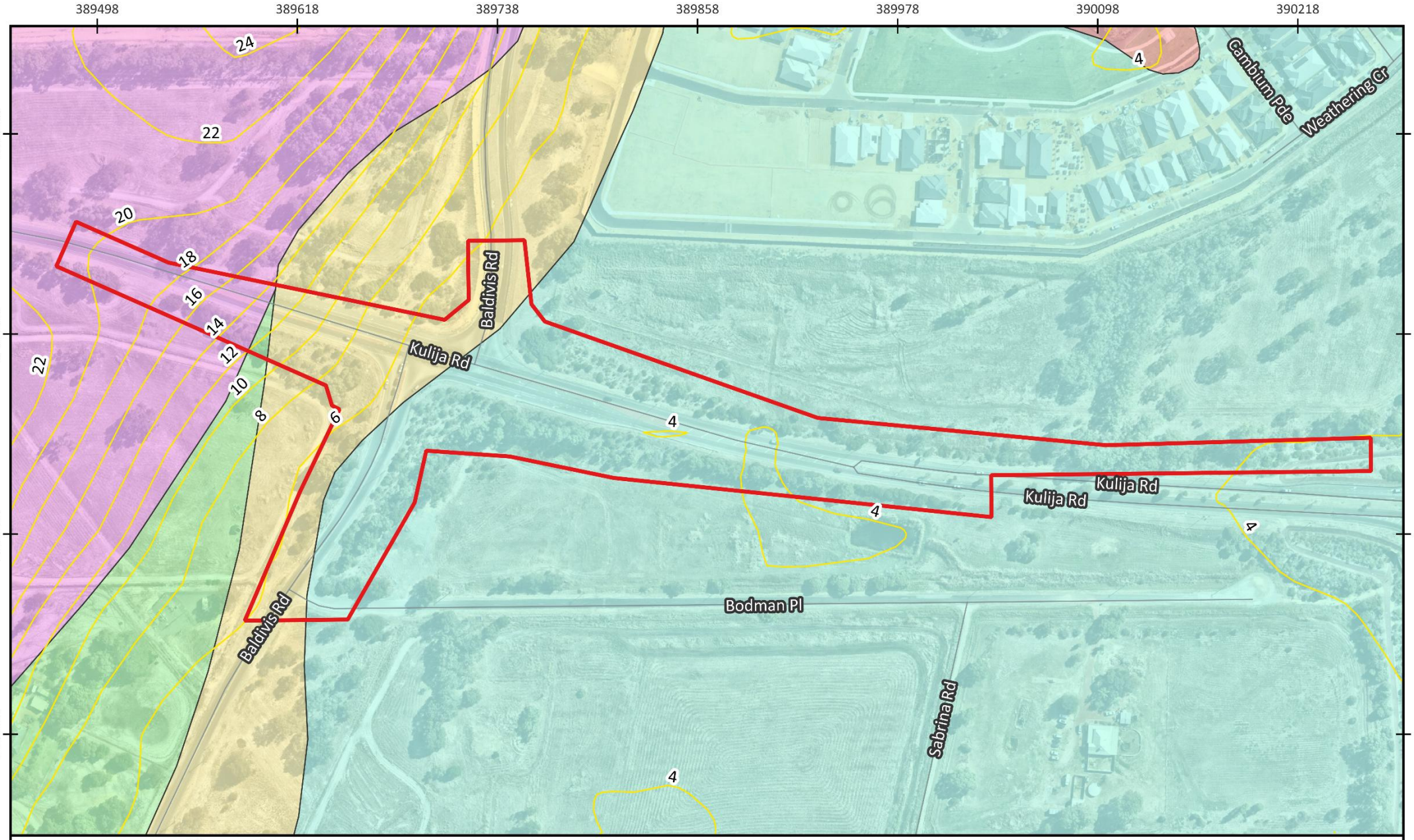


Figure 3:
Soils and Topography

Baldivis, Western Australia

Legend

- Pinjarra P4 phase
- Pinjarra P7 phase
- Spearwood S1b phase
- Spearwood S2a phase
- Spearwood S4a phase
- Survey Area

Client:	City of Rockingham
Date:	25/05/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

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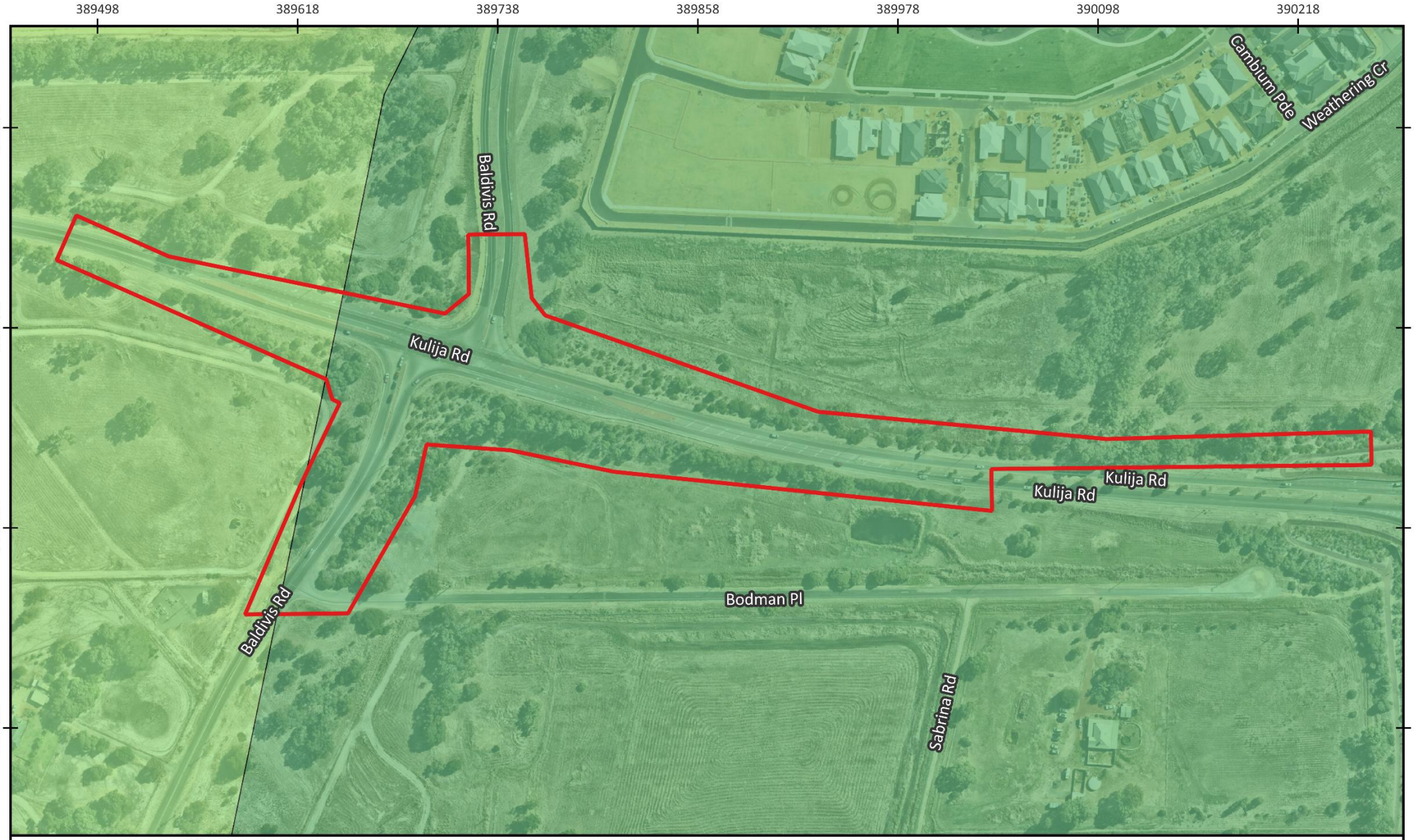


Figure 4:
Vegetation Complex

Baldivis, Western Australia

Legend

- Karrakatta Complex-Central and South
- Serpentine River Complex
- Survey Area

Client:	City of Rockingham
Date:	25/05/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

N

0 50 100 m

2.5 Contaminated Sites

No contaminated sites are recorded within the survey site or the desktop study area (DWER, 2025).

2.6 Hydrology

The survey site contains one geomorphic wetland within the eastern half, encompassing 2.49 ha (53.66 %) of the site (DBCA, 2025a). The geomorphic wetland is a palusplain multiple-use category wetland (UFI:16021). This wetland is classified as an aquatic groundwater dependent ecosystem (Department of Environment and Conservation (DEC) 2012). The location of the geomorphic wetland and aquatic groundwater dependent ecosystems are shown in Figure 5, and definitions of conservation categories are outlined in Table 3 below.

Table 3: Management characteristics and description of geomorphic wetlands of the Swan Coastal Plain

Management category	General description	Management objectives
Conservation	Wetlands which support a high level of attributes and functions	**Highest priority wetlands.** To preserve and protect the existing conservation values of the wetlands through various mechanisms, including: ▪ reservation in national parks, Crown reserves and State-owned land ▪ protection under Environmental Protection Policies ▪ wetland covenanting by landowners No development or clearing is considered appropriate. These are the most valuable wetlands, and any activity that may lead to further loss or degradation is inappropriate.
Resource Enhancement	Wetlands, which may have been partially modified but still support substantial ecological attributes and functions	**Priority wetlands** The ultimate objective is to manage, restore and protect towards improving their conservation value. These wetlands have the potential to be restored to the conservation category. This can be achieved by restoring wetland function, structure and biodiversity. Protection is recommended through a number of mechanisms.
Multiple Use	Wetlands with few remaining important attributes and functions	Use, development, and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare.

Source: DBCA, 2026.

2.7 Heritage Values

The site is within the Gnaala Karla Booja Indigenous Land Use Agreement area (Landgate, 2025). There are two current records of Aboriginal heritage within the survey site: Artefacts and Scatter, ID: ACH-00004348 and ID: ACH-00004349. (DPLH, 2025). There are no current records of European heritage within the survey area. Locations of Aboriginal heritage records within the survey site are shown in Figure 6.

A due diligence assessment for the project is required, and it is recommended to consult with the relevant knowledge holders and appropriate Aboriginal heritage officers to ensure all relevant procedures are put in place and whether the project activity warrants a section 18 notice under the Aboriginal Heritage Act 1972.

2.8 Ecological Linkages and Remnant Vegetation

The survey site does not fall within the Perth Regional Ecological Linkage Network (Western Australian Local Government Association (WALGA), 2004). However, it is less than 6 m from Link 74 (Figure 7), which includes connecting vegetation to the Bush Forever site 349, approximately 1.2km north of the survey site and Bush Forever Site 356, approximately 2.6 km south of the survey site. No remnant vegetation is present within the survey site; however small patches of remnant vegetation occur approximately 130 m south of the survey site (DPIRD, 2023).

2.9 Dieback

No records of dieback were located within the survey site boundary (DBCA, 2023).

2.10 Acid Sulfate Soils

The survey area is recorded as having a moderate to low risk of acid sulfate soils in the eastern portion of the survey area (DWER, 2017). The extent of the survey area recorded as having a moderate to low risk of acid sulfate soils is shown in Figure 8.

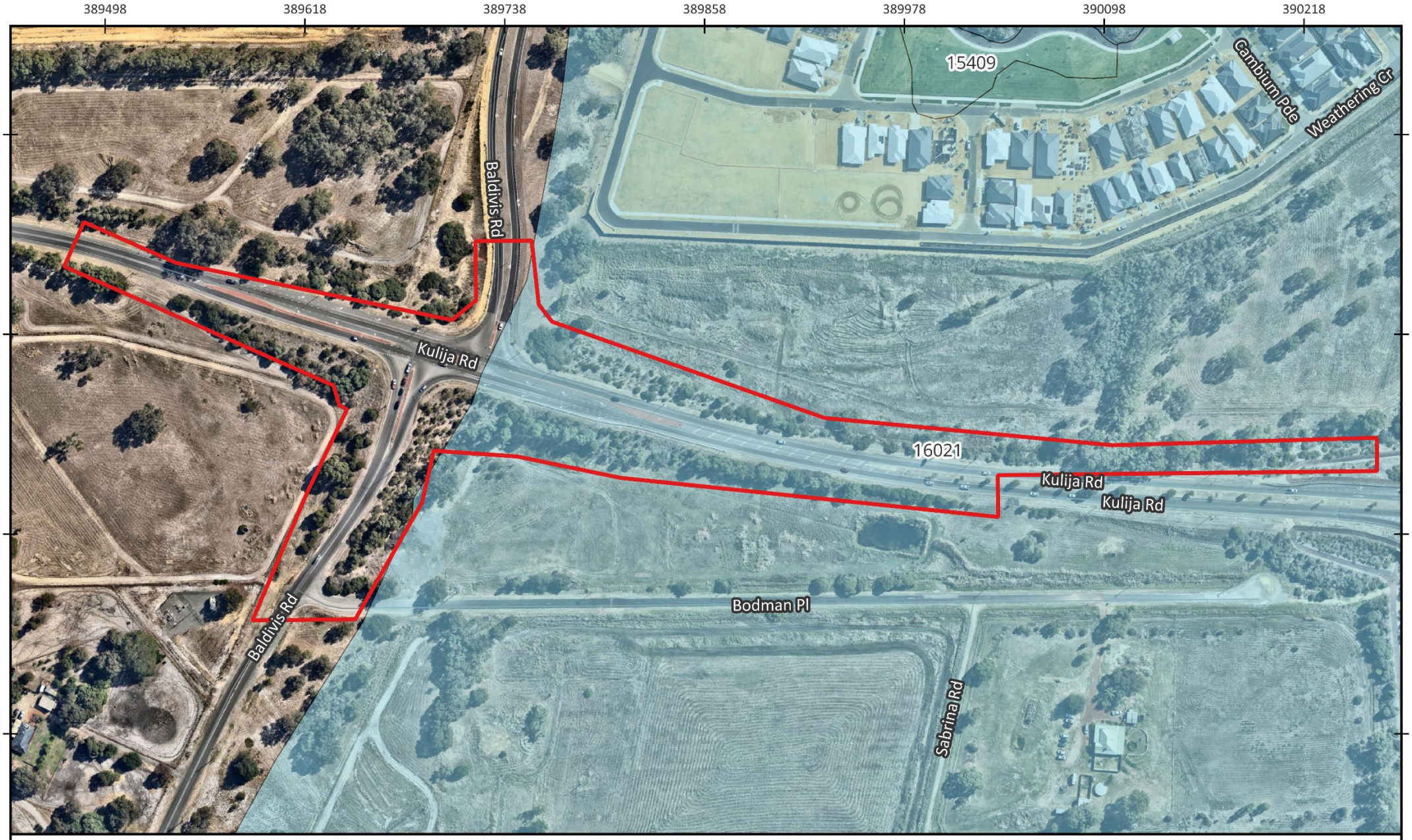


Figure 5:
Geomorphic Wetlands

Baldivis, Western Australia

Legend
- Multiple Use
- Survey Area

Client:	City of Rockingham
Date:	25/05/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

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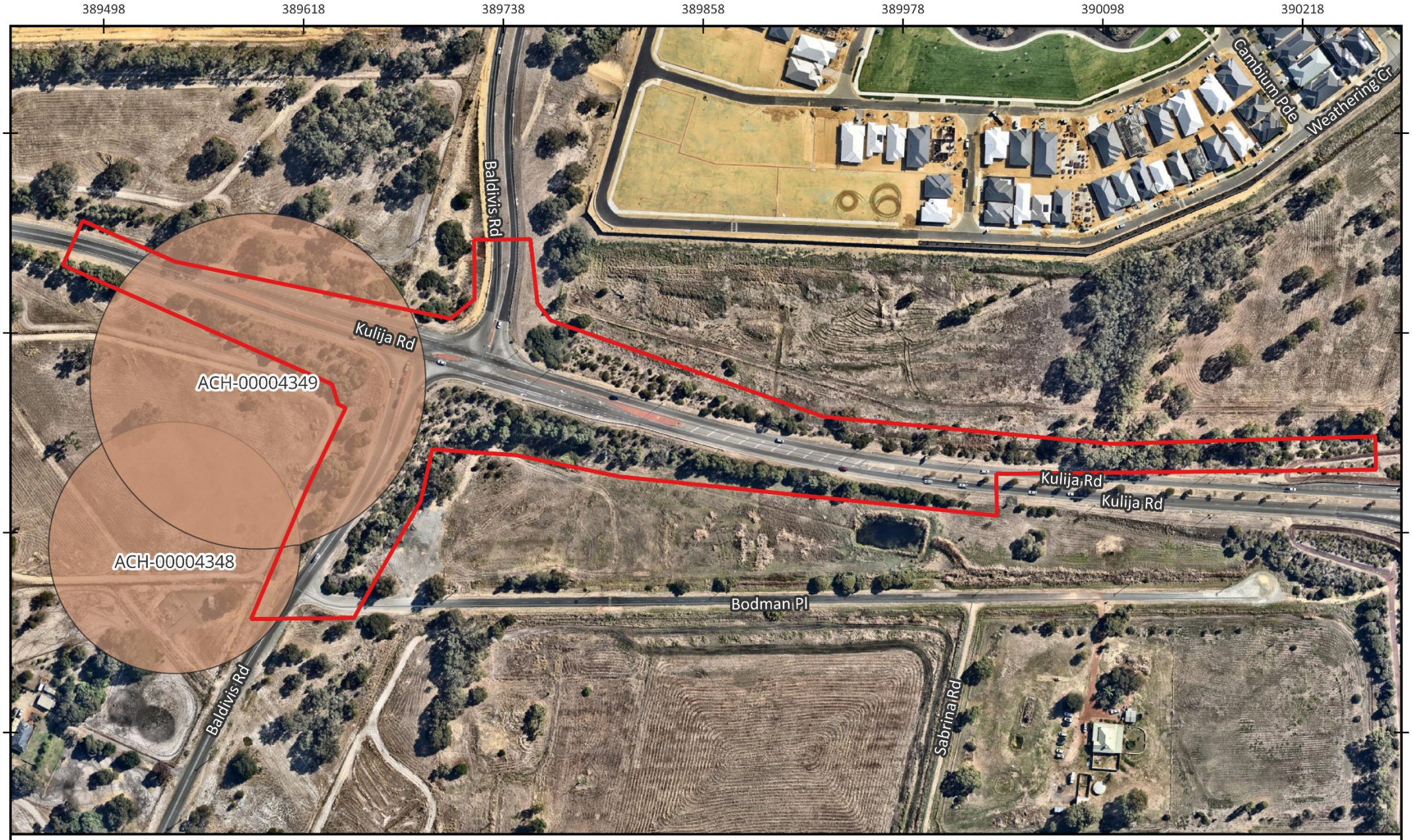


Figure 6:
Hertiage Values

Baldivis, Western Australia

Legend

- Aboriginal Cultural Heritage - Historic
- Survey Area

Client:	City of Rockingham
Date:	25/05/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

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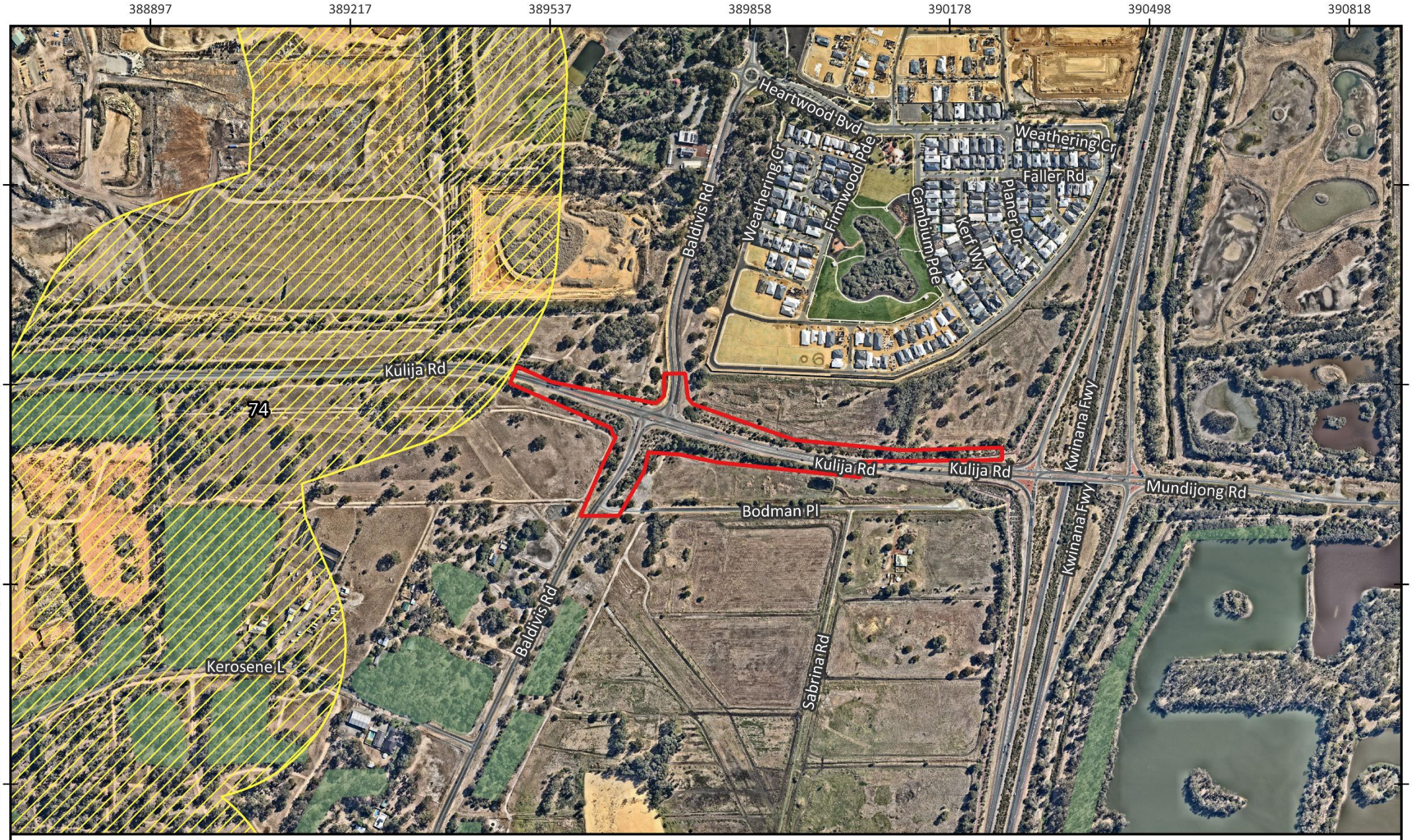


Figure 7:

Ecological Linkages and Native Vegetation Extent

Baldivis, Western Australia

Legend

- Regional Ecological Linkage
- Native Vegetation Extent
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 8000

0 50 100 m

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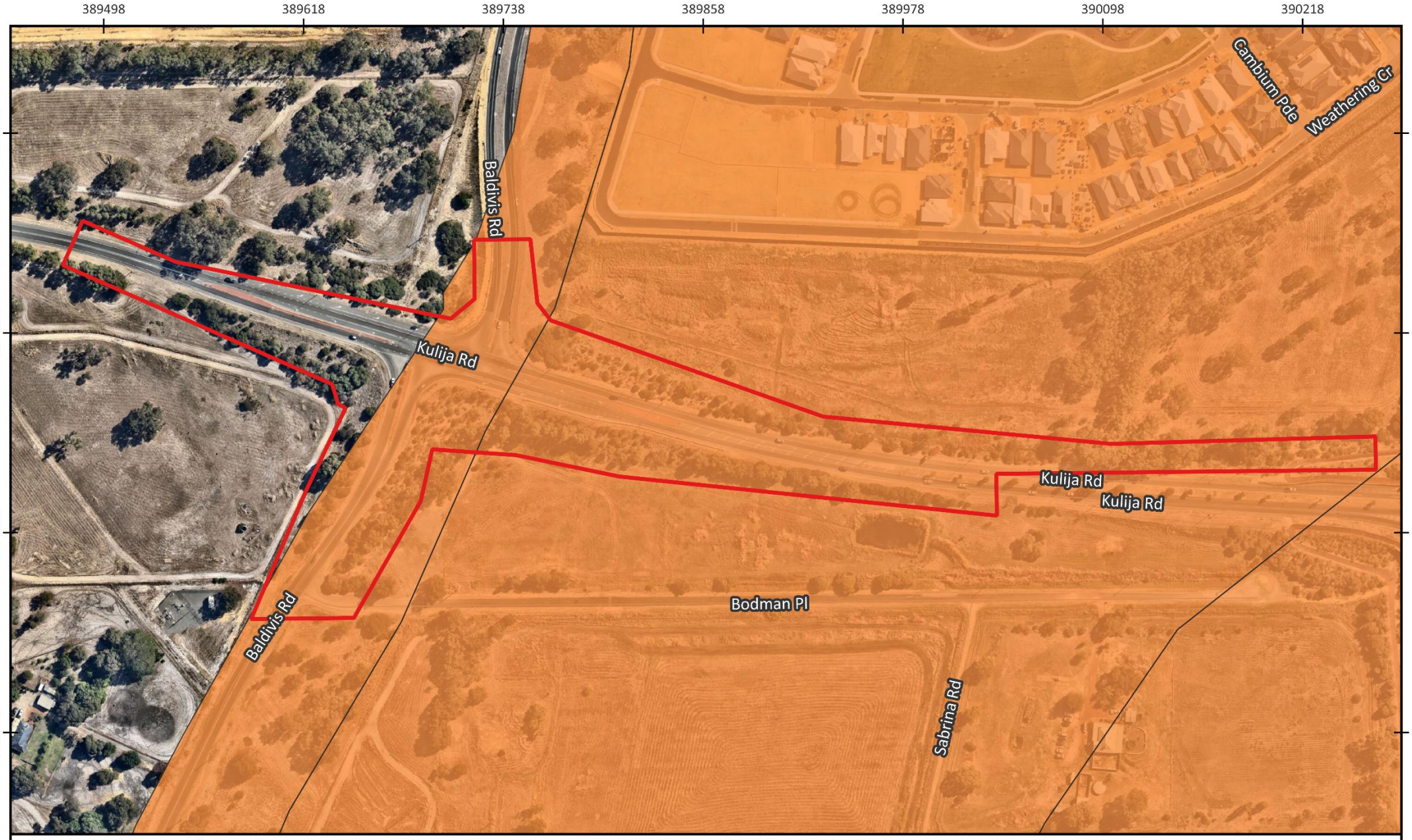


Figure 8:
Acid Sulphate Soils

Baldivis, Western Australia

Legend

- Moderate to low risk
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

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3.0 Methodology

3.1 Desktop and Literature Review

The desktop survey included reviewing online databases to gather contextual knowledge and determine preliminary site characteristics, including:

- likely native and non-native flora and fauna species present
- current extent of native vegetation
- general floristic community types
- likely presence of threatened or priority flora and fauna species
- likely presence of any threatened or priority ecological communities.

The following databases were accessed to obtain relevant information:

- NatureMap (DBCA, 2026a)
- Protected Matters Search Tool (DCCEEW, 2026b) (Appendix 1)
- FloraBase (WA Herbarium, 1998-)
- Threatened and priority flora database search (DBCA, 2026b)
- Threatened and priority ecological community database search (DBCA, 2026c)
- Threatened and priority fauna database search (DBCA, 2026d)

Conservation code definitions for the State and Commonwealth are provided in Appendix 2 and declared pest legal status and control categories are provided in Appendix 3. Information relating to conservation significant species from database searches were summarised into field reference guides to aid with on-ground flora and fauna surveys, which is provided in Appendix 4.

3.2 Reconnaissance Flora Survey

The flora and vegetation survey was conducted in accordance with *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority (EPA), 2016). Samples were collected, or photographs taken of unfamiliar species to enable later identification.

Natural Area environmental scientists undertook the survey on March 10, 2026 with key data recorded using QField software on a handheld tablet. Survey activities included:

- Traversing the entirety of the site and recording all species present, including native and invasive species.
- Marking locations of any conservation significant flora, declared pests and/or Weeds of National Significance (WoNS) identified.
- Recording vegetation type, including dominant over, middle and understorey species to describe vegetation type in line with the National Vegetation Information System (NVIS) Level V - Association (Executive Steering Committee for Australian Vegetation Information (ESCAVI), 2003). This includes the dominant growth form, height, cover and three dominant species for each stratum.
- Assessment of vegetation condition using the scale attributed to Keighery in *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (Table 4) (EPA, 2016).
- The use of GPS to map significant species and boundaries of differing vegetation types and conditions.

- Recording evidence of disturbance, such as fire.

Table 4: Vegetation condition ratings

Category		Description
1	Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds, partial clearing, dieback and grazing.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
6	Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: EPA, 2016

3.3 Basic Fauna Survey

The fauna survey was completed in accordance with a Basic Fauna Survey as outlined in the *Technical Guidance, Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020). Natural Area environmental scientists traversed the site on March 10, 2026 and undertook this survey in conjunction with other survey activities. A basic survey is defined as a low-intensity survey, which gathers broad fauna and habitat information including opportunistic fauna observations (EPA, 2020). The fauna survey included recording opportunistic sightings of fauna species while traversing the survey area, along with recording evidence of their presence in the form of:

- scats
- tracks
- diggings
- burrows, dens and warrens
- runnels (vegetative tunnels)
- calls.

3.4 Black Cockatoo Habitat Assessment

A black cockatoo habitat assessment was conducted in accordance with *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo* (DAWE, 2022).

Natural Area environmental scientists undertook the survey on March 10, 2026, with key data recorded using QField software on a handheld tablet. Survey activities included:

- traversing the whole site in a systematic grid search
- recording the location and evidence of breeding, roosting and foraging activities (e.g. chew marks, feathers, scats, chewed nuts)
- marking the GPS locations of each habitat tree with a diameter at breast height (DBH) ≥ 500 mm
- recording the height, DBH, health, and species of each habitat tree
- recording evidence of hollows, including size, type, and location within the tree
- recording foraging habitat, vegetation type, and condition.

The black cockatoo foraging quality scoring tool (DAWE, 2022) was applied to the survey area to determine the quality of black cockatoo foraging habitat. This scoring tool assigns a habitat score between 1 and 10, with a score of 10 representing the maximum possible score and very high-quality foraging habitat. Contextual adjustors (attributes that improve or reduce functionality of foraging habitat) such as tree species composition, distances from known breeding and roosting sites, distance from other foraging habitat, evidence of feeding debris, and presence of disease e.g. *Phytophthora* spp. or Marri Canker were used to evaluate habitat quality. The scoring tool template is provided in Table 5.

Table 5: Foraging quality scoring tool template

Starting score		Baudin's Cockatoo	Carnaby's Cockatoo	Red-tailed Black Cockatoo
10		Start at a score of 10 if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. This tool only applies to sites equal to or larger than 1 hectare in size.	Start at a score of 10 if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as Banksia spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. This tool only applies to sites equal to or larger than 1 hectare in size.	Start at a score of 10 if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. This tool only applies to sites equal to or larger than 1 hectare in size.
Attribute	**Sub-tractions**	**Context adjustor (attributes reducing functionality of foraging habitat)**		
Foraging potential	-2	Subtract 2 from your score if there is no evidence of feeding debris on your site.	Subtract 2 from your score if there is no evidence of feeding debris on your site.	Subtract 2 from your score if there is no evidence of feeding debris on your site.
Connectivity	-2	Subtract 2 from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	Subtract 2 from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	Subtract 2 from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.
Proximity to breeding	-2	Subtract 2 if you have evidence to conclude that your site is more than 12 km from breeding habitat.	Subtract 2 if you have evidence to conclude that your site is more than 12 km from breeding habitat	Subtract 2 if you have evidence to conclude that your site is more than 12 km from breeding habitat.
Proximity to roosting	-1	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.
Impact from significant plant disease	-1	Subtract 1 if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	Subtract 1 if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	Subtract 1 if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.
Total score		Enter score	Enter score	Enter score
Appraisal		To support your habitat score, you should provide an overall appraisal of the habitat on the impact site and within 20km of the impact area to clearly explain and justify the score. It should include discussion on the foraging habitat's proximity to other resources (e.g. exact distance to proximate resources), frequency of use of proximate sites, the degree of evidence and description of vegetation type and condition.		

Source: DAWE, 2022.

3.5 Limitations

The limitations associated with the Kulija Road and Baldivis Road survey are outlined in Table 6 below.

Table 6: Kulija Road and Baldivis Road survey limitations

Potential Limitation	Degree of Limitation	Comments
Availability of contextual information	None	Local and regional contextual information was readily available.
Competency/ experience of team	None	Survey activities were undertaken by experienced environmental scientists who have extensive experience undertaking reconnaissance flora surveys, fauna surveys, and black cockatoo habitat assessments within the Swan Coastal Plain bioregion.
Proportion of flora recorded/ collected, any identification issues	None	A total of 65 flora species (taxa) were recorded from 27 families during the field survey, comprising of 42 % introduced (weeds), 55 % native species and 3 % dubious species. All these species were able to be identified to a species level.
Survey effort and extent	None	The entire site was traversed in one day, on 10 March, during which reconnaissance flora, basic fauna surveys and a black cockatoo habitat assessment, were conducted.
Access restrictions	None	No access restrictions were present within the survey area.
Survey timing	Minor	The survey was undertaken during autumn which is not the optimal season for flora or fauna surveys within the Swan Coastal Plain subregion. As the basic fauna survey was undertaken outside this peak period, detectability of some species may have been reduced. However, the survey focused on identifying key habitat features to support fauna populations and conservation significant fauna. Of the five conservation significant flora species identified in the desktop survey as being likely to occur within the survey area, all have flowering periods outside of the survey period. However, all are perennial herb, shrub, tree or sedge species for which other characteristics would be present to enable identification to minimum of genus level.
Disturbances	None	No recent disturbances which may have had an impact on survey results (e.g. fire, recent clearing or floods) were identified during the survey.

4.0 Flora Survey Results

4.1 Desktop Survey

A desktop survey of online databases indicated the potential for a total of 36 conservation significant species to occur within 10 km of the survey area (Table 7). NatureMap indicated 30 conservation significant flora species listed under the BC Act or by the Western Australian Herbarium (1998-), as potentially occurring within 10 km radius of the site (DBCA, 2026a). A review of the Protected Matters Search Tool (PMST) (DCCEEW, 2026b) indicated 11 significant flora species listed under the EPBC Act as potentially occurring within a 10 km radius of the site (Appendix 1). A review of the DBCA (2026b) threatened and priority flora database indicated 30 threatened or priority species have been recorded within 10 km of the site.

Of the conservation significant species potentially found in the area, it was determined that the site conditions (soil type, drainage, location) may be suitable for five (highlighted green) of these species (Table 7). Conservation code descriptions are provided in Appendix 2.

Table 7: Threatened and priority flora species listed by NatureMap, PMST and DBCA

Species Name	Cons Code (Cth)	Cons Code (WA)	Nature Map	PMST	DBCA
Acacia lasiocarpa var. *bracteolata* long peduncle variant (G.J. Keighery 5026)		P1	X		X
Acacia sp. *Binningup* (G. Cockerton et al. WB 37784)		P1	X		X
Amanita fibrillopes		P3	X		X
Andersonia gracilis	EN	VU		X	
Aponogeton hexatepalus		P4	X		X
Banksia mimica	EN	VU		X	
Beyeria cinerea subsp. *cinerea*		P3	X		X
Boronia juncea subsp. *juncea*		P1	X		X
Caladenia huegelii		CR	X	X	X
Carex tereticaulis		P3	X		X
Conostylis pauciflora subsp. *pauciflora*		P4	X		X
Cyathochaeta teretifolia	CR	P3	X		X
Dampiera triloba		P3	X		X
Dillwynia dillwynioides		P3	X		X
Diuris micrantha		VU	X	X	X
Diuris purdiei	EN	EN		X	
Dodonaea hackettiana		P4	X		X

Species Name	Cons Code (Cth)	Cons Code (WA)	Nature Map	PMST	DBCA
Drakaea elastica		CR	X	X	X
Drakaea micrantha	VU	EN		X	
Eryngium pinnatifidum subsp. *Palustre* (G.J. Keighery 13459)		P3	X		X
Eucalyptus foecunda subsp. *foecunda*		P4	X		X
Eucalyptus rudis subsp. *cratyantha*		P4	X		X
Eucalyptus x *balanites*	EN	CR		X	
Jacksonia gracillima		P3	X		X
Jacksonia sericea		P4	X		X
Johnsonia pubescens subsp. *cygnorum*	CR	P2	X		X
Netrostylis sp. Chandala (G.J. Keighery 17055)		P2	X		X
Parsonsia diaphanophleba		P4	X		X
Pimelea calcicola		P3	X		X
Sphaerolobium calcicola		P3	X		X
Stylidium ireneae		P4	X		X
Stylidium longitubum		P4	X		X
Stylidium paludicola		P3	X		X
Synaphea sp. Fairbridge Farm (D.Papenfus 696)	CR	CR		X	
Synaphea sp. Serpentine (G.R. Brand 103)		CR	X	X	X
Thelymitra variegata		CR	X	X	X

4.1.1 Threatened and Priority Ecological Communities

A review of the DBCA threatened and priority ecological community database identified sixteen listed priority ecological communities that could potentially occur within 10 km of the site (DBCA, 2026c). A review of the PMST report identified three listed threatened ecological communities that could potentially occur within 10 km of the site (Table 8) (DCCEEW, 2026b).

Table 8: Potential threatened and priority ecological communities within 10 km of the site.

Commonwealth Name	State Name	Cons Code (Cth)	Cons Code (WA)
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion		CR	
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	CR	P3
	Southern Swan Coastal Plain *Eucalyptus gomphocephala - Agonis flexuosa woodlands* (floristic community type 25 as originally described in Gibson *et al.* 1994)		
Banksia Woodlands of the Swan Coastal Plain ecological community	Banksia Woodlands of the Swan Coastal Plain ecological community	EN	P3
	Banksia ilicifolia woodlands		
	Low lying *Banksia attenuata* woodlands or shrublands		
	Northern Spearwood shrublands and woodlands (floristic community type 24 as originally described in Gibson *et al.* 1994)		
Sedgelands in Holocene dune swales of the southern Swan Coastal Plain	Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in in Gibson et al. 1994)	EN	CR
Claypans of the Swan Coastal Plain	Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson *et al.* 1994)	CR	EN
	Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson *et al.* 1994)		
Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain	*Corymbia calophylla — Xanthorrhoea preissii* woodlands and shrublands, Swan Coastal Plain (floristic community type 3c as originally described in Gibson *et al.* 1994)	EN	EN
Thrombolite (microbial) community of coastal freshwater lakes of the Swan Coastal Plain (Lake Richmond)	Stromatolite like microbialite community of coastal freshwater lakes (Lake Richmond)	EN	CR

Commonwealth Name	State Name	Cons Code (Cth)	Cons Code (WA)
Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (Endangered)	Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson *et al.* 1994)	EN	CR
Not listed	*Callitris preissii* (or *Melaleuca lanceolata)* forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described in Gibson *et al.* 1994)		CR
Not listed	*Casuarina obesa* association		P1
Not listed	Coastal shrublands on shallow sands, southern Swan Coastal Plain ('floristic community type 29a as originally described in Gibson *et al.* 1994)		P3
Assemblages of plants and invertebrate animals of tumulus (organic mound) springs of the Swan Coastal Plain	Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain)	EN	CR

Source: DCCEEW, 2026b; DBCA, 2026c.

4.2 Flora Survey Results

4.2.1 Flora

A total of 65 flora species (taxa) were recorded from 27 families during the field survey, comprising of 27 (42 %) introduced (weeds), 36 (55 %) native species and 2 (3 %) dubious species. Examples of native flora species are shown in Figure 9 and weed species in Figure 10. A complete flora species list is provided in Appendix 5.

Two declared pests were identified within the survey site, **Gomphocarpus fruticosus* (Narrowleaf Cottonbush: s22(2) (C3 Prohibited)) and **Solanum linnaeanum* (s22(2) (Exempt)), their locations are shown in Figure 11. Declared pests are listed on the Western Australian Organism List (WAOL) under the BAM Act. This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2026).

One conservation significant flora species, *Grevillea olivacea* (P4) was identified during the survey. A single individual was recorded along Kulija Road within revegetated *Acacia rostellifera* and *Melaleuca huegelii* vegetation. The location of this individual is shown in Figure 11.



Melaleuca lanceolata (Rottnest Teatree)



Rhagodia baccata (Berry Saltbush)

Figure 9: Examples of native flora species recorded.



**Oenothera drummondii* (Beach Evening Primrose)



**Gomphocarpus fruticosus* (Narrowleaf Cottonbush) (Declared Pest)

Figure 10: Examples of introduced flora species recorded.

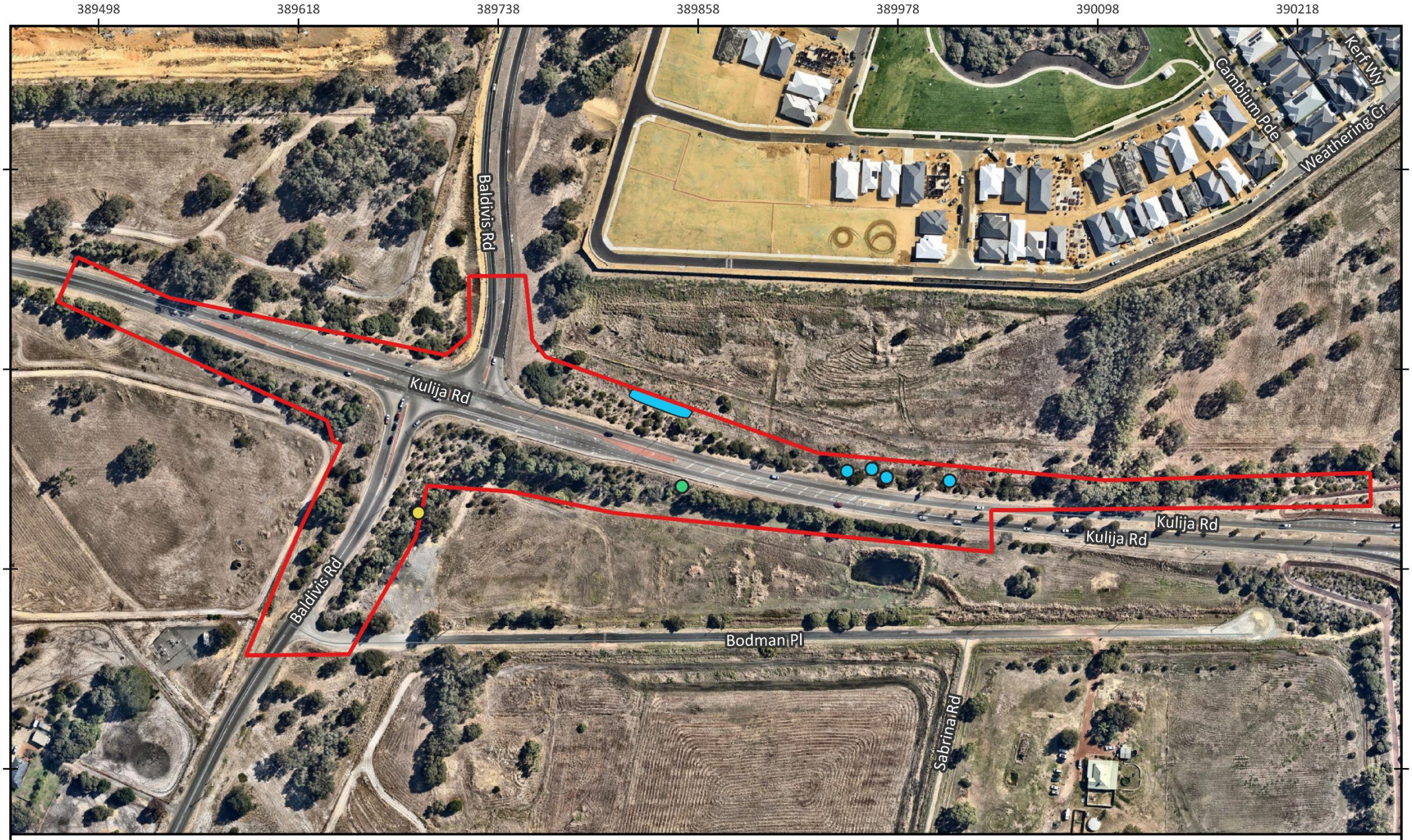


Figure 11:

Conservation Significant Flora and Declared Pests

Baldivis, Western Australia

Legend

- **Gomphocarpus fruticosus* (Declared Pest)
- **Solanum linnaeanum* (Declared Pest)
- **Gomphocarpus fruticosus* 26 -50 % (Declared Pest)
- *Grevillea olivacea* (Olive Grevillea) (P4)
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

N

4.2.2 Vegetation Types

A total of four vegetation types were recorded within the survey area, including *Acacia rostellifera* and *Melaleuca huegelii* shrubland (ArMhS), *Eucalyptus* spp. woodland (EW), Mixed Introduced Grassland (MIG) and *Typha orientalis* sedgeland (ToCR). Vegetation types are described in Table 9 and shown in Figure 12.

Table 9: Vegetation type within the survey area

Vegetation Type	Description	Photograph
Acacia rostellifera and *Melaleuca huegelii* Shrubland (ArMhS)	*Acacia rostellifera* and *Melaleuca huegelii* shrubland over revegetated shrubland of *Rhagodia baccata*, *Scaevola crassifolia* and *Acanthocarpus preissii* over mixed introduced grassland	
Eucalyptus spp. Woodland (EW)	#*Eucalyptus camaldulensis* and/or *Eucalyptus gomphocephala* woodland over a revegetated sparse shrubland of *Acacia* spp., *Rhagodia baccata* and *Melaleuca* spp. over mixed introduced grassland.	
Mixed Introduced Grassland (MIG)	Mixed introduced grassland and forbland dominated by **Eragrostis curvula,* **Euphorbia terracina* and **Avena barbata*	

Vegetation Type	Description	Photograph
Typha orientalis Closed Rushland (ToCR)	A low-lying, poorly drained patch characterised by dense stands of *Typha orientalis* (Bulrush) intermixed with various weeds.	



Figure 12:
Vegetation Type

Baldivis, Western Australia

Legend

- ArMhS
- EW
- MIG
- TocR
- Cleared / Developed
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

N

4.2.3 Vegetation Condition

Vegetation condition on site ranged from completely degraded to good (Table 10, Figure 14). All areas have been historically modified so condition was assessed based on current structure and native species composition. Areas of vegetation classed as completely degraded contained very few remaining native species and a complete breakdown of natural strata levels. Areas classified as degraded included areas with little or no remaining natural structure. Areas classified as good, included areas of native vegetation maintaining a structure broadly consistent to that of a natural vegetation type, with obvious disturbance. Examples of different vegetation condition recorded across the site are shown in Figure 13.

Table 10: Vegetation condition within the survey area

	Vegetation Condition							
	Pristine	**Excellent**	**Very Good**	**Good**	**Degraded**	**Completely Degraded**	**Cleared/ Developed**	**Total**
Area (ha)	0.00	0.00	0.00	0.16	0.70	2.22	1.55	4.63
Area (%)	0.00	0.00	0.00	3.00	15.00	48.00	34.00	100



Figure 13: Different vegetation conditions recorded across the site. A: Good, B: Degraded, C: Completely Degraded, D: Cleared/Developed.

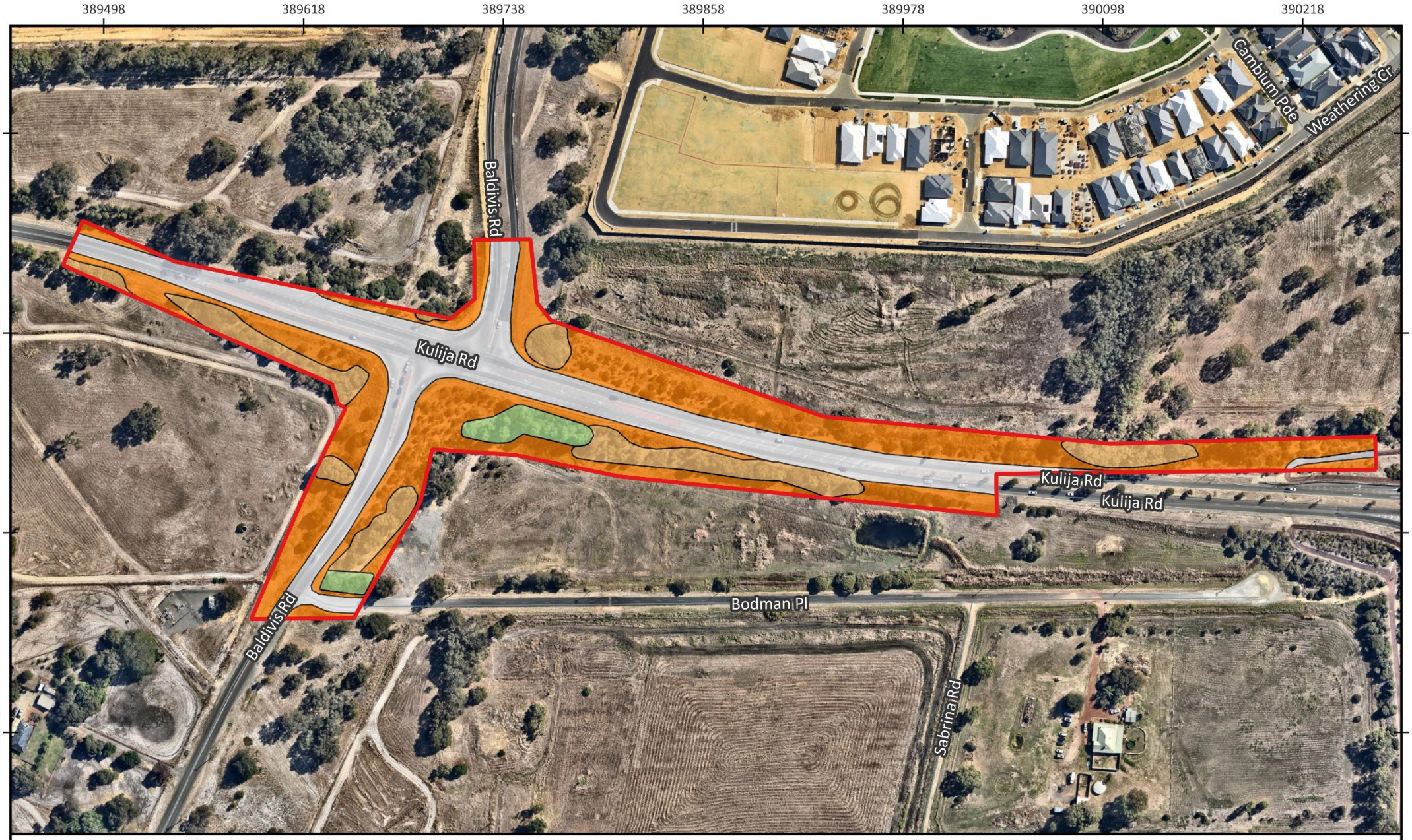


Figure 14:
Vegetation Condition

Baldivis, Western Australia

Legend

- Good
- Degraded
- Completely Degraded
- Cleared / Developed
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

N

4.2.4 Threatened and Priority Communities

The key diagnostic criteria for Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion, listed under the EPBC Act as Critically Endangered, were assessed for the ArMhS (Table 11) (DCCEEW, 2023). The key diagnostic characteristic of a ground layer is typically rich with numerous herbs (including grasses) and smaller shrubs and may develop a mossy ground cover was not met.

Table 11: Key diagnostic characteristics of the Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion. Key diagnostic characteristics met are highlighted green.

Key Diagnostic Characteristics	Site Appraisal
Occurs in the Perth subregion of the Swan Coastal Plain IBRA Bioregion in WA.	Site occurs in the Swan Coastal Plain Bioregion.
Occurs on shallow to skeletal soils, on the ridge slopes and tops of limestone ridges and outcrops associated with Tamala Limestone.	Site occurs on Spearwood Dune system, where the landscape is directly underlain by Tamala Limestone
It occurs as shrubland, heath, or thickets; and it has less than 10 % canopy cover of *Eucalyptus* species or other tall trees.	Site occurs majority as shrubland with less than 10 % canopy cover of *Eucalyptus* species
The shrub layer is dominated by *Melaleuca huegelii* (Chenille honeymyrtle), and/or *M. systena* (Coastal honeymyrtle), and/or *Banksia sessilis* (Parrot bush) - commonly over *Acacia lasiocarpa* (Pajang), *Grevillea preissii* (Spider net grevillea) and *Spyridium globulosum* (Basket bush).	The site shrub layer is dominated by *Melaleuca huegelii* (Chenille honeymyrtle), and/or *M. systena* (Coastal honeymyrtle)
The ground layer is typically rich with numerous herbs (including grasses) and smaller shrubs and may develop a mossy ground cover.	The ground layer is absent on site
Minimum patch size of 0.01 ha	The patch size is 0.7 ha

The key diagnostic criteria for Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain, listed under the EPBC Act as Critically Endangered, were assessed for the EW (Table 12) (DAWE, 2019). The key diagnostic characteristic of a patch size of at least 0.5 ha was not met.

Table 12: Key diagnostic characteristics of Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain. Key diagnostic characteristics met are highlighted green.

Key Diagnostic Characteristics	Site Appraisal
Occurs in the Swan Coastal Plain Bioregion, Western Australia	Site occurs in the Swan Coastal Plain Bioregion.
Primarily occurs on the Spearwood and Quindalup dune systems but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands	Site occurs on Spearwood and Pinjarra Plain systems.
The presence of at least two living, established (DBH ≥15 cm) Tuart trees within the upper canopy,	More than two Tuart trees were present with <60 m between canopy edges.

Key Diagnostic Characteristics	Site Appraisal
with a gap of ≤60 m between the canopy edges of adjacent Tuart trees	
The presence of an understorey of native species, often modified by disturbance	Native understorey is present. Site is significantly altered by disturbance
A patch size of at least 0.5 ha	Patch size is 0.4 ha

5.0 Fauna Survey Results

5.1 Desktop Survey

A desktop survey of online databases indicated the potential for a total of 44 conservation significant fauna species to occur within 10 km of the survey area (Table 13). NatureMap indicated 37 conservation significant species listed under the BC Act as potentially occurring within a 10 km radius of the site (DBCA, 2026a). The Protected Matters Search Tool (PMST) indicated 15 threatened species listed under the EPBC Act as potentially occurring within a 10 km radius of the site (DCCEEW, 2026b) (Appendix 1). A review of the DBCA threatened and priority fauna species database indicated the potential for 36 conservation significant fauna species to occur within a 10 km radius of the site (DBCA, 2026d).

Both abiotic (soil, climate) and biotic (food resources, predator pressure) factors will determine the suitability of habitats for specific fauna assemblages based on their ecological requirements. Evaluating the site locality, existing conditions and known home ranges, Natural Area determined that 7 species (highlighted green in Table 13) have the potential to be present within the survey site.

Table 13: Threatened and priority fauna species listed by NatureMap, PMST and DBCA

Species Name	Common Name	Cons Code (WA)	Cons Code (Cth)	Nature Map	PMST	DBCA
Bird						
Actitis hypoleucos	Common Sandpiper	MI	MI	X		X
Anous tenuirostris melanops	Australian Lesser Noddy	EN	VU	X		X
Apus pacificus	Fork-Tailed Swift	MI	MI	X		X
Arenaria interpres	Ruddy Turnstone	MI	MI	X		X
Botaurus dubius	Australian Little Bittern	P4		X		X
Botaurus poiciloptilus	Australasian Bittern	EN	EN		X	
Calidris acuminata	Sharp-tailed Sandpiper	MI	MI	X	X	X
Calidris canutus	Red Knot	VU	VU		X	
Calidris ferruginea	Curlew sandpiper	CR	CR & MI	X	X	X
Calidris ruficollis	Red-necked Stint	MI	MI	X		X
Calidris subminuta	Long-toed Stint	MI	MI	X		X
Calyptorhynchus banksii naso	Forest Red-tailed Black cockatoo	VU	VU	X	X	X
Charadrius cucullatus	Hooded plover, hooded dotterel	P4		X		X
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	VU	VU		X	

Species Name	Common Name	Cons Code (WA)	Cons Code (Cth)	Nature Map	PMST	DBCA
Falco peregrinus	Peregrine falcon	OS		X		
Hydroprogne caspia	Caspian Tern	MI	MI	X		X
Leipoa ocellata	Malleefowl	VU	VU		X	
Macronectes giganteus	Southern Giant Petrel	MI	EN & MI	X		X
Macronectes halli	Northern Giant Petrel	MI	VU & MI	X		X
Numenius madagascariensis	Eastern Curlew	CR	CR & MI	X	X	X
Oxyura australis	Blue-Billed Duck	P4		X		X
Phoebetria palpebrata	Light-Mantled Albatross	MI & P4	MI	X		X
Plegadis falcinellus	Glossy Ibis	MI	MI	X		X
Rostratula australis	Australian Painted Snipe	EN	EN		X	
Sternula nereis nereis	Australian Fairy Tern	VU	VU		X	
Thalassarche chrysostoma	Grey-Headed Albatross	VU	EN & MI	X		X
Thalasseus bergii	Crested Tern	MI	MI	X		X
Tringa glareola	Wood Sandpiper	MI	MI	X		X
Tringa nebularia	Common Greenshank	MI	MI	X	X	X
Tringa stagnatilis	Marsh Sandpiper	MI	MI	X		X
Zanda baudinii	Baudin's Cockatoo	EN	EN	X	X	X
Zanda latirostris	Carnaby's Cockatoo	EN	EN	X	X	X
Invertebrate						
Idiosoma sigillatum	Swan Coastal Plain Shield-Backed Trapdoor spider	P3		X		X
Synemon gratiosa	Graceful Sunmoth	P4		X		X
Mammal						
Dasyurus geoffroii	Chuditch	VU	VU	X	X	X
Hydromys chrysogaster	Water-rat	P4		X		X
Isoodon fusciventer	Quenda	P4		X		X
Notamacropus eugenii derbianus	Tammar Wallaby	P4		X		X
Notamacropus irma	Western Brush Wallaby	P4		X		X

Species Name	Common Name	Cons Code (WA)	Cons Code (Cth)	Nature Map	PMST	DBCA
Phascogale tapoatafa wambenger	South-Western Brush-Tailed Phascogale	CD		X		X
Pseudocheirus occidentalis	Western Ringtail Possum	CR	CR		X	
Reptile						
Ctenotus gemmula (Swan Coastal Plain Subpopulation)	Jewelled Southwest Ctenotus (Swan Coastal Plain Subpopulation)	P3		X		X
Lerista lineata	Perth Slider	P3		X		X
Neelaps calonotos	Black-striped snake	P3		X		X

5.2 Fauna Survey Results

5.2.1 Basic Fauna Survey

A total of 16 fauna species from 15 families were observed directly or indirectly during the basic fauna survey, comprising of 14 bird and 2 mammal species (Table 14; Figure 15). Evidence of scat and diggings associated with a *Isoodon fusciventer* (Quenda, P4) was observed within vegetation types ArMhS and EW. This conservation significant fauna species is listed as Priority 4 by DBCA.

Two introduced species were recorded, one of which is listed as a declared pest under the BAM Act:

- **Vulpes vulpes* (Red Fox: Declared Pest - s22(2) (C3 Prohibited))
- **Gallus gallus domesticus* (Chicken).

Remains of *Cracticus torquatus* (Grey Butcherbird) and *Threskiornis molucca* (Australian White Ibis) were found on site adjacent to Red Fox scat, indicating potential predation or scavenging activity by **Vulpes vulpes.*

Table 14: Fauna observations within the site. *denotes introduced species

Family	Species Name	Common Name
Birds		
Acanthuridae	*Smicrornis brevirostris*	Weebill
Accipitridae	*Haliastur sphenurus*	Whistling Kite
Ardeidae	*Ardea pacifica*	White-necked Heron
Artamidae	*Cracticus torquatus*	Grey Butcherbird
Artamidae	*Gymnorhina tibicen*	Australian Magpie
Cacatuidae	*Eolophus roseicapilla*	Galah
Columbidae	*Ocyphaps lophotes*	Crested Pigeon

Family	Species Name	Common Name
Birds		
Corvidae	*Corvus coronoides*	Australian Raven
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican
Phasianidae	**Gallus gallus domesticus*	Chicken
Psittacidae	*Barnardius zonarius*	Australian Ringneck
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis
Mammals		
Canidae	**Vulpes vulpes*	Red Fox
Peramelidae	*Isoodon fusciventer*	Quenda



Whistling Kite (*Haliastur sphenurus*)



Quenda (*Isoodon fusciventer*) diggings



Australian Ringneck (*Barnardius zonarius*)



Red Fox (**Vulpes vulpes*) scat

Figure 15: Fauna species observed, including direct and indirect indication of presence. *denotes introduced species.

5.2.2 Fauna Habitat

The vegetation types recorded within the site can be classified into four fauna habitat types. The habitat types and associated fauna habitat values are outlined in Table 15 and shown in Figure 16. Open shrubland represents the dominant habitat type, covering the greatest proportion of the site (1.46 ha). No confirmed or suspected breeding activity was observed during the field surveys.

Table 15: Fauna habitat types and associated fauna habitat values

Habitat Type	Description	Photograph
Open Woodland	Small to medium sized *Eucalyptus* spp. trees support foraging and roosting habitat for arboreal mammals and bird species including black cockatoos. Sparse shrubland of revegetation currently provides limited shelter for mammals and reptiles. Woody debris and leaf litter supports small reptiles.	
Open Shrubland	A shrubland consisting predominantly of taller *Acacia* spp. and *Melaleuca* spp. shrubs, with intermittent trees. The ground layer is composed of introduced grasses. This simplified vegetation structure, combined with proximity to the road, provides habitat primarily for disturbance tolerant fauna. Likely species include small birds which utilise the shrubs for shelter and foraging, as well as reptiles like skinks that take advantage of open, sun-exposed ground. The area may also be used opportunistically by mammals.	
Cleared Grassland	Introduced grassland and herbland recorded in a completely degraded condition provides low quality habitat values. This habitat type may provide some habitat values for small reptiles and transitory feeding by birds.	

Habitat Type	Description	Photograph
Typha Swamp	A small seasonally inundated patch of *Typha orientalis* monoculture with an understorey of introduced grasses provides moderate fauna habitat value. The dense Typha offers shelter, nesting and refuge for water dependent birds, amphibians and aquatic invertebrates. However, the presence of introduced grasses limits food resources and biodiversity. This fauna habitat type can act as a microhabitat for wetland associated species.	



Figure 16:
Fauna Habitat

Baldivis, Western Australia

Legend

- Cleared Grassland
- Open Shrubland
- Open Woodland
- Typha Swamp
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

N

6.0 Black Cockatoo Habitat Assessment Results

6.1 Desktop Survey

There is the potential for the three threatened black cockatoos and their habitat to occur on site, including the Carnaby's Cockatoo (*Zanda latirostris*) and Baudin's Cockatoo (*Zanda baudinii*) listed as Endangered under the EPBC Act and the BC Act, and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) listed as Vulnerable under the EPBC Act and the BC Act. The survey site occurs less than 2 km away from confirmed roosting trees for Carnaby's and Black Cockatoos (DBCA, 2019a; DBCA, 2018b).

6.2 Field Survey

6.2.1 Breeding Habitat

Two trees satisfied the Commonwealth guidelines (DAWE, 2022) for black cockatoo habitat trees (trees with DBH ≥500 mm) (Figure 17). Suitable breeding habitat for black cockatoos was present within the EW vegetation type. Of the two habitat trees that were recorded, none were observed to contain hollows. No other secondary evidence such as scats or feathers was observed within the survey areas. Black cockatoo habitat data has been provided in Appendix 6.

6.2.2 Roosting Habitat

No evidence of roosting in the form of scats or feathers was observed within the survey area at the time of the survey; however dusk surveys would be required to confirm whether any roost sites are present within proximity to the survey area.

6.2.3 Foraging Habitat

Foraging habitat for black cockatoos was identified within the ArMhS and EW vegetation types. *Eucalyptus* spp. and *Hakea* spp. are high priority species for black cockatoo foraging (DAWE, 2022; DEC, 2011). There was no evidence of foraging by black cockatoos on site. A total of 2.12 ha of foraging habitat for Carnaby's Cockatoo (*Zanda latirostris*) and Baudin's Cockatoo (*Zanda baudinii*) and 0.67 ha of foraging habitat for Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) were recorded within the survey area (Table 16). The secondary (plants that black cockatoo species have been recorded foraging on occasionally) foraging habitat have been included within the calculations.

Table 16: Habitat areas per black cockatoo species.

Baudin's Cockatoo	**Carnaby's Cockatoo**	**Forest Red- tailed Black Cockatoo**
Total Area of Foraging Habitat (ha)		
2.12	2.12	0.67
Habitat Types		
▪ *Eucalyptus spp.* open woodland ▪ Rehab	▪ *Eucalyptus spp.* open woodland ▪ Rehab	▪ *Eucalyptus spp.* open woodland

6.2.4 Foraging Quality Scoring Tool

The black cockatoo foraging quality scoring tool (DAWE, 2022) was applied across the survey areas and a score of six was assigned for the Forest Red-tailed Black Cockatoo, Carnaby's Cockatoo and Baudin's Cockatoo (Table 17). These scores represent that the area is considered to have moderate quality native foraging habitat for black cockatoos.

Table 17: Foraging quality scoring tool results

Starting score	Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black-Cockatoo
10	Start at a score of 10 if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. This tool only applies to sites equal to or larger than 1 hectare in size.	Start at a score of 10 if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as Banksia spp. (including Dryandra spp.), Hakea spp. and Grevillea spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. This tool only applies to sites equal to or larger than 1 hectare in size.	Start at a score of 10 if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. This tool only applies to sites equal to or larger than 1 hectare in size.

Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat)		
Foraging potential	-2	8 (-2)	8 (-2)	8 (-2)
Connectivity	-2	8	8	8
Proximity to breeding	-2	6 (-2)	6(-2)	6 (-2)
Proximity to roosting	-1	6	6	6
Impact from significant plant disease	-1	6	6	6
Total score		**6**	**6**	**6**
Appraisal	The site consists of scattered appropriate food sources for black cockatoo. No record of foraging has been found within the site. The site maintains connectively to other foraging habitat sources. The site is more than 12 km away from any known breeding trees (DBCA, 2019b; DBCA, 2018c). The site is less than 2 km away from confirmed roosting sites for the Baudin's Cockatoo, Carnaby's Cockatoo and Forest Red-tailed Black-Cockatoo (DBCA, 2018b; DBCA, 2019a). There is no conclusive evidence from the survey that vegetation is affected by plant diseases such as phytophthora dieback.			

Source: DAWE, 2022.

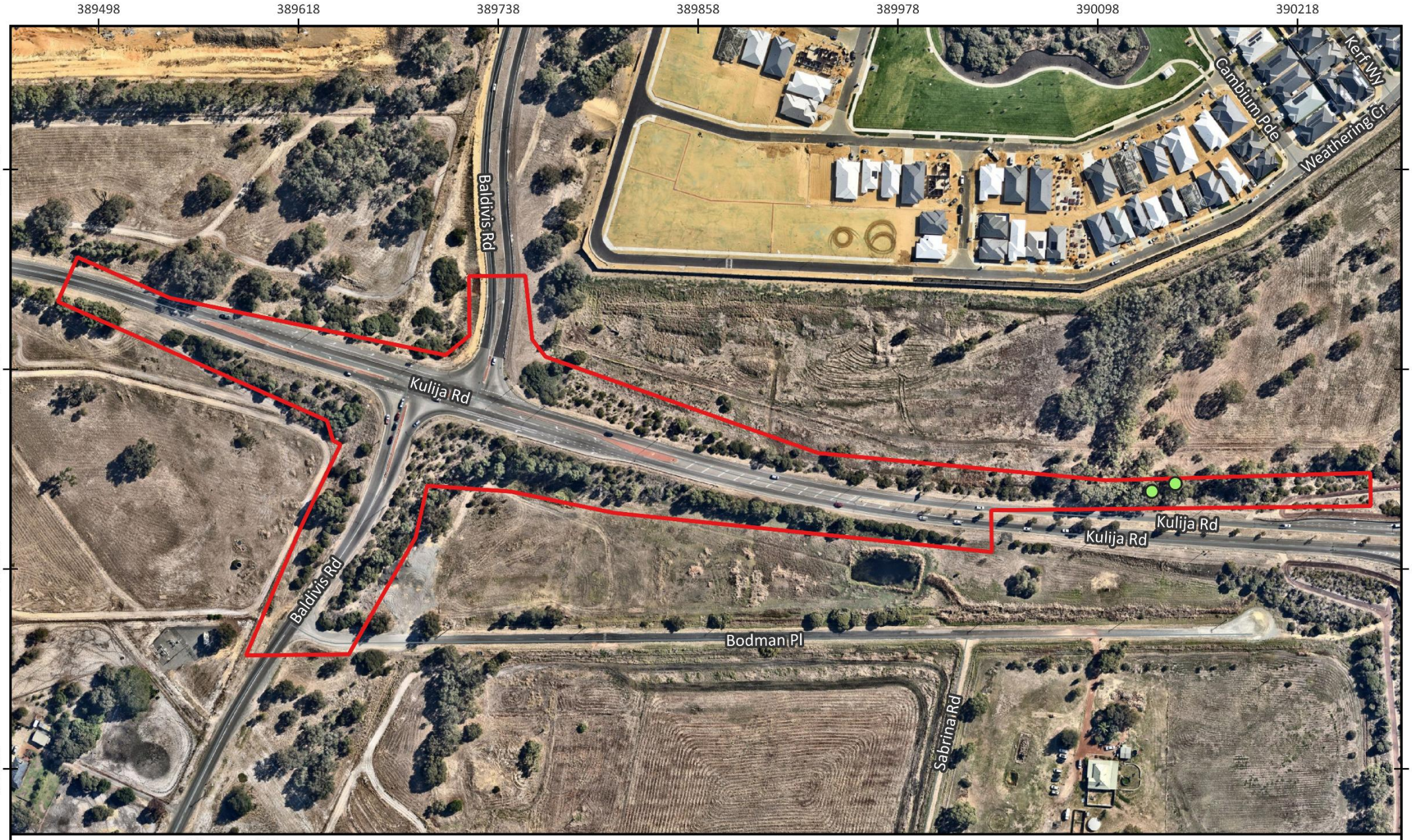


Figure 17:

Black Cockatoo Habitat Trees

Baldivis, Western Australia

Legend

- *#Eucalyptus camaldulensis*
- Survey Area

Client:	City of Rockingham
Date:	10/06/2026
Created by:	L.Evans
Image Source:	Nearmap, 2026
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3000

0 50 100 m

N

7.0 Discussion

7.1 Flora and Vegetation

A total of 65 flora species (taxa) were recorded from 27 families during the field survey, comprising of 27 (42 %) introduced (weeds), 36 (55 %) native species and 2 (3 %) dubious species. A total of four vegetation types were identified within the site. All of which have been significantly altered from their original condition due to road construction with historic aerial imagery showing that the entire survey boundary has been previously cleared in 2013. The vegetation currently present consists primarily of revegetation established after development and no remnant native vegetation (pre-European) remains on site. The vegetation condition across the site ranged from completely degraded to good. The survey area was primarily composed of completely degraded vegetation condition as a result of past significant disturbances, resulting in a high weed load and little to no native species present. No threatened or priority ecological communities were recorded on site.

Two declared pests were identified within the survey site, **Solanum linnaeanum* (s22(2) (Exempt)) and **Gomphocarpus fruticosus* (Narrowleaf Cottonbush: s22(2) (C3 Prohibited)). Prohibited is the highest level of restriction and indicates that while eradication may not be feasible, it must be managed to reduce its harmful impacts, numbers or distribution and prevent its spread within the area (DPIRD, 2026). It is recommended that the control of these species is undertaken prior to any potential future works within the site to minimise the spread of these species.

7.1.1 Significant Flora

One conservation significant flora species, *Grevillea olivacea* (Priority 4), was identified during the survey. This species is not known to naturally occur in the area and given that the site is comprised of revegetation, it is a landscaped variety rather than naturally occurring.

Five conservation significant flora species were identified as potentially occurring within the survey area. All are perennial herbs, shrubs, trees, or sedges with characteristics that would allow identification to at least genus level. However, a targeted survey in spring (the optimal season on the Swan Coastal Plain) is recommended to confirm the absence of conservation significant species on site.

7.2 Fauna

A total of 16 fauna species from 15 families were observed on site during the survey. Of these two introduced species were recorded, **Gallus gallus domesticus* (Chicken) and **Vulpes vulpes* (Red Fox: declared pest). One priority 4 species, *Isoodon fusciventer* (Quenda) was observed on site.

The majority of the survey area provided a low fauna habitat. The sealed road fragments and infrastructure reduce the amount of suitable habitat and provides high disturbance from anthropogenic traffic. While the habitats offer refuge opportunities, the poor structure and density or secluded to support high fauna habitat values. The small *Typha* swamp provides moderate habitat offering shelter and seasonal resources for wetland fauna. Mature trees may be utilised for foraging and nesting. During any clearing works, an approved fauna spotter is to be onsite to assist with the relocation of any displaced fauna species.

A total of 7 conservation significant fauna species were identified during the desktop survey as having the potential to occur on site. Three of these species are black cockatoos and have been discussed in section 7.3 below. The 4 remaining species were assessed to determine the suitability of the site and whether the site provides critical habitat for species (Table 18).

Table 18: Conservation significant fauna habitat likelihood

Species	Likelihood	Rationale
Ctenotus gemmula (Swan Coastal Plain Subpopulation)	Unlikely	Suitable habitat for *Ctenotus gemmula* exist within heaths on sandplains associated with Banksia woodlands (Wilson & Swan, 2025). Heaths on sandplains in association with Banksia woodlands were not present on site, therefore it is unlikely this species will occur on site.
Isoodon fusciventer	Likely	Suitable habitat for *Isoodon fusciventer* includes areas of dense understorey in Banksia and Jarrah woodlands and around wetlands. *Isoodon fusciventer* have also adapted to anthropogenically modified habitats and may occur within private properties within planted shrublands (DBCA, 2017a). Planted shrublands occur on site, with close proximity to a small seasonal wetland/swamp. Suitable habitat for this species is available and evidence of *Isoodon fusciventer* was found during the survey.
Falco peregrinus	Unlikely	Suitable habitat for Falco peregrinus exists within cliff ledges with good drainage (Olsen & Olsen, 1989). The survey area lacks suitable breeding habitat for *Falco peregrinus* as there are no cliff faces present. Falco peregrinus may use the site for opportunistic foraging within areas of EW.
Lerista lineata	Unlikely	Suitable habitat exists for *Lerista lineata* in coastal heathlands (Wilson & Swan, 2025). Habitat for this species does not exist on site as the site lacks heathlands and is not located in a coastal environment.

7.3 Black Cockatoo Habitat

Two potential black cockatoo habitat trees were found within the site. Of these, none contained a potential suitable breeding hollow. The survey area contained suitable foraging and roosting habitat for black cockatoos. The survey area was determined to have a foraging score of six for the Forest Red-tailed Black Cockatoo, Carnaby's Cockatoos and Baudin's Cockatoos. The fauna habitat types that contained foraging value included Open Woodland and Open Shrubland.

Due to the proximity to a major road (Baldivis Road, Kulija Road and Kwinana Freeway) these trees are unlikely to support breeding activities due to disturbance from traffic. The retention of mature trees should be prioritised, as they provide essential roosting and foraging habitat for black cockatoos, while also supporting a range of broader environmental values such as habitat connectivity and biodiversity.

7.4 Assessment Against Clearing Principles

An assessment against the 10 clearing principles outlined under Part V of the EP Act has been undertaken (Department of Environmental Regulation, 2014). Clearing within the Kulija Road and Baldivis Road survey boundary is likely at variance with five clearing principles (Table 19).

Table 19: Native vegetation clearing principles and assessment

Clearing Principle		Comment
A	Native vegetation should not be cleared if it comprises a high level of biological diversity.	The Kulija Road and Baldivis Road Intersection Upgrade is likely at variance with this principle: ▪ A total of 65 flora species (taxa) were recorded from 27 families during the field survey, comprising of 27 (42 %) introduced (weeds), 36 (55 %) native species and 2 (3 %) dubious species. ▪ A total of 4 vegetation types were recorded on site: - *Acacia rostellifera* and *Melaleuca huegelii* shrubland - *Eucalyptus* spp. woodland - Mixed Introduced Grassland - *Typha orientalis* sedgeland ▪ 3 % of the site was in good condition, 15 % was in degraded condition, 48 % was in completely degraded condition and 34 % was already cleared/developed land. ▪ A fauna survey identified a total of 16 fauna species from 15 families, comprising of 14 bird and 2 mammal species ▪ Four soil types were identified within the survey boundary (DPIRD, 2022). ▪ No pre-European native vegetation extent is present within the site. ▪ The clearing alignment intersects with multiple-use category wetland (UFI:16021) (DBCA, 2025a). ▪ The clearing alignment intersects with two current records of Aboriginal heritage, ID: ACH-00004348 and ID: ACH-00004349. (DPLH, 2025).
B	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a	The Kulija Road and Baldivis Road Intersection Upgrade is likely at variance with this principle: ▪ Evidence of priority 4 species, *Isoodon fusciventer* (Quenda) was observed on site ▪ The clearing alignment intersects with four fauna habitat types:

	Clearing Principle	Comment
	significant habitat for fauna indigenous to Western Australia.	- Open Woodland - Open Shrubland - Cleared Grassland - Typha Dominated Swamp ▪ Two potential black cockatoo habitat trees were found within the site. ▪ Moderate quality foraging habitat for all three black cockatoo species was recorded on site. ▪ Refuge fauna habitat for birds, mammals and reptiles were observed within all levels of vegetation condition consisting of native species. ▪ Ecological linkage 74 is less than 6 m from the survey area.
C	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	The Kulija Road and Baldivis Road Intersection Upgrade is likely not at variance with this principle: ▪ No naturally occurring threatened or priority flora were observed however a landscape variety priority flora species was recorded.
D	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.	The Kulija Road and Baldivis Road Intersection Upgrade is likely not at variance with this principle: ▪ No threatened ecological communities were observed on site.
E	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The Kulija Road and Baldivis Road Intersection Upgrade is likely not at variance with this principle: ▪ No remnant native vegetation (pre-European) remains on site.
F	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	The Kulija Road and Baldivis Road Intersection Upgrade is likely not at variance with this principle: ▪ The clearing alignment intersects with multiple-use category wetland (UFI:16021) (DBCA, 2025a). ▪ The closest RAMSAR wetland is located over 10 km away from the site (DBCA, 2017b).
G	Native Vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The Kulija Road and Baldivis Road Intersection Upgrade is likely at variance with this principle: ▪ A flood risk of L1 (<3 % of map unit has a moderate to high flood risk) (DPIRD, 2023a). ▪ A land instability risk of L1 (<3 % of map unit has a moderate to high hazard) (DPIRD, 2023b).

Clearing Principle		Comment
		▪ A salinity risk of M1 (10-30 % of map unit has a moderate to high salinity risk or is presently saline) and L1 (<3 % of map unit has a moderate to high salinity risk or is presently saline) (DPIRD, 2023c). ▪ An acid sulfate soils moderate to low risk is present in the eastern portion of the survey area (DWER, 2017). ▪ A subsurface acidification risk of L2 (3-10 % of map unit has a high subsurface acidification or is presently acid), M1 (10 - 30 % of map unit has a high subsurface acidification risk or is presently acid) and H2 (>70 % of map unit has a high subsurface acidification risk or is presently acid) (DPIRD, 2023d). ▪ A wind erosion risk of L1 (<3 % of map unit has a high to extreme wind erosion risk) and H2 (>70 % of map unit has a high to extreme wind erosion risk) (DPIRD, 2023e).
H	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The Kulija Road and Baldivis Road Intersection Upgrade is likely not at variance with this principle: ▪ There are no adjacent or nearby conservation areas.
I	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	The Kulija Road and Baldivis Road Intersection Upgrade is likely at variance with this principle: ▪ A subsurface acidification risk of L2 (3-10 % of map unit has a high subsurface acidification or is presently acid), M1 (10 - 30 % of map unit has a high subsurface acidification risk or is presently acid) and H2 (>70 % of map unit has a high subsurface acidification risk or is presently acid) (DPIRD, 2023d). ▪ An acid sulfate soils moderate to low risk is present in the eastern portion of the survey area (DWER, 2017). ▪ A salinity risk of M1 (10-30 % of map unit has a moderate to high salinity risk or is presently saline) and L1 (<3 % of map unit has a moderate to high salinity risk or is presently saline) (DPIRD, 2023c).
J	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	The Kulija Road and Baldivis Road Intersection Upgrade is likely at variance with this principle: ▪ A flood risk of L1 (<3 % of map unit has a moderate to high flood risk) (DPIRD, 2023a). ▪ The removal of mature trees may increase the risk of flooding.

7.5 Recommendations

The proposed upgrade of the Kulija Road and Baldivis Road intersection is situated within a modified landscape with the entire survey area previously cleared. The vegetation across the site comprises of rehabilitated and revegetated species rather than remnant pre-European native vegetation. The site still however retains localised environmental values that should be considered during development. As a result of the required works, it is understood that it will not be feasible to retain any of the existing vegetation within the project area. However, the City will revegetate the area following completion of the upgrades to restore ecological function and support long-term environmental values. Revegetation should utilise site specific native species. Black cockatoo foraging species should not be planted within 10 m of the roads with a speed limit exceeding 50 km/h (Murdoch University, n.d.). Attracting birds into a hazardous environment increases associated risk of bird strikes and does not provide them with sufficient room to take off.

The removal of declared pests on site prior to any construction works is recommended to minimise harmful impacts, reduce numbers, and prevent further spread.

The proposed Kulija Road and Baldivis Road intersection upgrade may affect potential black cockatoo habitat and may impact broader environmental values such as habitat connectivity. Whilst the habitat quality is low, the retention of mature trees should be prioritised. Mature trees and established shrubs also contribute significantly to flood risk mitigation through rainfall interception, water uptake, erosion control, and the reduction of surface water flows, thereby reducing the likelihood and severity of flooding.

It is recommended to take a precautionary approach to minimise the risk of acid sulfate soils. Disturbance of or exposure to oxygen of the acid sulfate soils has potential to cause significant environmental impacts and could lead to listing of the area as a contaminated site. Any soil disturbing works or excavations planned for the area may require a specific acid sulfate soil investigation and management plan to mitigate risks.
It is recommended that a construction environmental management plan is developed before clearing to ensure that appropriate weed, soil and land management measures are implemented during site clearing to protect surrounding ecosystems. This should include weed hygiene controls, such as removing soil and plant material from machinery and footwear before entering and leaving the site, as well as procedures to prevent spills and manage erosion and sediment throughout the works.

During any clearing and tree felling, an approved fauna spotter should be present to manage and relocate displaced fauna as required.

The development footprint should be minimised to reduce clearing of vegetation and, where practicable, confined to existing cleared or degraded areas. Whilst the site does not contain remnant native vegetation, any clearing of native vegetation is likely to require a Native Vegetation Clearing Permit under Part V of the *Environmental Protection Act 1986*.

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Appendix 1: PMST Report 10 km

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: 06-May-2026

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:	3
Listed Threatened Species:	28
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	15
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:	14
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

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

Ramsar Site Name	Proximity
Peel-yalgorup system	20 - 30km upstream from Ramsar site

Listed Threatened Ecological Communities [Resource Information]

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

Community Name	Threatened Category	Presence Text
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	Community may occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text
BIRD		
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Calidris ferruginea](#)		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
[Calyptorhynchus banksii naso](#)		
Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
[Charadrius leschenaultii](#)		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
[Leipoa ocellata](#)		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
[Numenius madagascariensis](#)		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Rostratula australis](#)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
[Sternula nereis nereis](#)		
Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
[Tringa nebularia](#)		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
[Zanda baudinii listed as Calyptorhynchus baudinii](#)		
Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Species or species habitat likely to occur within area
[Zanda latirostris listed as Calyptorhynchus latirostris](#)		
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
MAMMAL		
[Dasyurus geoffroii](#)		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
[Pseudocheirus occidentalis](#) Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
OTHER		
[Westralunio carteri](#) Carter's Freshwater Mussel, Ambiguus Mussel [86266]	Vulnerable	Species or species habitat likely to occur within area
PLANT		
[Andersonia gracilis](#) Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur within area
[Banksia mimica](#) Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area
[Caladenia huegelii](#) King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area
[Diuris micrantha](#) Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
[Diuris purdiei](#) Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
[Drakaea elastica](#) Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
[Drakaea micrantha](#) Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
[Eucalyptus x balanites](#) Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
[Synaphea sp. Fairbridge Farm (D.Papenfus 696)](#) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Synaphea sp. Serpentine (G.R.Brand 103) [86879]	Critically Endangered	Species or species habitat may occur within area
Thelymitra variegata Queen of Sheba [12582]	Critically Endangered	Species or species habitat may occur within area
SHARK		
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

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

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within 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

Scientific Name	Threatened Category	Presence Text
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Spatial Property Group Ltd - Residential Development, Kerosene Lane and Baldivis Road	2021/9006		Approval
Controlled action			
Clearing of 18.80 ha of vegatation ahead of quarrying operations	2010/5650	Controlled Action	Completed
Construction of New Perth Bunbury Highway project	2005/2193	Controlled Action	Post-Approval
Extend a section of Mundijong Road	2011/5971	Controlled Action	Post-Approval
Natural Gas Pipeline Expansion	2006/2813	Controlled Action	Post-Approval
Not controlled action			
'Looping 10' gas transmission pipeline from Kwinana to Hopelands	2005/2212	Not Controlled Action	Completed
Continuation of quarrying sand and limestone, Lot 800 Kerosene Lane, Baldivis, WA	2013/6832	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Residential Subdivision on Baldivis Road, Sabrina Road & Zig Zag Road	2012/6613	Not Controlled Action	Completed
Not controlled action (particular manner)			

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
Multipurpose development stage 1 within 340ha	2004/1913	Not Controlled Action (Particular Manner)	Post-Approval
South West Metropolitan Railway Project	2003/1175	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
Mundijong Road Ext Realignment Project Baldivis WA	2011/5864	Referral Decision	Completed

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

Where data is 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 on the contents of this report.

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 point locations and environmental data layers.

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 when time permits.

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 breeding sites; and
- 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 2: Conservation Codes

A2.1 Flora and Fauna

State Flora and Fauna Conservation Codes under the *Biodiversity Conservation Act 2016* (WA)

Conservation Code	Name	Description
Threatened Species		
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
Extinct Species		
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
Specially Protected Species		
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Other Specially Protected Species	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)

State Flora and Fauna Conservation Codes listed by Department of Biodiversity, Conservation and Attractions

Conservation Code	Name	Description
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
P2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
P3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.
P4	Priority Four	Rare or near threatened and other species in need of monitoring. a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species. c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

Source: DBCA, 2023.

Commonwealth Flora and Fauna Conservation Codes under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

Category	Description
Extinct	A native species which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Extinct in the wild	A native species which at a particular time if, at that time: a) It is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or b) It has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically endangered	A species considered to be facing an extremely high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Endangered	A species considered to be facing a very high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Vulnerable	A species considered to be facing a high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Conservation dependent	A native species which at a particular time if, at that time: a) is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or b) the following subparagraphs are satisfied: i. the species is a species of fish; ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised; iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory; iv. cessation of the plan of management would adversely affect the conservation status of the species.

A2.2 Ecological Communities

State Ecological Community Conservation Codes under the *Biodiversity Conservation Act 2016* (WA)

Conservation Code	Name	Description
PD	Presumed Totally Destroyed	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.
CR	Critically Endangered	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
EN	Endangered	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
VU	Vulnerable	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

State Ecological Community Conservation Codes listed by Department of Biodiversity, Conservation and Attractions

Conservation Code	Name	Description
P1	Priority One	**Poorly known ecological communities - very few occurrences, very restricted distribution** Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100 ha). Occurrences are believed to be under threat either due to limited extent or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
P2	Priority Two	**Poorly known ecological communities - few occurrences, restricted distribution** Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200 ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
P3	Priority Three	**Poorly known ecological communities - inadequately surveyed or not well defined** Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them. his category includes three sub-categories: i. Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation. ii. Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), iii. Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across

Conservation Code	Name	Description
		much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.
P4	Priority Four	**Adequately known ecological communities - rare, near threatened, or recently removed from the threatened list** Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. i. Rare: Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These communities are usually represented on conservation lands. ii. Near Threatened: Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category. iii. Ecological communities that have been removed from the list of threatened communities during the past five years.
P5	Priority Five	**Conservation dependent ecological communities** Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Source: DBCA, 2023

Commonwealth Ecological Community Conservation Codes under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

Category	Description
Critically endangered	If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).
Endangered	If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).
Vulnerable	If, at that time, an ecological community is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future (indicative timeframe being the next 50 years).

Appendix 3: Declared Pest Legal Status and Control Categories

Legal status of organisms as listed under the *Biosecurity and Agriculture Management Act 2007* (WA)

Legal Status	Definition
Permitted - s11	Organisms that are allowed entry into WA.
Declared Pest, Prohibited - s12	Organisms that are prohibited from entry into WA. Where there are reasonable grounds that the organism may have adverse effect on: i. another organism ii. human beings iii. the environment or part of the environment iv. agricultural activities, fishing or pearling activities, or related commercial activities, carried on or intended to be carried on, in the State or part of the State. Or it may have an adverse effect on any of those things if it were present in the State or part of the State, or if it were present in the State or the part in greater numbers or to a greater extent.
Declared Pest - s22(2)	Organisms that are present in WA and are under a control category. Where there are reasonable grounds that the organism may have adverse effect on: i. another organism in the area ii. human beings in the area iii. the environment or part of the environment in the area iv. agricultural activities, fishing or pearling activities, or related commercial activities, carried on or intended to be carried on, in the State or part of the State in the area. Or it may have an adverse effect on any of those things if it were present in the area, or if it were present in the area in greater numbers or to a greater extent.
Permitted, Requires Permit - r73	Organisms may only be imported subject to an import permit. These organisms may be subject to restriction under legislation other than the *Biosecurity and Agriculture Management Act 2007*. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.
Unlisted - s14	Is not a permitted organism or a declared pest. Unlisted organisms are automatically prohibited entry into Western Australia.

Declared pests listed under the *Biosecurity and Agriculture Management Act 2007* (WA) under section 22 (2) are subjected to control categories listed under the Biosecurity and Agriculture Management Regulations 2013 (WA).

Control Category	Definition
C1 Exclusion	If in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented;
C2 Eradication	If in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible;

Control Category	Definition
C3 Management	If in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to i. alleviate the harmful impact of the declared pest in the area ii. reduce the number or distribution of the declared pest in the area iii. prevent or contain the spread of the declared pest in the area.
Unassigned	Declared pests that are recognised as having a harmful impact under certain circumstances, where their subsequent control requirements are determined by a Plan or other legislative arrangements under the Act.

Appendix 4: Significant Species

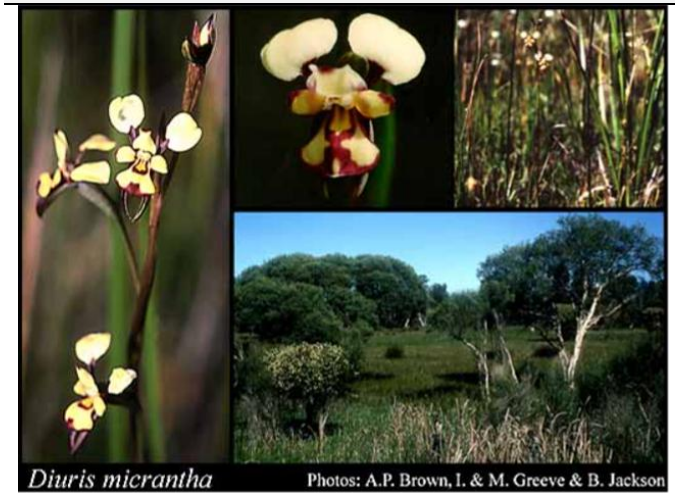
Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
Acacia lasiocarpa var. bracteolata long peduncle variant		Shrub, 0.4-1.5 m high. Fl. Yellow.	May or Aug.	Grey or black sand over clay. Swampy areas, winter wet lowlands.	P1	N	Habitat unsuitable
Acacia sp. *Binningup*					P1	N	Habitat unsuitable
Amanita fibrillopes		No Info	N/A		P3	N	Habitat unsuitable
 *Andersonia gracilis*		Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white-pink-purple.	Sep to Nov.	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps.	VU	N	Habitat unsuitable

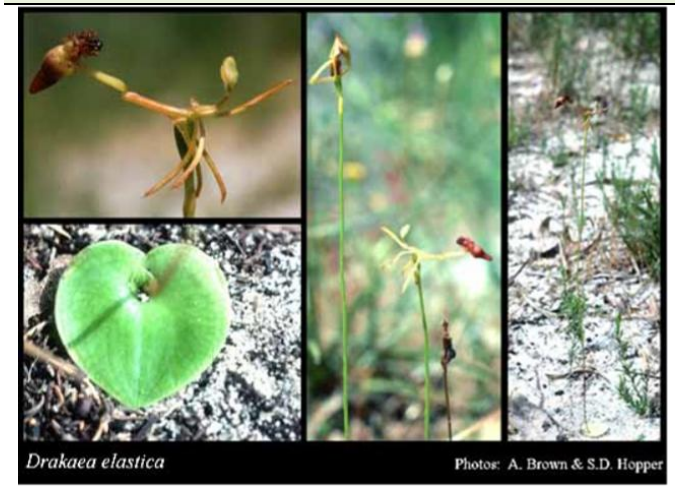
Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Aponogeton hexatepalus*	Stalked Water Ribbons	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green-white.	Jul to Oct.	Mud. Freshwater: ponds, rivers, claypans.	P4	N	Habitat unsuitable
 *Banksia mimica*	Summer Honeypot	Prostrate, lignotuberous shrub, 0.15-0.4 m high. Fl. yellow-brown.	Dec or Jan to Feb.	White or grey sand over laterite, sandy loam.	VU	N	Habitat unsuitable

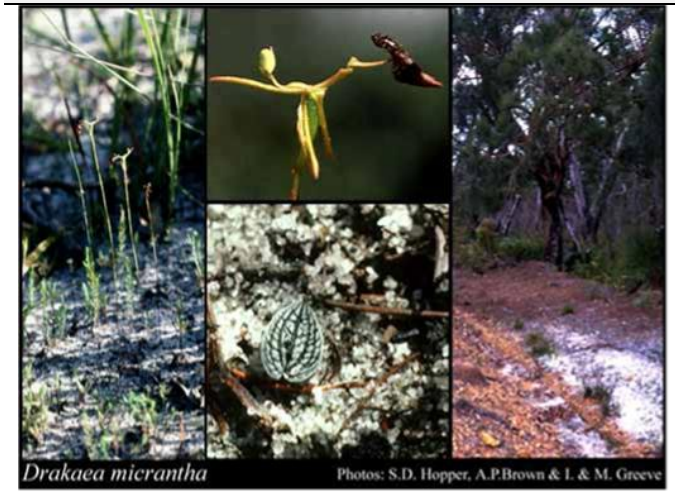
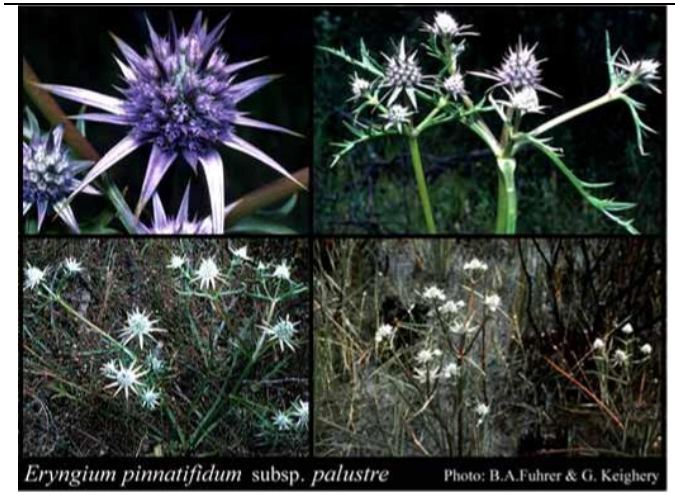
Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Beyeria cinerea* subsp. *cinerea*		Open, erect shrub, 0.3-0.9 m high, 0.4-0.8 m wide. Fl. green-yellow.	Aug to Nov.	Sand over limestone. Road verges, gullies.	P3	N	Habitat unsuitable
Boronia juncea subsp. *juncea*		Slender or straggly shrub, pedicels and sepals glabrous. Fl. Pink.	Apr.	Sand. Low scrub.	P1	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Caladenia huegelii*	Grand Spider Orchid	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red.	Sep to Oct.	Grey or brown sand, clay loam.	CR	N	Habitat unsuitable
Carex tereticaulis		Monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Fl. Brown.	Sep to Oct.	Black peaty sand.	P3	N	Habitat unsuitable
Conostylis pauciflora subsp. *pauciflora*		Rhizomatous, stoloniferous perennial, grass-like or herb, 0.1-0.35 m high. Fl. yellow	Aug to Oct.	Grey sand, limestone. Hillslopes, consolidated dunes.	P4	N	Habitat unsuitable
Cyathochaeta teretifolia		Rhizomatous, clumped,		Grey sand, sandy clay.	P3	Y	Habitat suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
		robust perennial, grass-like or herb (sedge), to 2 m high, to 1.0 m wide. Fl. brown		Swamps, creek edges.			
Dampiera triloba		Erect perennial, herb or shrub, to 0.5 m high. Leaf oblong with dentate margins, Fl. Blue.	Aug to Dec.	Dark brown/black peaty soils.	P3	N	Habitat unsuitable
Dillwynia dillwynioides		Decumbent or erect, slender shrub, 0.3-1.2 m high. Fl. red & yellow/orange.	Aug to Dec.	Sandy soils. Winter-wet depressions.	P3	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Diuris micrantha*	Dwarf Bee Orchid	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown.	Sep to Oct.	Brown loamy clay. Winter-wet swamps, in shallow water.	VU	N	Habitat unsuitable
 *Diuris purdiei*	Purdie's Donkey Orchid	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. Yellow.	Sep to Oct.	Grey-black sand, moist. Winter-wet swamps.	EN	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Dodonaea hackettiana*	Hackett's Hopbush	Erect shrub or tree, 1-5 m high. Fl. yellow-green/red, mainly.	Jul to Oct.	Sand. Outcropping limestone.	P4	Y	Habitat suitable
 *Drakaea elastica*	Glossy-leaved Hammer Orchid	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow.	Oct to Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.	CR	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Drakaea micrantha*		Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow.	Sep to Oct.	White-grey sand.	EN	N	Habitat unsuitable
 *Eryngium pinnatifidum* subsp. Palustre		Erect perennial, herb, 0.15-0.5 m high. Fl. white/blue.	Oct to Nov.	Claypans, seasonally wet flats.	P3	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
Eucalyptus foecunda subsp. *foecunda*	Fremantle Mallee	Dense emergent mallee. Bark +/- smooth; buds golden.	-	Sand over limestone.	P4	N	Habitat unsuitable
Eucalyptus rudis subsp. *cratyantha*	Large-flowered Flooded Gum	Tree, 5-20 m high, bark rough, box-type. Fl. White.	Jul to Sep.	Loam. Flats, hillsides.	P4	Y	Habitat suitable
 Eucalyptus x balanites	Cadda Road Mallee	(Mallee), to 5 m high, bark rough, flaky. Fl. White.	Oct to Dec or Jan to Feb.	Sandy soils with lateritic gravel.	CR		Habitat unsuitable

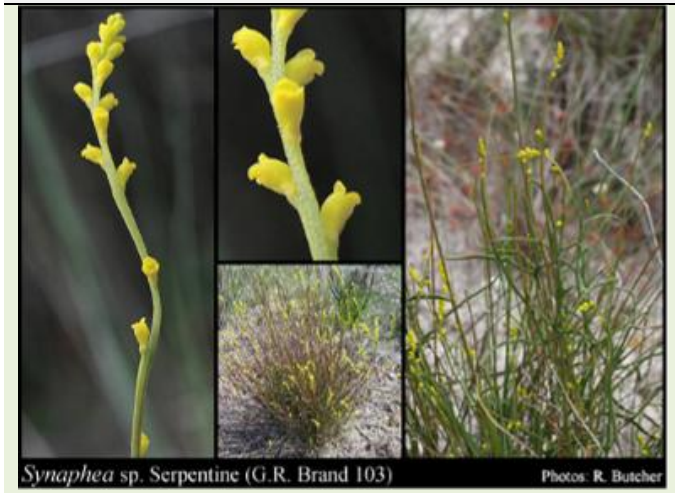
Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Jacksonia gracillima*		Prostrate, spreading or scrambling. Habit shrub, spindly shrub (broom-like).	Oct or Nov.	Flat, coastal plain foothills, brown loam. Marri, Jarrah open forest, over mixed shrubs.	P3	Y	Habitat suitable
 *Jacksonia sericea*	Waldjumi	Low spreading shrub, to 0.6 m high. Fl. orange,	Usually, Dec or Jan to Feb.	Calcareous & sandy soils.	P4	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
Johnsonia pubescens subsp. *cygnorum*		Tufted perennial, herb, 0.15-0.25 m high. Fl. white-green.	Sep.	Grey-white-yellow sand.	P2	N	Habitat unsuitable
Netrostylis sp. Chandala					P2	N	Habitat unsuitable
Parsonsia diaphanophleba		Woody climber, to 10 m high. Fl. white/cream & pink.	Jan to Feb or Apr to Jun or Sep.	Alluvial soils. Along rivers.	P4	N	Habitat unsuitable
 *Pimelea calcicola*	Coastal Banjine	Erect to spreading shrub, 0.2-1 m high. Fl. Pink.	Sep to Nov.	Sand. Coastal limestone ridges.	P3	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Sphaerolobium calcicola*		Slender, multi-stemmed, scandent or erect shrub, to 1.5 m high. Fl. orange-red	Jun or Sep to Nov.	White-grey-brown sand, sandy clay over limestone, black peaty sandy clay. Tall dunes, winter-wet flats, interdunal swamps, low-lying areas.	P3	N	Habitat unsuitable
 *Stylidium ireneae*		Lax perennial, herb, 0.1-0.28 m high, Leaves oblanceolate, 0.4-2 cm long, 1-3 (-5) mm wide, apex subacute to acuminate, margin entire, glandular. Scape glandular.	Oct to Dec.	Sandy loam. Valleys near creek lines, woodland, often with Agonis.	P4	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
		Inflorescence racemose. Fl. Pink.					
 *Stylidium longitubum*	Jumping Jacks	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. Pink.	Oct to Dec.	Sandy clay, clay. Seasonal wetlands.	P4	N	Habitat unsuitable
Stylidium paludicola		Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin	Oct to Dec.	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland.	P3	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
		entire, glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink					
 *Synaphea* sp. Fairbridge Farm		Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. yellow	Oct.	Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses.	CR	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Synaphea* sp. Serpentine		Perennial, erect, clumped shrub (sub-shrub), to 0.6 m high x to 0.5 m wide. Flowers are yellow and borne on long spikes, well above the leaves.	Aug to Nov.	Flat terrain. grey-brown sandy loams to clay in seasonally wet areas.	CR	Y	Habitat suitable
 *Thelymitra variegata*	Queen of Sheba	Tuberous, perennial, herb, 0.1-0.35 m high. Fl. orange & red & purple & pink.	Jun to Sep.	Sandy clay, sand, laterite.	T	N	Habitat unsuitable

Appendix 5: Species List

The complete flora list for the site is provided in the table below with flora listed by family.

Family	Species Name	Common Name
Apocynaceae	**Gomphocarpus fruticosus*	Narrowleaf Cottonbush
Apocynaceae	*Alyxia buxifolia*	Dysentery Bush
Asparagaceae	*Acanthocarpus preissii*	
Asparagaceae	*Lomandra caespitosa*	Tufted Mat Rush
Asteraceae	**Lactuca serriola*	Prickly Lettuce
Asteraceae	**Leontodon rhagadioloides*	Cretan Weed
Asteraceae	**Osteospermum ecklonis*	
Asteraceae	**Symphyotrichum squamatum*	Bushy Starwort
Asteraceae	*Olearia axillaris*	Coastal Daisybush
Casuarinaceae	*Casuarina obesa*	Swamp Sheoak
Chenopodiaceae	**Atriplex prostrata*	Hastate Orache
Chenopodiaceae	*Rhagodia baccata*	Berry Saltbush
Cucurbitaceae	**Cucumis myriocarpus*	Prickly Paddy Melon
Cupressaceae	*Callitris preissii*	Rottnest Island Pine
Cyperaceae	*Bolboschoenus caldwellii*	Marsh Club-rush
Dilleniaceae	*Hibbertia hypericoides*	Yellow Buttercups
Euphorbiaceae	**Euphorbia terracina*	Geraldton Carnation Weed
Euphorbiaceae	**Ricinus communis*	Castor Oil Plant
Fabaceae	**Acacia iteaphylla*	
Fabaceae	**Lupinus cosentinii*	
Fabaceae	**Retama raetam*	
Fabaceae	*Acacia cochlearis*	Rigid Wattle
Fabaceae	*Acacia rostellifera*	Summer-scented Wattle
Fabaceae	*Acacia saligna*	Orange Wattle
Fabaceae	*Hardenbergia comptoniana*	Native Wisteria
Fabaceae	*Jacksonia furcellata*	Grey Stinkwood
Goodeniaceae	*Scaevola crassifolia*	Thick-leaved Fan-flower
Hemerocallidaceae	*Dianella revoluta*	Blueberry Lily
Iridaceae	**Romulea rosea*	Guildford Grass

Family	Species Name	Common Name
Juncaceae	*Juncus pallidus*	Pale Rush
Lamiaceae	**Lavandula dentata*	French Lavender
Malvaceae	**Malva pseudolavatera*	
Myrtaceae	*#Eucalyptus camaldulensis*	River Gum
Myrtaceae	*#Melaleuca megacephala*	
Myrtaceae	*Agonis flexuosa*	Peppermint
Myrtaceae	*Corymbia calophylla*	Marri
Myrtaceae	*Eremaea pauciflora*	
Myrtaceae	*Eucalyptus gomphocephala*	Tuart
Myrtaceae	*Eucalyptus marginata*	Jarrah
Myrtaceae	*Eucalyptus rudis*	Flooded Gum
Myrtaceae	*Melaleuca huegelii*	Chenille Honeymyrtle
Myrtaceae	*Melaleuca incana*	Grey Honeymyrtle
Myrtaceae	*Melaleuca lanceolata*	Rottnest Teatree
Myrtaceae	*Melaleuca systena*	Coastal Honeymyrtle
Myrtaceae	*Melaleuca teretifolia*	Banbar
Oleaceae	**Olea europaea*	Olive
Onagraceae	**Oenothera drummondii*	Beach Evening Primrose
Poaceae	**Avena barbata*	Bearded Oat
Poaceae	**Bromus diandrus*	Great Brome
Poaceae	**Cenchrus clandestinus*	Kikuyu Grass
Poaceae	**Cynodon dactylon*	Couch
Poaceae	**Ehrharta calycina*	Perennial Veldt Grass
Poaceae	**Eragrostis curvula*	African Lovegrass
Poaceae	**Lagurus ovatus*	Hare's Tail Grass
Polygonaceae	**Polygonum arenastrum*	Sand Wireweed
Polygonaceae	**Rumex crispus*	Curled Dock
Proteaceae	*Banksia sessilis*	
Proteaceae	*Grevillea olivacea*	Olive Grevillea
Proteaceae	*Grevillea preissii*	
Proteaceae	*Hakea lissocarpha*	Honey Bush
Proteaceae	*Hakea trifurcata*	Two-leaf Hakea

Family	Species Name	Common Name
Ranunculaceae	*Clematis linearifolia*	Slender Clematis
Solanaceae	**Solanum linnaeanum*	
Typhaceae	*Typha orientalis*	Bulrush
Zamiaceae	*Macrozamia riedlei*	Zamia

(*) Denotes introduced species and (#) denotes species that are native to Western Australia but not to this local region.

Appendix 6: Black Cockatoo Habitat Assessment Data

Black cockatoo habitat assessment data is outlined below.

Species	DBH (mm)	Height (m)	Hollows Present	Foraging Present	Northing	Easting
#Eucalyptus camaldulensis	760	11	No	No	6426456	390130
#Eucalyptus camaldulensis	660	11	No	No	6426461	390144