

APPENDIX 7

ENVIRONMENTAL

REPORT

(PGV ENVIRONMENTAL)

BALANCE LOT 594 WANNEROO ROAD, HOCKING

ENVIRONMENTAL ASSESSMENT REPORT

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1 INTRODUCTION

1.1 Background

1.1.1 Location

Lot 594 Wanneroo Road, Hocking is located in the City of Wanneroo, approximately 21km north-north-west of the Perth Central Business District (CBD) (Figure 1). The eastern part of the Lot has been developed for the St Elizabeth's Catholic Primary School. The western part of the lot subject of this report is approximately 6.39ha in size and is proposed to be developed for urban purposes. The western part contains some cleared land and remnant native bushland and is hereafter referred to as the 'site' in this Environmental Assessment Report.

1.1.2 Proposed Development

The proposed development of the site includes a Business/Commercial precinct along the western boundary along Wanneroo Road and residential development on the balance of the site, including two drainage areas and a Public Open Space/Conservation area in the south-eastern corner (Appendix 1).

1.2 Scope of Works

The Environmental Assessment was undertaken to determine the environmental attributes of the site and their management in the context of the proposed Structure Plan. The assessment included the following:

- Physical characteristics including a description of:
 - Landform;
 - Geology and soils; and
 - Hydrology;
- Recent and present land use including:
 - Assessment of current and historical activities on the subject site and surrounding areas; and
- Flora and Vegetation;
 - Review of previous studies to describe flora and vegetation attributes of the site
- Fauna:
 - A Level 1 Fauna Survey including a search of State and Commonwealth databases for conservation significant species, a description of the fauna habitats and an assessment of the significance of the site for conservation significant species in a local and regional context.
- Heritage:
 - Department of Planning, Lands and Heritage and National Heritage database search.
- Implications, if any, under Western Australian policies and legislation including the *Environmental Protection Act 1986* and the Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act).

2 EXISTING ENVIRONMENT

2.1 Land Use

Examination of historical aerial photography shows that the site was cleared in 1965 on the western side for market Gardens (Plate 1). The eastern part of the site remains vegetated.

Plate 1: Aerial Photography from 1965



Between 1995 and 2000 the surrounding subdivision was established and the market gardens are no longer being used (Plate 2). The vegetation in the eastern part of the site has not been cleared.

Plate 2: Aerial Photography from 2000



The school on the eastern side of Lot 594 was constructed between 2013 and 2014 (Plate 3).

Plate 3: Aerial Photography from 2014



The site is not listed on the Contaminated Sites database (DWER, 2019a). The site is not currently utilised and all buildings have been removed.

2.2 Zoning

The Site is zoned 'Urban' under the Metropolitan Region Scheme and 'Urban Development' under the City of Wanneroo Town Planning Scheme No. 2 (WAPC, 2001).

2.3 Surrounding Land Use

The Saint Elizabeth's Catholic Primary School occurs to the east of the site and includes school buildings, carparking, small oval and some undeveloped bush. Residential development occurs to the south and north of the site and Wanneroo Road extends down the western side (Figure 2).

2.4 Topography

The site is almost flat and ranges from approximately 53 to 55m Australian Height Datum (AHD) (DWER, 2019b).

2.5 Geology and Soils

2.5.1 Geology

The site is mapped as part of the Spearwood System which has the highest relief of the dune systems on the Swan Coastal Plain (Bolland, 1998). The Spearwood system consists of slightly calcareous Aeolian sand remnant from leaching of the underlying Pleistocene Tamala limestone (Davidson, 1995).

2.5.2 Soils

The Spearwood soil unit mapped on the site and is described as follows:

- Karrakatta Sand Yellow Phase (211Sp_Ky) which are undulating dunes on aeolian sand over limestone in the Swan Coastal Plain between Wanneroo and Lancelin of yellow deep sands (DPIRD, 2019).

2.5.3 Acid Sulphate Soils

Acid sulphate soils (ASS) are wetland soils and unconsolidated sediments that contain iron sulphides which, when exposed to atmospheric oxygen in the presence of water, form sulphuric acid. ASS form in protected low energy environments such as barrier estuaries and coastal lakes and commonly occurs in low-lying coastal lands such as Holocene marine muds and sands. When disturbed, these soils are prone to produce sulphuric acid and mobilise iron, aluminium, manganese and other heavy metals. The release of these reaction products can be detrimental to biota, human health and built infrastructure (WAPC, 2009).

The ASS Risk on the site is mapped as No Known Risk of ASS <3m from the surface (National Map, 2019).

2.6 Hydrology

Groundwater under the site is at approximately 35 to 36m AHD (DWER, 2018), which is between 17m and 19m below ground level. Groundwater generally flows to the west.

There are no wetlands or surface water features on the site (National Map, 2019).

2.7 Vegetation

2.7.1 Vegetation Complex

Approximately 2.79ha of native vegetation occurs on the eastern part of the site.

The vegetation is mapped as being part of the Karrakatta -Central and South vegetation complex. Vegetation of the Karrakatta– Central and South Complex is described by Heddle *et al.* (1980) as an open forest of Tuart-Jarrah-Marri, with Jarrah and Marri replacing Tuart while progressing eastwards. *Banksia attenuata*, *B. menziesii*, *B. grandis* and *Allocasuarina fraseriana* are also common tree species.

2.7.2 Vegetation Types

A spring Flora and Vegetation survey was undertaken on the site by Coffey Environments in 2007 (Coffey Environments, 2007). The survey was reviewed in 2011 and 2019 by PGV Environmental. Three vegetation types were mapped on the site by Coffey Environments and included two native vegetation types on the eastern side of the site and one area dominated by exotic weed species covering most of the western side as follows. PGV Environmental revised the boundaries of the vegetation types slightly (Figure 3) and simplified the vegetation description. The descriptions of the Coffey Environments vegetation types and PGV Environmental mapping units are:

CcEmBaOf *Corymbia calophylla* (Marri), *Eucalyptus marginata* (Jarrah) and *Banksia attenuata* Open Forest to 9m over Open Heath of *Xanthorrhoea preissii* *Macrozamia riedlei* and *Hardenbergia comptoniana* to 1.4m over Low Open Heath of *Hemiandra pungens*, *Hibbertia hypericoides*, *Acacia willdenowiana*, *Hibbertia huegelii* and *Leucopogon racemulosus* to 0.7m over Open Herbland of *Burchardia congesta*, *Thysanotus manglesianus*, *Thysanotus patersonii* and *Drosera macrantha* to 0.3m.

Some Tuart trees (*Eucalyptus gomphocephala*) occur in the south-west portion of this vegetation type.

This vegetation type is mapped as a Marri/Jarrah Woodland in Figure 3 of this report. Approximately 1.84ha of this vegetation type occurs on the site.

This vegetation type occurs in the central and northeastern part of the site.

EmAfBaOF *Allocasuarina fraseriana* (Sheoak), *Eucalyptus marginata* (Jarrah), *Banksia attenuata* and *Banksia prionotes* Open Forest to 9m over Shrubland of *Macrozamia riedlei*, *Xanthorrhoea preissii* (Grass Tree) and *Hardenbergia comptoniana* to 1.2m over Low Open Heath of *Hibbertia hypericoides*, *Hypocalymma robustum*, *Conostylis aurea*, *Gompholobium tomentosum*, *Mesomelaena pseudostygia* and *Bossiaea eriocarpa* to 0.6m over Open Herbland of *Caesia micrantha*, *Burchardia congesta* and *Trachymene pilosa* to 0.3m.

This vegetation type is mapped as Banksia Woodland in this report on the basis that the Banksia trees are more dominant than the scattered Sheoak and Jarrah trees. Approximately 0.95 ha of this vegetation type occurs on the site.

This vegetation type occurs in the southeastern part of the site.

AbEcG *Avena barbata* (Wild oats) and *Ehrharta calycina* (Veldt grass) Grassland to 1.2m over *Lupinus angustifolius* (Lupin) and *Pelargonium capitatum* (Rose Pelargonium) Low Closed Heath to 1m. (Figure 3).

The AbEcG vegetation unit is mapped on the cleared western part of the site. A dense stand of False Bamboo (*Arundo donax*) is also present in the grassland.

2.7.3 Vegetation Condition

The condition of the vegetation was assessed according to the system used in Bush Forever (Government of Western Australia, 2000) (Table 1).

Table 1: Vegetation Condition Rating Scale.

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Government of Western Australia, 2000.

The western cleared area dominated by weeds and mapped as Degraded by Coffey Environments (2007) is considered by PGV Environmental to be Completely Degraded.

The native vegetation on the eastern part of the site, mapped by Coffey Environments (2007) as Very Good to Excellent is currently in Good to Very Good condition as assessed by PGV Environmental in 2011 and 2019. Most of the native vegetation is in Very Good condition apart from the perimeter where weeds have encroached as well as the southwestern part of the area mapped as Marri/Jarra Woodland where the understorey has a large number of weeds.

Some walking tracks that are maintained as firebreaks occur along the southern and eastern ends of the native vegetation.

2.7.4 Conservation Significance of Vegetation

The vegetation on the site is part of the Karrakatta Complex Central and South. There is approximately 23.91% of the Karrakatta Complex Central and South remaining on the southern Swan Coastal Plain based on the pre-European extent with 2.5% in secure tenure (WALGA, 2013).

The vegetation is considered to be representative of FCT 28 – Spearwood *Banksia attenuata* – *Eucalyptus* Woodlands which is not listed as a Priority or Threatened Ecological Community at State level.

A part of the AfEmBaOF native vegetation type that is dominated by *Banksia* species is considered to meet the definition of the EPBC listed *Banksia Woodlands of the Swan Coastal Plain* Threatened Ecological Community (TEC).

A portion of the native vegetation in the south-east corner of the site is part of the area identified in the Clearing Permit for the adjoining school site in 2013 as requiring to be protected (Clearing Permit CPS 5304/1).

2.8 Flora

The flora survey conducted in 2007 identified a total of 85 plant species on the whole of Lot 594. This total consisted of 68 native species and 17 (20%) introduced species. The percentage of introduced species was relatively high and reflected the past disturbance on the site.

No Threatened flora species were recorded on the site. A large number (>50 plants) of the Priority 4 species *Jacksonia sericea* (Waldjumi) was recorded in the south-eastern part of the site and extending into the adjoining vegetation on the school site. The boundary of the *Jacksonia sericea* population occurring on the site was ground-truthed by PGV Environmental using a GPS in 2019. *Jacksonia sericea* is a low, spreading perennial shrub that typically occurs under Banksia Woodland in the City of Wanneroo (Plate 4).

Plate 4: *Jacksonia sericea* (Waldjumi) on the site



2.9 Fauna

2.9.1 Background

Fauna studies on the site have been limited to a Black Cockatoo Habitat assessment undertaken by PGV Environmental in 2011 (PGV Environmental, 2011). As a result, a Level 1 Fauna Assessment was undertaken for this Environmental Assessment Report. The results are included in the following sections.

2.9.2 Desktop Studies

Desktop studies were undertaken to identify conservation significant species potentially present on the site. A search of the Department of Biodiversity, Conservation and Attractions' (DBCA) Naturemap

database (Appendix 2) and the EPBC Act Protected Matters Search Tool (Appendix 3) identified 57 threatened species of fauna listed as potentially occurring within a 5km radius of the site (Table 2).

Table 2: List of Fauna Species Identified from Fauna Database Searches

Scientific Name	Common Name	Conservation Status, WA	Status under EPBC Act
<i>Bettongia penicillata ogilbyi</i>	Woylie, Brush-tailed Bettong	Schedule 1 - CR	Endangered
<i>Calidris ferruginea</i>	Curlew Sandpiper	Schedule 1 - CR	Critically Endangered
<i>Numenius madagascariensis</i>	Eastern Curlew	Schedule 1 - CR	Critically Endangered
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum, Ngwayir	Schedule 1 - CR	Critically Endangered
<i>Botaurus poiciloptilus</i>	Australasian bittern	Schedule 2 - EN	Endangered
<i>Calidris canutus</i>	Red Knot	Schedule 2 - EN	Marine/ Migratory
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	Schedule 2 - EN	Endangered
<i>Calyptorhynchus latirostris</i>	Carnaby's Black Cockatoo	Schedule 2 - EN	Endangered
<i>Rostratula australis</i> (<i>Rostratula benghalensis australis</i>)	Australian Painted Snipe	Schedule 2 - EN	Endangered Marine/ Migratory
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	Schedule 3 - VU	Vulnerable
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	Schedule 3 - VU	Vulnerable
<i>Leipoa ocellata</i>	Mallee Fowl	Schedule 3 - VU	Vulnerable
<i>Charadrius leschenaultii</i>	Greater Sand Plover	Schedule 3 - VU Schedule 5 - IA	Marine/ Migratory
<i>Actitis hypoleucos</i> (<i>Tringa hypoleucos</i>)	Common Sandpiper	Schedule 5 - IA	Marine/ Migratory
<i>Apus pacificus</i>	Fork-tailed Swift	Schedule 5 - IA	Marine/Migratory
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Schedule 5 - IA	Marine/ Migratory
<i>Calidris melanotos</i>	Pectoral Sandpiper	Schedule 5 - IA	Marine/ Migratory
<i>Calidris ruficollis</i>	Red-necked Stint	Schedule 5 - IA	Marine/ Migratory
<i>Calidris subminuta</i>	Long-toed Stint	Schedule 5 - IA	Marine/ Migratory
<i>Chlidonias leucopterus</i> (<i>Sterna leucoptera</i>)	White-winged Black tern, White-winged Tern	Schedule 5 - IA	Marine/ Migratory
<i>Hydroprogne caspia</i> (<i>Sterna caspia</i>)	Caspian Tern	Schedule 5 - IA	Marine/ Migratory
<i>Limosa limosa</i>	Black-tailed Godwit	Schedule 5 - IA	Migratory/ Marine
<i>Macronectes giganteus</i>	Southern Giant Petrel	Schedule 5 - IA	Endangered/ Migratory/ Marine
<i>Motacilla cinerea</i>	Grey Wagtail	Schedule 5 - IA	Migratory/ Marine
<i>Pandion cristatus</i> (<i>Pandion haliaetus</i>)	Osprey	Schedule 5 - IA	Marine/ Migratory
<i>Plegadis falcinellus</i>	Glossy Ibis	Schedule 5 - IA	Marine/Migratory

Scientific Name	Common Name	Conservation Status, WA	Status under EPBC Act
<i>Pluvialis fulva</i>	Pacific Golden Plover	Schedule 5 - IA	Marine/ Migratory
<i>Pluvialis squatarola</i>	Grey Plover	Schedule 5 - IA	Marine/ Migratory
<i>Sterna dougallii</i>	Roseate Tern	Schedule 5 - IA	Marine/ Migratory
<i>Tringa glareola</i>	Wood Sandpiper	Schedule 5 - IA	Marine/ Migratory
<i>Tringa nebularia</i>	Common Greenshank	Schedule 5 - IA	Marine/ Migratory
<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	Schedule 5 - IA	Marine/ Migratory
<i>Xenus cinereus (Tringa cinerea)</i>	Terek Sandpiper	Schedule 5 - IA	Marine/ Migratory
<i>Falco peregrinus</i>	Peregrine Falcon	Schedule 7 - OS	Marine/ Migratory
<i>Ardea alba (Ardea modesta)</i>	Great Egret, White Egret		Marine
<i>Ardea ibis</i>	Cattle Egret		Marine
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle		Marine
<i>Himantopus himantopus</i>	Black-winged Stilt		Marine
<i>Merops ornatus</i>	Rainbow Bee-eater		Marine
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet		Marine/ Migratory
<i>Neelaps calonotos</i>	Black-striped Snake	Priority 3	
<i>Hydromys chrysogaster</i>	Water-rat, Rakali	Priority 4	
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	Priority 4	
<i>Isoodon fusciventer</i>	Southern Brown Bandicoot, Quenda	Priority 4	
<i>Ixobrychus dubius</i>	Australian Little Bittern	Priority 4	
<i>Synemon gratiosa</i>	Graceful Sun-moth	Priority 4	
<i>Thinornis rubricollis (Charadrius rubricollis)</i>	Hooded Plover	Priority 4	Marine

Fauna are classified under five different Priority codes and rare and endangered fauna are classified under the *Wildlife Conservation (Specially Protected Fauna) Notice 2014* into five schedules of taxa. These are outlined in Appendix 4.

2.9.3 Fauna Habitat

The fauna habitat was described on the site assessment visit undertaken in 2019. There are two fauna habitats on the site, described as:

- Open Woodland Habitat (Plate 5); and
- Grassland of Exotic Species Habitat (Plate 6).

Plate 5: Open Woodland Habitat



Plate 6: Grassland of Exotic Species Habitat



Fauna habitat can be assessed using a number of factors including, the size of the habitat, the level of habitat connectivity, availability of specific resources (e.g. tree hollows) and overall vegetation quality. The habitat was assessed according to the following categories:

High Quality Fauna Habitat – These areas closely approximate the vegetation mix and quality that would have been in the area prior to any disturbance. The habitat has connectivity with other habitats and is likely to contain the most natural vertebrate fauna assemblage.

Very Good Fauna Habitat - These areas show minimal signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) and generally retain many of the characteristics of the habitat if it had not

been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be minimally affected by disturbance.

Good Fauna Habitat – These areas showed signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be affected by disturbance.

Disturbed Fauna Habitat – These areas showed signs of significant disturbance. Many of the trees, shrubs and undergrowth are cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, contain weeds or have been damaged by vehicle or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred.

Highly Degraded Fauna Habitat – These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Faunal assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance (Coffey Environments, 2009).

The Open Woodland Habitat has very limited connectivity but is in Good to Very Good Condition and therefore is considered to be Good Fauna Habitat. The habitat provides some value for reptiles and avifauna. The Grassland of Exotic Species Habitat is Completely Degraded and the fauna assemblage is likely to be significantly different and is considered to be Highly Degraded Fauna Habitat.

2.9.4 Conservation Significant Species

Outlined below in Table 3 is a short description of each of the species that were identified in the NatureMap Species Report search and the EPBC Protected Matters Search Tool in Table 2. The preferred habitat has been compared to the habitats on the site described above and the likelihood of each species to be present was determined.

Table 3: Likelihood of Conservation Significant Species being Present on the Site

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Bettongia penicillata ogilbyi</i>	Woylie, Brush-tailed Bettong	The Woylie habitat types ranged from forest to grassland, coastal and inland. During the day the Woylie shelters under patches of dense undergrowth, logs and rock-cavities and occasionally in burrows.	Highly Unlikely due to site disturbance and lack of records from the area
<i>Calidris ferruginea</i>	Curlew Sandpiper	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms.	No – no suitable habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Numenius madagascariensis</i>	Eastern Curlew	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets.	No – not coastal habitat
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum, Ngwayir	The Western Ringtail Possum is a medium sized nocturnal marsupial. This species occurs in and near coastal Peppermint Tree (<i>Agonis flexuosa</i>) forest and Tuart (<i>Eucalyptus gomphocephala</i>) dominated forest with a Peppermint Tree understorey.	No – no preferred habitat
<i>Botaurus poiciloptilus</i>	Australasian bittern	The Australasian Bittern occurs mainly in densely vegetated freshwater wetlands and, rarely, in estuaries or tidal wetlands.	No – no wetland habitat
<i>Calidris canutus</i>	Red Knot	In Australasia the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	No – not coastal habitat
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	Baudin's Black-Cockatoo mainly occurs in eucalypt forests, especially Jarrah (<i>E. marginata</i>), Marri (<i>Corymbia calophylla</i>), also Karri (<i>E. diversicolor</i>) forest, often feeding in the understorey on proteaceous trees and shrubs, especially banksias (SEWPaC, 2012).	Unlikely, outside known distribution range
<i>Calyptorhynchus latirostris</i>	Carnaby's Black Cockatoo	Carnaby's Cockatoo is found in the south-west of Australia from Kalbarri through to Ravensthorpe. It has a preference for feeding on the seeds of Banksia, Dryandra, Hakea, Eucalyptus, Grevillea, Pinus and Allocasuarina spp. It is nomadic often moving toward the coast after breeding. It breeds in tree hollows that are 2.5 - 12m above the ground and have an entrance 23-30cm with a depth of 1-2.5m. Nesting mostly occurs in smooth-barked trees (e.g. Salmon Gum, Wandoo, Red Morrell) (SEWPaC, 2012).	Likely

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Rostratula australis</i> (<i>Rostratula benghalensis australis</i>)	Australian Painted Snipe	The Australian Painted Snipe has been recorded at wetlands in all states of Australia but is most common in eastern Australia. It generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. It also uses inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include a cover of vegetation, including grasses.	Highly Unlikely – no wetlands on the site
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	Forest Red-tailed Black Cockatoos frequent the humid to sub-humid south-west of Western Australia from Gingin in the north, to Albany in the south and west to Cape Leeuwin and Bunbury (SEWPaC, 2012). It nests in tree hollows with a depth of 1-5m, that are predominately Marri (<i>Corymbia calophylla</i>), Jarrah (<i>Eucalyptus marginata</i>) and Karri (<i>E. diversicolor</i>) and it feeds primarily on the seeds of Marri.	Possible
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	The Chuditch have been known to occupy a wide range of habitats including woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. They are opportunistic feeders, and forage on the ground at night, feeding on invertebrates, small mammals, birds and reptiles.	Highly Unlikely due to site disturbance and lack of records from the area
<i>Leipoa ocellata</i>	Mallee Fowl	Mallee fowl have been found in mallee regions of southern Australia from approximately the 26th parallel of latitude southwards in mallee bushland.	No – no mallee habitat on the site
<i>Charadrius leschenaultii</i>	Greater Sand Plover	In Australasia, the species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons.	No – not coastal habitat
<i>Actitis hypoleucos</i> (<i>Tringa hypoleucos</i>)	Common Sandpiper	The Common Sandpiper is mostly found around muddy margins or rocky shores. Generally the species forages in shallow water and on bare soft mud at the edges of wetlands.	No – no mallee habitat on the site
<i>Apus pacificus</i>	Fork-tailed Swift	The Fork-tailed Swift is almost exclusively aerial and is not known to breed in Australia. They are seen in inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. <i>Apus pacificus</i> subsp. <i>pacificus</i> is the only subspecies to migrate to Australia.	Highly Unlikely to land on the site

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	The Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	No – not wetland habitat
<i>Calidris melanotos</i>	Pectoral Sandpiper	The Pectoral Sandpiper prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	No – not wetland habitat
<i>Calidris ruficollis</i>	Red-necked Stint	The Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores.	No – not coastal habitat
<i>Calidris subminuta</i>	Long-toed Stint	The Long-toed Stint prefers shallow freshwater or brackish wetlands including lakes, swamps, river floodplains, streams, lagoons and sewage ponds. The species is also fond of areas of muddy shoreline, growths of short grass, weeds, sedges, low or floating aquatic vegetation, reeds, rushes and occasionally stunted samphire.	No – not wetland habitat
<i>Chlidonias leucopterus</i> (<i>Sterna leucoptera</i>)	White-winged Black tern, White-winged Tern	In Australia, the White-winged Black tern mostly inhabits fresh, brackish or saline, and coastal or subcoastal wetlands.	No – not coastal habitat
<i>Hydroprogne caspia</i> (<i>Sterna caspia</i>)	Caspian Tern	The Caspian Tern is mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred.	No – not coastal habitat
<i>Limosa limosa</i>	Black-tailed Godwit	The Black-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh.	No – not coastal habitat
<i>Macronectes giganteus</i>	Southern Giant Petrel	The Southern Giant-Petrel is a marine bird that occurs in Antarctic to subtropical waters. In summer it mainly occurs over Antarctic waters.	No – marine and pelagic
<i>Motacilla cinerea</i>	Grey Wagtail	The Grey Wagtail is mostly recorded in coastal areas in Western Australia (ALA, 2015) however is widespread. There is non-breeding habitat only in Australia and the species has a strong association with water, particularly rocky substrates along water courses but also lakes and marshes.	No – not wetland habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Pandion cristatus</i> (<i>Pandion haliaetus</i>)	Osprey	Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They feed on fish, especially mullet where available, and rarely take molluscs, crustaceans, insects, reptiles, birds and mammals.	Highly Unlikely – not coastal habitat
<i>Plegadis falcinellus</i>	Glossy Ibis	The Glossy Ibis is the smallest ibis known in Australia. This species preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation but do not breed in South-west Western Australia.	No – not wetland habitat
<i>Pluvialis fulva</i>	Pacific Golden Plover	Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as <i>Sarcocornia</i> , or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in salt works.	No – not coastal habitat
<i>Pluvialis squatarola</i>	Grey Plover	Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons.	No – not coastal habitat
<i>Sterna dougallii</i>	Roseate Tern	The Roseate Tern is a migratory coastal seabird that feeds by plunge diving. This species breeds in sites surrounded by walls and rocks or in the shelter of vegetation (in temperate regions) (Birdlife International, 2014a).	No – not coastal habitat
<i>Tringa glareola</i>	Wood Sandpiper	The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially <i>Melaleuca</i> and River Red Gums <i>Eucalyptus camaldulensis</i> and often with fallen timber.	No – not wetland habitat
<i>Tringa nebularia</i>	Common Greenshank	The Common Greenshank is a wader and does not breed in Australia. This species can be found in many types of wetlands and has the widest distribution of any shorebird in Australia. This species typically feeds on molluscs, crustaceans, insects, and occasionally fish and frogs.	No – not wetland habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, salt pans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks.	No – not wetland habitat
<i>Xenus cinereus (Tringa cinerea)</i>	Terek Sandpiper	The Terek Sandpiper mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. The species has also been recorded on islets, mudbanks, sandbanks and spits, and near mangroves and occasionally in samphire (<i>Halosarcia</i> spp.).	No – not coastal habitat
<i>Falco peregrinus</i>	Peregrine Falcon	The Peregrine Falcon is found in a variety of habitats but nests on high cliff ledges or artificial structures. It feeds primarily on small-medium sized birds, but occasionally taking insects, such as moths, cicadas and locusts (Birdlife Australia, 2012).	Unlikely to land on the site
<i>Ardea alba (Ardea modesta)</i>	Great Egret, White Egret	The Eastern Great Egret has been reported in a wide range of wetland habitats and usually frequents shallow waters. This species feeds on fish, insects, crustaceans, molluscs, frogs, lizards, snakes and small birds and mammals.	No – not wetland habitat
<i>Ardea ibis</i>	Cattle Egret	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands with breeding in Western Australia recorded in the far north in Wyndham in colonies in wooded swamps such as mangrove forest. This species forages away from water on low lying grasslands, improved pastures and croplands generally in areas that have livestock eating insects, frog, lizards and small mammals.	May intermittently visit the cleared parts of the site
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	The White-bellied Sea-Eagle is found in coastal habitats with large areas of open water, especially those close to the sea-shore. This species feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans, and on carrion and offal.	No – not coastal habitat
<i>Himantopus himantopus</i>	Black-winged Stilt	The Black-winged Stilt is found near coastal lagoons and shallow freshwater or brackish pools with extensive areas of mudflats, salt meadows, salt pans, coastal marshes and swamps (Birdlife International, 2014b).	No – not wetland habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Merops ornatus</i>	Rainbow Bee-eater	Populations of the Rainbow Bee-eater that breed in northern Australia are considered to be resident, and in many northern localities the Rainbow Bee-eater is present throughout the year. The Rainbow Bee-eater nests in a burrow dug in the ground. It is found across the better-watered parts of WA including islands preferring lightly wooded, sandy country near water.	Possible intermittent visitor to the site
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet	The Red-necked Avocet occurs in wetland areas including bogs, marshes, swamps and Permanent Saline, Brackish or Alkaline Lakes (Birdlife International, 2014c).	No – not wetland habitat
<i>Neelaps calonotos</i>	Black-striped Snake	The Black-striped snake has a limited distribution, inhabiting areas with sandy soils that support heathlands and Banksia/Eucalypt Woodlands (Nevill, 2005) on the Swan Coastal Plain generally in the lower west coast from Lancelin to Mandurah (Storr et al, 1999).	Possible
<i>Hydromys chrysogaster</i>	Water-rat, Rakali	The Water Rat generally prefers wetland habitats characterised by dense, low-lying vegetation (0–30 cm from ground), low-density canopy cover and shallow, narrow water bodies (Speldewinde <i>et al.</i> , 2013).	No – not wetland habitat
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	The Swan Coastal Plain Shield-backed Trapdoor Spider arranges fallen twigs from the sheoak tree around the rim of its burrow entrance, enabling it to feel the vibrations of unsuspecting prey that wander by (Curtin, 2018).	Possible
<i>Isoodon fusciventer</i>	Southern Brown Bandicoot, Quenda	Southern Brown Bandicoots are small grey marsupials that prefer dense scrub (up to one metre high). Their diet includes invertebrates (including earthworms, adult beetles and their larvae), underground fungi, subterranean plant material, and very occasionally, small vertebrates (DEC, 2012).	Possible
<i>Ixobrychus dubius</i>	Australian Little Bittern	The Australian Little Bittern is mainly found in freshwater wetlands, where they inhabit dense emergent vegetation of reeds and sedges, and inundated shrub thickets. They are also occasionally found in brackish and saline wetlands such as mangrove swamps, Juncus-dominated salt marsh and the wooded margins of coastal lagoons (Naturewatch NZ, 2014).	No – not wetland habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Synemon gratiosa</i>	Graceful Sun-moth	The Graceful Sun-moth is a diurnal moth with dull coloured brown to black forewings and brightly coloured orange hind wings. The larvae burrow into the rhizomes of <i>Lomandra maritima</i> and <i>Lomandra hermaphrodita</i> exclusively and therefore require the presence of one or both of these species to be present in an area (Bishop <i>et al.</i> , 2011).	No – no habitat for this species
<i>Thinornis rubricollis</i> (<i>Charadrius rubricollis</i>)	Hooded Plover	The Hooded Plover primarily inhabits sandy, ocean beaches, with the highest densities on beaches with large amounts of beach-washed seaweed that are backed by extensive open dunes. In Western Australia the species also inhabits inland and coastal salt lakes (Birdlife International, 2014d).	No – not coastal habitat

* Habitat descriptions from DoEE (2016) SPRAT Database unless

Species identified in the database searches as likely or possibly present on the site were:

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*); and
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*).

The native vegetation contains foraging habitat for these Black Cockatoo species. There are also eight large Jarrah and Marri trees that meet the definition of potential breeding habitat as defined as significant trees by the Black Cockatoo Referral Guidelines (DoEE, 2016). Significant trees are trees of species known to support breeding within the range of the Black Cockatoo species which either have a suitable nest hollow OR are of a suitable diameter at breast height (DBH) to develop a nest hollow. The suitable DBH for Jarrah and Marri is 500mm.

Listed Marine species under the EPBC Act that may intermittently visit the site are:

- Cattle Egret (*Ardea ibis*); and
- Rainbow Bee-eater (*Merops ornatus*).

Priority species identified as possibly present on the site include:

- Swan Coastal Plain shield-backed trapdoor spider (*Idiosoma sigillatum*);
- Black-striped Snake (*Neelaps calonotos*); and
- Southern Brown Bandicoot, Quenda (*Isodon fusciventer*).

2.9.5 Black Cockatoos

Two species of Black Cockatoos listed under State and Federal legislation potentially utilise the site. The habitat on the site consists of seven plant species identified as potentially suitable foraging habitat for Black Cockatoos. These include Sheoak (*Allocasuarina fraseriana*), Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginata*) and *Banksia* species which are dominant in the canopy of the native vegetation on the site. The foraging habitat is approximately 2.79ha.

The site is not a known breeding site and no evidence of breeding has been recorded on the site. Potential breeding habitat for Carnaby's Black Cockatoos and Forest Red-tailed Black Cockatoos was recorded on the site consisting of eight Marri (*Corymbia calophylla*) and one Jarrah (*Eucalyptus marginata*) trees with a diameter at breast height (DBH) of 500mm or greater (Figure 3).

The site is not a known roosting site and no evidence was observed that the site has been used as roosting habitat.

2.9.6 Pest Fauna

Rabbits (*Oryctolagus cuniculus*) and foxes (*Vulpes vulpes*) are likely to be present in surrounding areas and may visit the site. It is also likely that feral cats (*Felis catus*), rats (*Rattus rattus*) and mice (*Mus musculus*) occur on the site.

2.9.7 Biodiversity Value

The EPA's (2002) *Terrestrial Biological Surveys as an Element of Biodiversity Protection Position Statement No. 3* indicated an ecological assessment of a site must consider its biodiversity value at the genetic, species and ecosystem levels; and its ecological functional value at the ecosystem level.

There is likely to be a paucity of native mammals and reptiles present in the area previously cleared as a result of clearing and increased feral predators such as foxes and cats. The biodiversity value on this part of the site is very low. The native vegetation is likely to contain a higher level of biodiversity.

2.10 Heritage

There are no Aboriginal Heritage Sites or Places mapped on the Balance Lot 594 Wanneroo Road Hocking (Appendix 5).

Heritage sites can be listed under the following lists/registers:

- World Heritage Sites;
- National Heritage Sites;
- Commonwealth Heritage Sites; and
- Sites on the Western Australian Heritage Council Register.

There are no listed Heritage Sites or Interim Heritage Sites on the site (National Map, 2019; Heritage Council of Western Australia, 2019; DoEE, 2019).

3 ENVIRONMENTAL ASSESSMENT

3.1 Structure Plan

The draft Structure Plan (Appendix 1) includes the following land uses:

- 1.13ha of Commercial development;
- 2.65ha of residential development;
- 0.17ha drainage;
- 1.66ha road reserve; and
- 1.15ha of Public Open Space

The area of Conservation Public Open Space is proposed to retain native vegetation as well as a drainage basin and an area for , including environmental features such as priority flora species, as well as provide a passive recreation area and walking paths (Appendix 6).

The following sections assess the Structure Plan against the environmental factors discussed in this report.

3.2 Past Land Use

The site is not listed as a Contaminated Site. Therefore, past land use is not an impediment to development.

3.3 Surrounding Land Use

The surrounding land uses are not considered an environmental impediment to development in accordance with the draft Structure Plan.

3.4 Geology and Soils

The Spearwood Dune geological unit and soil type are not constraining for urban development on the site.

There is no known risk of Acid Sulphate Soils on the site.

3.5 Hydrology

Groundwater is generally greater than 15m from the surface and is not an impediment to development.

A Local Water Management Strategy (LWMS) has been prepared for the site as part of the Structure Planning process (Hyd2o Hydrology, 2019). Given the depth to groundwater and highly permeable sandy soils on the site, stormwater will be able to be managed by on-site by infiltration.

An Urban Water Management Plan (UWMP) will be required at the subdivision stage.

3.6 Flora and Vegetation

The Structure Plan will result in the following outcomes for flora and vegetation:

- No Threatened (Declared Rare) Flora species occur on the site;
- All Priority 4 *Jacksonia sericea* plants on the site will be retained within the Bushland POS;
- Development will result in the retention of around 1.02ha (40%) of native vegetation in POS and the clearing of around 1.77ha for the development and POS drainage basin;
- The vegetation to be cleared and retained in POS is part of the Karrakatta Complex – Central and South Vegetation Complex, which has more than 10% remaining but less than 10% protected;
- The vegetation on the site is not representative of a TEC at State level; and
- The Banksia Woodland on the site is representative of the EPBC Act listed TEC Banksia Woodlands of the Swan Coastal Plain TEC. Around 0.77ha (or 82%) of the Banksia Woodland TEC would be retained in POS. A small amount, 0.18ha, would be cleared.

3.7 Fauna

The fauna assessment found the following:

- The habitats on the site are an Open Woodland habitat and Grassland of Exotic Species Habitat;
- The habitat in the cleared area is considered to be Highly Degraded Fauna Habitat due to previous clearing. The native Open Woodland vegetation is considered to be Good Fauna Habitat;
- Listed species that have the potential to utilise the site are:
 - Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*); and
 - Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*).
- The site contains foraging and potential breeding habitat for these species of Black Cockatoos;
- Listed Marine species under the EPBC Act that may intermittently visit the site are the Cattle Egret (*Ardea ibis*) and Rainbow Bee-eater (*Merops ornatus*);
- Priority species identified as possibly present on the site include:
 - Swan Coastal Plain shield-backed trapdoor spider (*Idiosoma sigillatum*);
 - Black-striped Snake (*Neelaps calonotos*); and
 - Southern Brown Bandicoot, Quenda (*Isodon fusciventer*)
- Pest fauna likely to occur on the site are rats and mice with potentially intermittent visits from cats, rabbits and foxes.

The western part of the site is completely degraded and is Highly Degraded Fauna Habitat. Development in this area will not impact on any of the fauna values on the site. The proposed development of the site retains 40% of the Good Fauna Habitat, including foraging for Black Cockatoos.

The development would result in the retention of three potential cockatoo breeding habitat trees in the POS and in road reserves and the clearing of five trees.

In accordance with the Black Cockatoo Referral Guidelines the proposed clearing of 1.77ha of foraging habitat and five potential breeding habitat trees may have a significant impact. Therefore, clearing for development is recommended to be referred under the EPBC Act.

3.8 Heritage

There are no heritage places or sites located on the Balance Lot and therefore there are no heritage impediments to the development of the site in accorded with the proposed Structure Plan.

4 SUMMARY AND CONCLUSION

4.1 Summary

The Environmental Assessment of Balance Lot 594 Wanneroo Road, Hocking found the following:

- The historical land use is not an impediment to the development on the site;
- Surrounding land use is consistent with the proposed land use in the Structure Plan;
- The geology and soils are not a constraint to development;
- There are no wetlands or surface water features on the site;
- The hydrology of the site is not an impediment to development with the implementation of appropriate stormwater controls in accordance with the Local Water Management Strategy prepared for the site;
- The site contains around 2.79ha of native vegetation at the eastern side, comprised of 1.84ha of Marri/Jarrah Woodland and 0.95ha of Banksia Woodland in Good to Very Good condition;
- No Declared Rare Flora occur on the site;
- More than 50 plants of the Priority 4 species *Jacksonia sericea* occur on the site
- The proposed POS will retain the following flora and vegetation values on the site:
 - All Priority 4 species *Jacksonia sericea* plants;
 - Approximately 1.02ha (or 37%) of the native vegetation, including 0.25ha of Marri/Jarrah Woodland and 0.77ha of Banksia Woodland;
 - The 0.77ha of Banksia Woodland will result in the retention of 0.77ha (or 82%) of the Federally listed Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community;
- The native vegetation is considered to be Good fauna habitat and contains foraging and potential breeding habitat for three listed species of Black Cockatoos;
- Development in accordance with the Structure Plan would result in the retention of 1.02ha of foraging and three potential breeding habitat trees for Black Cockatoos and the clearing of 1.77ha foraging and five potential breeding habitat trees;
- The clearing of Black Cockatoo habitat and Banksia Woodland TEC is recommended to be referred under the EPBC Act; and
- There are no known heritage sites on the lot that would impact on the proposed development.

4.2 Conclusion

The Environmental Assessment concludes that the proposed development on Balance Lot 594 Wanneroo Road, Hocking, in accordance with the draft Structure Plan will not have a detrimental impact on the environment. More than half the site has been cleared in the past and the prior land use in this area does not pose a risk to the environment from development. The retention of native vegetation in POS protects 37% of the native vegetation on the site including all Priority plants, the majority of Banksia Woodland TEC, and Black Cockatoo foraging and potential breeding habitat trees.

The extent of clearing is unlikely to result in a significant impact on the Banksia Woodland TEC or Black Cockatoo species, however a referral under the EPBC Act is recommended.

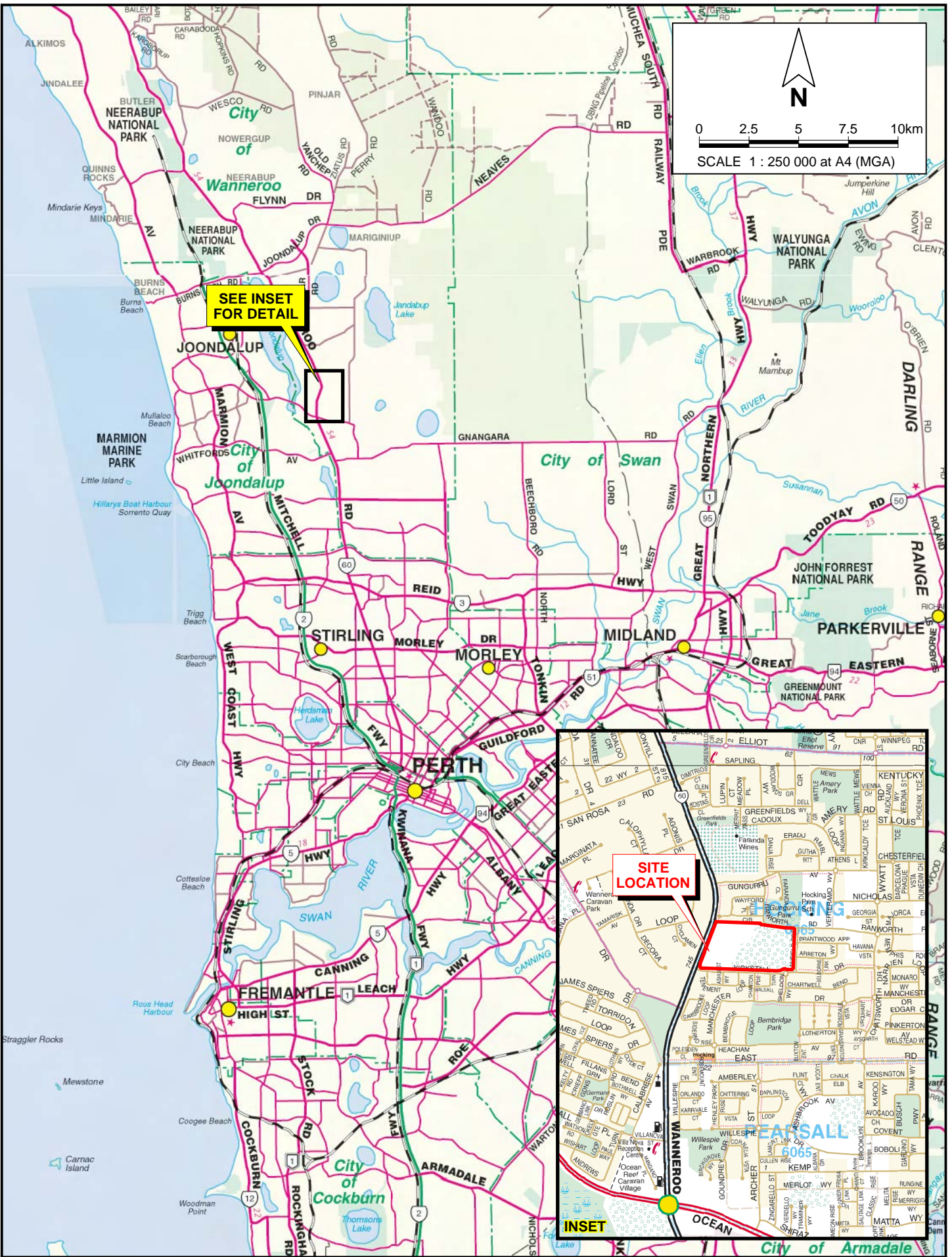
5 REFERENCES

- Atlas of Living Australia (ALA) (2015) *Motacilla (Calobates) cinerea* Tunstall, 1771: Grey Wagtail <http://biocache.ala.org.au/occurrence/search?q=lsid%3Aurn%3Aisid%3Abiodiversity.org.au%3Aafd.taxon%3A1691317b-af8b-4621-ac50-625088f21333> Accessed October 2015 Australia.
- Birdlife Australia (2012) Peregrine Falcon (*Falco peregrinus*) Factsheet. Accessed November 2012 <http://www.birdlife.org.au/images/uploads/branches/documents/ARA-Peregrine-Factsht.pdf> Australia.
- Birdlife International (2014a) Roseate Tern (*Sterna dougallii*) Species Profile. Accessed January 2014 <http://www.birdlife.org/datazone/speciesfactsheet.php?id=3262>
- Birdlife International (2014b) Black-winged Stilt (*Himantopus himantopus*) Species Profile. Accessed January 2014 <http://www.birdlife.org/datazone/speciesfactsheet.php?id=3101>
- Birdlife International (2014c) Red-necked Avocet (*Recurvirostra novaehollandiae*) Species Profile. Accessed January 2014 <http://www.birdlife.org/datazone/speciesfactsheet.php?id=3109>
- Birdlife International (2014d) Hooded Plover (*Thinornis cucullatus*) Species Profile. Accessed November 2014 <http://www.birdlife.org/datazone/speciesfactsheet.php?id=3144>
- Bishop C., M. Williams, D. Mitchell, A. Williams, J. Fissioli & T. Gamblin (2011) *Conservation of the Graceful Sun-moth: Findings from the 2010 Graceful Sun-moth surveys and habitat assessments across the Swan, South West and southern Midwest Regions*. Interim report. Kensington, Western Australia: Department of Environment and Conservation. Perth, Western Australia
- Bolland, M. (1998) *Soils of the Swan Coastal Plain*. Department of Agriculture. Bunbury, Western Australia.
- Coffey Environments (2007). *Spring Flora and Vegetation Survey Lot 594 Wanneroo Road, Hocking*. Prepared for Catholic Education Office Perth, Western Australia
- Coffey Environments (2009) Rockingham Industry Zone Fauna Risk Assessment East Rockingham Industrial Park (IP14 Area) Report No. 2005/55. Perth, Western Australia.
- Curtin University (2018) Perth's trapdoor spiders living on 'burrowed' time News Story <https://news.curtin.edu.au/stories/perths-trapdoor-spiders-living-burrowed-time/> Accessed February 2019 Perth, Western Australia
- Davidson, W.A. (1995) 'Hydrogeology and groundwater resources of the Perth region, Western Australia', *Western Australia Geological Survey, Bulletin 142* Perth Western Australia
- Department of Environment and Conservation (DEC) (2009) *Acid Sulphate Soils Guideline Series: Identification and Investigation of Acid Sulphate Soils and Acidic Landscapes* Perth Western Australia

- Department of Environment and Conservation (DEC) (2011) *Acid Sulphate Soils Guideline Series: Treatment and Management of Soils and Water in Acid Sulphate Soil Landscapes* Perth Western Australia
- Department of Environment and Conservation (DEC) (2012) *Fauna Species Profiles: Quenda Isoodon obesulus (Shaw, 1797)*. Perth, Western Australia.
- Department of Planning, Land and Heritage (DLPH) (2019) Aboriginal Heritage Inquiry System <https://maps.daa.wa.gov.au/AHIS/> Accessed April, 2019 Perth, Western Australia
- Department of Primary Industries and Regional Development (DPIRD) (2019) Natural Resource Information. Accessed April, 2019 <http://maps.agric.wa.gov.au/nrm-info/> Government of Western Australia, Perth.
- Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (2012) *Environment Protection and Biodiversity Conservation Act 1999 referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris; Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii; Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso*. Commonwealth of Australia.
- Department of the Environment and Energy (DoEE) (2016) Species Profile and Threats (SPRAT) Database. Accessed May 2016 <http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl> Commonwealth of Australia.
- Department of the Environment and Energy (DoEE) (2019) *Australian Heritage Database*. Accessed April, 2019 <http://www.environment.gov.au/cgi-bin/ahdb/search.pl> Commonwealth of Australia.
- Department of Water and Environmental Regulation (DWER) (2019) *Contaminated Sites Database* <https://dow.maps.arcgis.com/apps/webappviewer/index.html?id=c2ecb74291ae4da2ac32c441819c6d47> Accessed April, 2019 Perth, Western Australia
- Department of Water and Environmental Regulation (DWER) (2019) *Perth Groundwater Map*. Accessed April, 2019 <https://maps.water.wa.gov.au/#/webmap/gwm> Government of Western Australia, Perth.
- Environmental Protection Authority (EPA) (2002) EPA's (2002) *Terrestrial Biological Surveys as an Element of Biodiversity Protection Position Statement No. 3* Perth Western Australia
- Government of Western Australia (2000) *Bush Forever - Keeping the Bush in the City. Volume 2: Directory of Bush Forever Sites*. Perth, Western Australia.
- Hedde, E.M, Havel, J.J and Loneragan, O.W. (1980). *Vegetation Complexes of the Darling System, Western Australia*. In: Department of Conservation and Environment (1980) *Atlas of Natural Resources Darling System, Western Australia*. Department of Conservation and Environment, Perth, 1980.

- Heritage Council State Heritage Office (2019) *State Register of Heritage Places*. inHerit Database. Accessed April, 2019 <http://stateheritage.wa.gov.au/about-inherit> Government of Western Australia, Perth.
- Hyd2o Hydrology (2019). *Lot 594 Wanneroo Rad, Hocking Local Water Management Strategy*. Prepared for David Barnao & Co Pty Ltd. August 2019.
- Landgate (2019) *Historical Aerial Photography*. Government of Western Australia, Accessed April, 2019 <https://www.landgate.wa.gov.au/bmvf/app/mapviewer/> Perth.
- National Map (2019) Map-Based Access to Spatial Data from Australian Government Agencies <http://nationalmap.gov.au/#wa> Accessed April, 2019 Government of Australia
- Naturewatch NZ (2014) Species Profile - Australian Little Bittern. Accessed August 2014 <http://naturewatch.org.nz/taxa/52030-Ixobrychus-minutus-dubius#Habitat> New Zealand.
- Nevill, S. (ed) (2005) *Guide to the Wildlife of the Perth Region*. Simon Nevill Publications. Perth, Western Australia.
- PGV Environmental (2011). Letter to David Barnao & Co. 28 June 2011.
- Speldewinde, P.C., Close, P., Weybury, M. and Comer S. (2013) Habitat preference of the Australian water rat (*Hydromys chrysogaster*) in a coastal wetland and stream, Two Peoples Bay, south-western Australia. *Australian Mammalogy* 35(2) 188-194. CSIRO Publishing. Australia.
- Western Australian Local Government Association (WALGA) (2013) *Remnant Vegetation Extent Stats* September 2011 Perth, Western Australia
- Western Australian Planning Commission (WAPC) (2008) *Better Urban Water Management*. Government of Western Australia, Perth.
- Western Australian Planning Commission (WAPC) (2009) *Acid Sulfate Soils Planning Guidelines*. Government of Western Australia, Perth.

FIGURES



PINPOINT CARTOGRAPHICS (08) 9562 7136
 2019-442-101.dgn


Drawn: J. Cabot Job: 10027 Rpt: 2019-442	Date: 25 May 2019 Revision: A


Catholic Archdiocese of Perth
 ENVIRONMENTAL ASSESSMENT REPORT
 BALANCE LOT 594 WANNEROO ROAD, HOCKING

SITE LOCATION

Figure 1




 N
 0 10 20 30 40 50m
 SCALE 1 : 1 500 at A3 (MGA)
Legend
 - - - Site Boundary
 — Cadastral Boundary
 — Topographic Contour


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 ENVIRONMENTAL ASSESSMENT REPORT
 BALANCE LOT 594 WANNEROO ROAD, HOCKING
SITE BOUNDARY AND TOPOGRAPHY

2019-442-102.dgn
 PINPOINT CARTOGRAPHICS (08) 9562 7136

Figure 2

CONTOUR SOURCE: Dept. of Agriculture, 2000.
 CADASTRAL SOURCE: Landgate, February 2019.
 AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2019.



0 10 20 30 40 50m

 SCALE 1 : 1 500 at A3 (MGA)

Legend

 Site Boundary

 Cadastral Boundary

 Topographic Contour

PINPOINT CARTOGRAPHICS (08) 9562 7136
 2019-442-103.dgn

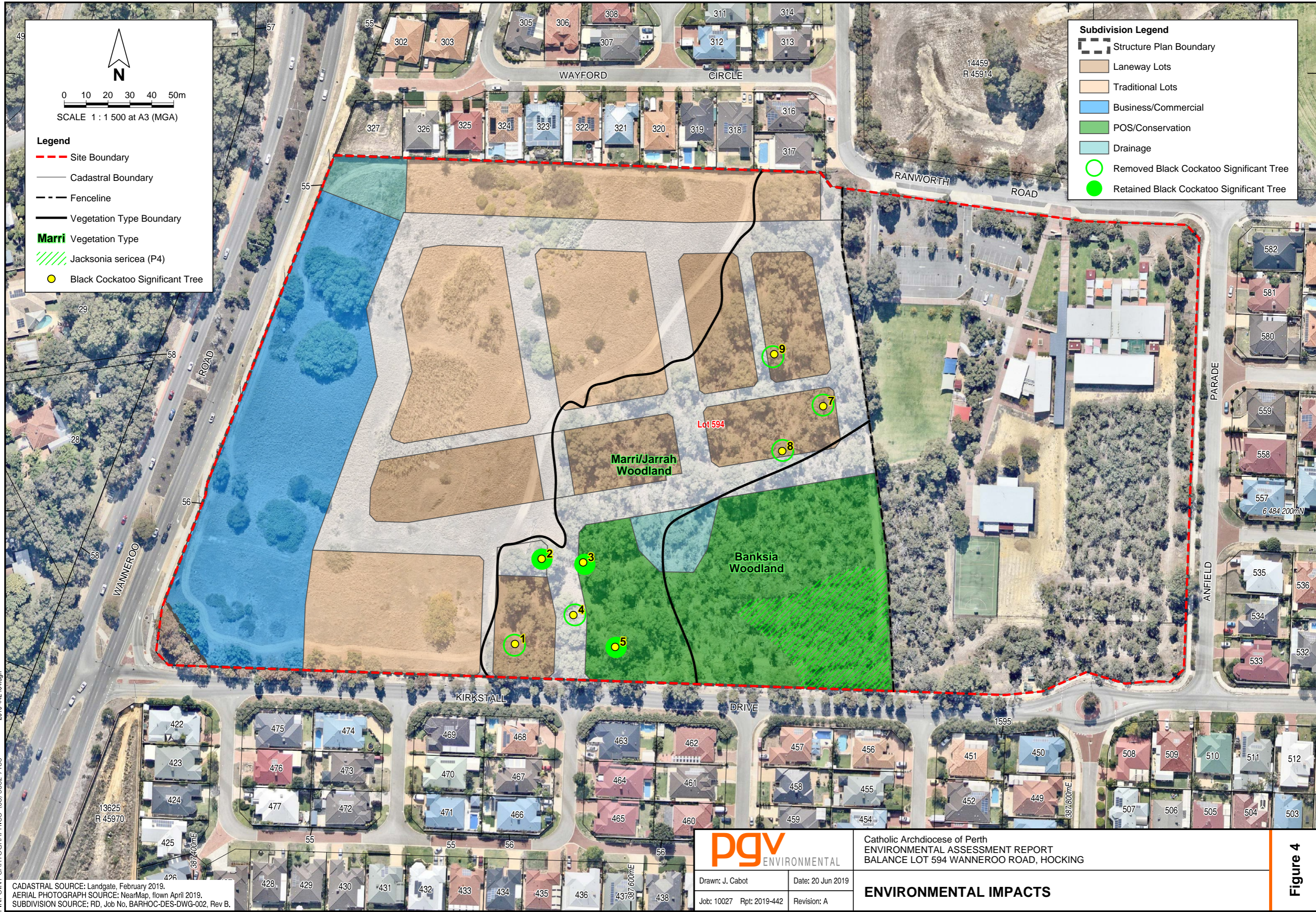
CADASTRAL SOURCE: Landgate, February 2019.
 AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2019.

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ENVIRONMENTAL FEATURES

Figure 3



Legend

- - - Site Boundary
- Cadastral Boundary
- Fenceline
- Vegetation Type Boundary
- Marri Vegetation Type
- Jacksonia sericea (P4)
- Black Cockatoo Significant Tree

Subdivision Legend

- Structure Plan Boundary
- Laneway Lots
- Traditional Lots
- Business/Commercial
- POS/Conservation
- Drainage
- Removed Black Cockatoo Significant Tree
- Retained Black Cockatoo Significant Tree

2019-442-104.dgn
PINPOINT CARTOGRAPHICS (08) 9562 7136

CADASTRAL SOURCE: Landgate, February 2019.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2019.
SUBDIVISION SOURCE: RD, Job No. BARHOC-DES-DWG-002, Rev B.



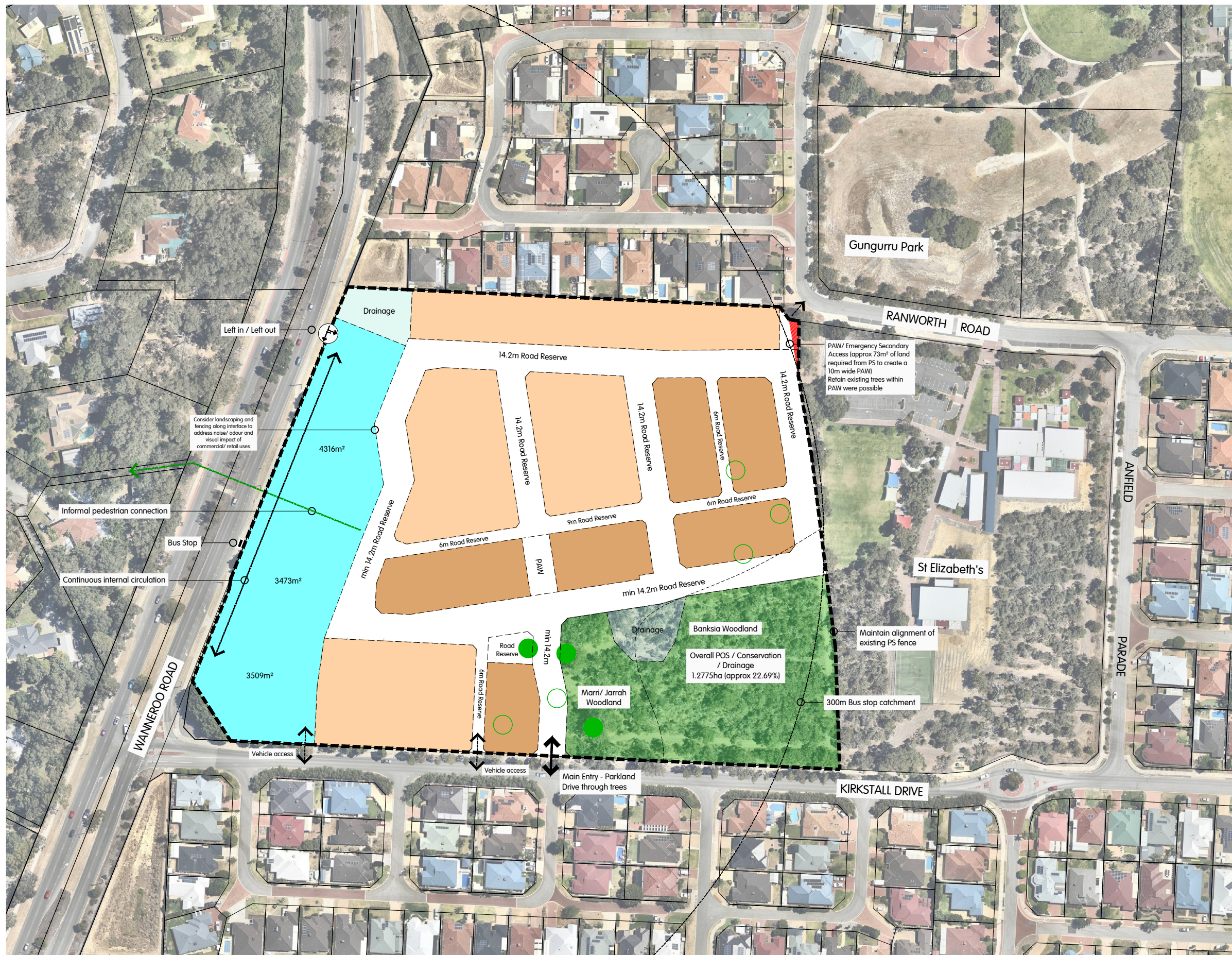
Catholic Archdiocese of Perth
ENVIRONMENTAL ASSESSMENT REPORT
BALANCE LOT 594 WANNEROO ROAD, HOCKING

Drawn: J. Cabot	Date: 20 Jun 2019
Job: 10027 Rpt: 2019-442	Revision: A









ENVIRONMENTAL IMPACTS

Figure 4

APPENDIX 1
Structure Plan (draft)



LEGEND

-  Structure Plan Boundary
-  Laneway Lots
-  Traditional Lots
-  Business/ Commercial
-  POS/ Conservation
-  Drainage
-  Retained Black Cockatoo Significant Tree
-  Removed Black Cockatoo Significant Tree

CADASTRAL INFORMATION
 SOURCE: LANDGATE
 YYMMDD: 190206
 DWG REF: 190206_LANDGATE_
 PROJECTION: PCG94

AERIAL PHOTOGRAPHY
 SOURCE: NEARMAPS
 YYMMDD: 181222



SIZE A3_1:2000



REVISED STRUCTURE PLAN
Lot 594 Wanneroo Road, Hocking
 City of Wanneroo

JOB CODE	SERVICE	DOC TYPE	DRAW NO.	REV.
BARHOC	DES	DWG	002	B

DISCLAIMER: ISSUED FOR DESIGN INTENT ONLY. ALL AREAS AND DIMENSIONS ARE SUBJECT TO DETAIL DESIGN AND SURVEY

APPENDIX 2

Naturemap Report

NatureMap Species Report

Created By Guest user on 03/05/2019

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 48' 42" E, 31° 46' 18" S
Buffer 5km
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	701	22099
Other specially protected fauna	2	16
Priority 1	1	4
Priority 2	3	6
Priority 3	8	16
Priority 4	6	220
Protected under international agreement	16	222
Rare or likely to become extinct	8	372
TOTAL	745	22955

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Rare or likely to become extinct				
1.	24345 <i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
2.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
3.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
4.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
5.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
6.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
7.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
8.	25819 <i>Marianthus paralius</i>		T	
Protected under international agreement				
9.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
10.	25554 <i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
11.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
12.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
13.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
14.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
15.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	
16.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
17.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
18.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
19.	24382 <i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
20.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
21.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
22.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
23.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
24.	41351 <i>Xenus cinereus</i> (Terek Sandpiper)		IA	
Other specially protected fauna				
25.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
26.	24475 <i>Falco peregrinus</i> subsp. <i>macropus</i> (Australian Peregrine Falcon)		S	
Priority 1				
27.	34161 <i>Baeckea</i> sp. Limestone (N. Gibson & M.N. Lyons 1425)		P1	
Priority 2				
28.	3237 <i>Acacia benthamii</i>		P2	
29.	35581 <i>Tetralia</i> sp. <i>Chandala</i> (G.J. Keighery 17055)		P2	
30.	1717 <i>Thelymitra variegata</i> (Queen of Sheba)		P2	
Priority 3				

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
31.	35317 <i>Austrostipa mundula</i>		P3	
32.	1425 <i>Conostylis bracteata</i>		P3	
33.	16245 <i>Cyathochaeta teretifolia</i>		P3	
34.	48935 <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	
35.	25249 <i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
36.	5237 <i>Pimelea calcicola</i>		P3	
37.	25800 <i>Stylidium paludicola</i>		P3	
38.	48297 <i>Styphelia filifolia</i>		P3	

Priority 4

39.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
40.	48588 <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
41.	47975 <i>Ixobrychus dubius</i> (Australian Little Bittern)		P4	
42.	4027 <i>Jacksonia sericea</i> (Waldjumi)		P4	
43.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
44.	33992 <i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	

Non-conservation taxon

45.	15466 <i>Acacia applanata</i>			
46.	3282 <i>Acacia cyclops</i> (Coastal Wattle)			
47.	11611 <i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>			
48.	15721 <i>Acacia lasiocarpa</i> var. <i>sedifolia</i>			
49.	17861 <i>Acacia longifolia</i>	Y		
50.	17464 <i>Acacia longifolia</i> subsp. <i>longifolia</i>	Y		
51.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
52.	3525 <i>Acacia rostellifera</i> (Summer-scented Wattle)			
53.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
54.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
55.	3541 <i>Acacia sessilis</i>			
56.	3584 <i>Acacia truncata</i>			
57.	3602 <i>Acacia willdenowiana</i> (Grass Wattle)			
58.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
59.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
60.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
61.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
62.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
63.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
64.	24281 <i>Accipiter cirrocephalus</i> subsp. <i>cirrocephalus</i> (Collared Sparrowhawk)			
65.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
66.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
67.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
68.	11837 <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> (Common Woollybush)			
69.	184 <i>Aira caryophylla</i> (Silvery Hairgrass)	Y		
70.	48513 <i>Aizoon pubescens</i>	Y		
71.	1056 <i>Alexgeorgea nitens</i>			
72.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondil)			
73.	2652 <i>Alternanthera nodiflora</i> (Common Joyweed)			
74.	2653 <i>Alternanthera pungens</i> (Khaki Weed)	Y		
75.	6565 <i>Alyxia buxifolia</i> (Dysentery Bush)			
76.	25840 <i>Amaranthus blitum</i>	Y		
77.	<i>Amblyomma triguttatum</i>			
78.	20184 <i>Amphipogon laguroides</i> subsp. <i>laguroides</i>			
79.	200 <i>Amphipogon turbinatus</i>			
80.	<i>Aname mainae</i>			
81.	<i>Aname tepperi</i>			
82.	24310 <i>Anas castanea</i> (Chestnut Teal)			
83.	24312 <i>Anas gracilis</i> (Grey Teal)			
84.	24313 <i>Anas platyrhynchos</i> (Mallard)			
85.	<i>Anas platyrhynchos</i> subsp. <i>domesticus</i>			
86.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
87.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
88.	6311 <i>Andersonia heterophylla</i>			
89.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
90.	11261 <i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>			
91.	<i>Anser anser</i>			
92.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
93.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
94.	8595 <i>Apium graveolens</i> (Wild Celery)	Y		
95.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
96.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
97.	<i>Araneus cyphoxis</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
98.	<i>Araneus eburniventris</i>			
99.	38967 <i>Arcyria incarnata</i>			
100.	38969 <i>Arcyria minuta</i>			
101.	38971 <i>Arcyria occidentalis</i>			Y
102.	25558 <i>Ardea ibis</i> (Cattle Egret)			
103.	25559 <i>Ardea intermedia</i> (Intermediate Egret)			
104.	41324 <i>Ardea modesta</i> (great egret, white egret)			
105.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
106.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
107.	1264 <i>Arnocrinum preissii</i>			
108.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
109.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
110.	<i>Artoria linnaei</i>			
111.	20283 <i>Astartea scoparia</i> (Common Astartea)			
112.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
113.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
114.	6339 <i>Astroloma xerophyllum</i>			
115.	<i>Austracantha minax</i>			
116.	17246 <i>Austrostipa nitida</i>			
117.	17254 <i>Austrostipa tenuifolia</i>			
118.	24318 <i>Aythya australis</i> (Hardhead)			
119.	16346 <i>Bacopa monnieri</i>	Y		
120.	38978 <i>Badhamia panicea</i>			
121.	<i>Badumna insignis</i>			
122.	<i>Ballarra longipalpus</i>			
123.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
124.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
125.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
126.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
127.	32077 <i>Banksia sessilis</i> var. <i>cygnorum</i>			
128.	32315 <i>Barbula calycina</i>			
129.	<i>Barnardius zonarius</i>			
130.	741 <i>Baumea articulata</i> (Jointed Rush)			
131.	743 <i>Baumea juncea</i> (Bare Twigrush)			
132.	744 <i>Baumea laxa</i>			
133.	745 <i>Baumea preissii</i>			
134.	5382 <i>Beaufortia elegans</i> (Elegant Beaufortia)			
135.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
136.	24319 <i>Biziura lobata</i> (Musk Duck)			
137.	749 <i>Bolboschoenus caldwellii</i> (Marsh Club-rush)			
138.	17665 <i>Boronia purdieana</i> subsp. <i>purdieana</i>			
139.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
140.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
141.	7867 <i>Brachyscome bellidioides</i>			
142.	7878 <i>Brachyscome iberidifolia</i>			
143.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
144.	11187 <i>Brassica barrelieri</i> subsp. <i>oxyrrhina</i> (Smooth-stem Turnip)	Y		
145.	3000 <i>Brassica tournefortii</i> (Mediterranean Turnip)	Y		
146.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
147.	245 <i>Briza minor</i> (Shivery Grass)	Y		
148.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
149.	32331 <i>Bryum lanatum</i>			
150.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
151.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
152.	24721 <i>Cacatua galerita</i> subsp. <i>galerita</i> (Sulphur-crested Cockatoo)	Y		
153.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
154.	25715 <i>Cacatua roseicapilla</i> (Galah)			
155.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
156.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
157.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
158.	24427 <i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)			
159.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
160.	1276 <i>Caesia micrantha</i> (Pale Grass Lily)			
161.	15330 <i>Caladenia arenicola</i>			
162.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
163.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
164.	15360 <i>Caladenia longicauda</i> subsp. <i>borealis</i>			
165.	15361 <i>Caladenia longicauda</i> subsp. <i>calcigena</i>			
166.	15377 <i>Caladenia reptans</i> subsp. <i>reptans</i>			
167.	19309 <i>Calectasia narragara</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
168.	10861 <i>Callistachys lanceolata</i> (Wonnich)			
169.	96 <i>Callitris preissii</i> (Rottnest Island Pine, Maro)			
170.	5415 <i>Calothamnus lateralis</i>			
171.	35816 <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>			
172.	5429 <i>Calothamnus sanguineus</i> (Silky-leaved Blood flower, Pindak)			
173.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
174.	5460 <i>Calytrix fraseri</i> (Pink Summer Calytrix)			
175.	5476 <i>Calytrix sapphirina</i>			
176.	32338 <i>Campylopus introflexus</i>	Y		
177.	<i>Carassius auratus</i>			
178.	3005 <i>Cardamine hirsuta</i> (Common Bittercress)	Y		
179.	49010 <i>Cardamine occulta</i>	Y		
180.	753 <i>Carex appressa</i> (Tall Sedge)			
181.	754 <i>Carex divisa</i> (Divided Sedge)	Y		
182.	755 <i>Carex fascicularis</i> (Tassel Sedge)			
183.	18314 <i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	Y		
184.	13685 <i>Catapodium rigidum</i> (Rigid Fescue)	Y		
185.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
186.	6214 <i>Centella asiatica</i>			
187.	1125 <i>Centrolepis drummondiana</i>			
188.	2889 <i>Cerastium glomeratum</i> (Mouse Ear Chickweed)	Y		
189.	32462 <i>Ceratodon purpureus</i> subsp. <i>convolutus</i>			
190.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
191.	<i>Cercophonius granulatus</i>			
192.	<i>Cercophonius sulcatus</i>			
193.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattle Bat)			
194.	18156 <i>Chamaecytisus palmensis</i> (Tagasaste)	Y		
195.	5498 <i>Chamaelaucium uncinatum</i> (Geraldton Wax)			
196.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
197.	1513 <i>Chasmanthe floribunda</i> (African Cornflag)	Y		
198.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			
199.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
200.	2490 <i>Chenopodium glaucum</i> (Glaucous Goosefoot)	Y		
201.	2491 <i>Chenopodium macrospermum</i>	Y		
202.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
203.	7925 <i>Chondrilla juncea</i> (Skeleton Weed)	Y		
204.	17833 <i>Chordifex microcodon</i>			
205.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
206.	<i>Chroicocephalus novaehollandiae</i>			
207.	24432 <i>Chrysococcyx lucidus</i> subsp. <i>plagusus</i> (Shining Bronze Cuckoo)			
208.	24288 <i>Circus approximans</i> (Swamp Harrier)			
209.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
210.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
211.	2929 <i>Clematis pubescens</i> (Common Clematis)			
212.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
213.	24613 <i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
214.	38771 <i>Coltriciella dependens</i>			
215.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
216.	4550 <i>Comesperma calymega</i> (Blue-spike Milkwort)			
217.	15607 <i>Conospermum acerosum</i> subsp. <i>acerosum</i>			
218.	15516 <i>Conospermum canaliculatum</i> subsp. <i>canaliculatum</i>			
219.	1876 <i>Conospermum incurvum</i> (Plume Smokebush)			
220.	15611 <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
221.	6347 <i>Conostephium minus</i> (Pink-tipped Pearl flower)			
222.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
223.	6349 <i>Conostephium preissii</i>			
224.	1418 <i>Conostylis aculeata</i> (Prickly Conostylis)			
225.	1427 <i>Conostylis candicans</i> (Grey Cottonhead)			
226.	1436 <i>Conostylis juncea</i>			
227.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
228.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
229.	7941 <i>Conyza parva</i>	Y		
230.	20074 <i>Conyza sumatrensis</i>	Y		
231.	29283 <i>Coprosma repens</i>	Y		
232.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
233.	<i>Cormocephalus aurantipes</i>			
234.	<i>Cormocephalus strigosus</i>			
235.	48259 <i>Cortaderia selloana</i> subsp. <i>selloana</i>	Y		
236.	24416 <i>Corvus bennetti</i> (Little Crow)			
237.	25592 <i>Corvus coronoides</i> (Australian Raven)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
238.	7945 <i>Cotula coronopifolia</i> (Waterbuttons)	Y		
239.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
240.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
241.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
242.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
243.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
244.	3136 <i>Crassula alata</i>	Y		
245.	3137 <i>Crassula colorata</i> (Dense Stonecrop)			
246.	3140 <i>Crassula glomerata</i>	Y		
247.	38998 <i>Craterium minutum</i>			
248.	24918 <i>Crenadactylus ocellatus</i> subsp. <i>ocellatus</i> (Clawless Gecko)			
249.	38780 <i>Crepidotus eucalyptorum</i>			
250.	38999 <i>Cribraria argillacea</i>			Y
251.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
252.	30893 <i>Cryptoblepharus buchananii</i>			
253.	25020 <i>Cryptoblepharus plagiocephalus</i>			
254.	<i>Cryptoerithus quobba</i>			
255.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
256.	25027 <i>Ctenotus australis</i>			
257.	25039 <i>Ctenotus fallens</i>			
258.	25047 <i>Ctenotus impar</i>			
259.	11021 <i>Cuscuta planiflora</i>	Y		
260.	15114 <i>Cyanicula gemmata</i>			
261.	25087 <i>Cyclodomorphus celatus</i> (Western Slender Blue-tongue)			
262.	24322 <i>Cygnus atratus</i> (Black Swan)			
263.	18318 <i>Cyperus involucratus</i>	Y		
264.	816 <i>Cyperus tenuiflorus</i> (Scaly Sedge)	Y		
265.	10916 <i>Cyrtostylis huegelii</i>			
266.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
267.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
268.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
269.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
270.	3807 <i>Daviesia divaricata</i> (Marno)			
271.	18560 <i>Daviesia divaricata</i> subsp. <i>divaricata</i>			
272.	16585 <i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>			
273.	3832 <i>Daviesia physodes</i>			
274.	3845 <i>Daviesia triflora</i>			
275.	24999 <i>Delma grayii</i>			
276.	25296 <i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
277.	24325 <i>Dendrocygna eytoni</i> (Plumed Whistling Duck)			
278.	17663 <i>Desmocladius asper</i>			
279.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
280.	31597 <i>Dichondra micrantha</i>	Y		Y
281.	39020 <i>Didymium difforme</i>			
282.	320 <i>Digitaria sanguinalis</i> (Crab Grass)	Y		
283.	<i>Dingosa serrata</i>			
284.	24929 <i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
285.	24939 <i>Diplodactylus polyophthalmus</i>			
286.	4453 <i>Diplolaena angustifolia</i> (Yanchep Rose)			
287.	4454 <i>Diplolaena dampieri</i> (Southern Diplolaena)			
288.	19649 <i>Disa bracteata</i>	Y		
289.	11049 <i>Diuris corymbosa</i>			
290.	12939 <i>Diuris magnifica</i>			
291.	48751 <i>Drosera drummondii</i>			
292.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
293.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
294.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
295.	3116 <i>Drosera omissa</i> (Bright Sundew)			
296.	32351 <i>Eccremidium pulchellum</i>			
297.	25251 <i>Echiopsis curta</i> (Bardick)			
298.	25100 <i>Egernia napoleonis</i>			
299.	<i>Egretta garzetta</i>			
300.	<i>Egretta novaehollandiae</i>			
301.	11485 <i>Ehrharta brevifolia</i> var. <i>cuspidata</i>	Y		
302.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
303.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
304.	<i>Elanus axillaris</i>			
305.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
306.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
307.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			

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308.	1643 <i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
309.	47215 <i>Entoloma byssisedum</i>			
310.	<i>Eodelena convexa</i>			
311.	<i>Eolophus roseicapillus</i>			
312.	6132 <i>Epilobium ciliatum</i>	Y		
313.	6133 <i>Epilobium hirtigerum</i> (Hairy Willow Herb)			
314.	14289 <i>Epilobium tetragonum</i> subsp. <i>tetragonum</i>	Y		
315.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
316.	376 <i>Eragrostis curvula</i> (African Lovegrass)	Y		
317.	14104 <i>Eremaea pauciflora</i> var. <i>pauciflora</i>			
318.	5542 <i>Eremaea purpurea</i>			
319.	<i>Eriophora biapicata</i>			
320.	4333 <i>Erodium cicutarium</i> (Common Storksbill)	Y		
321.	15446 <i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
322.	24379 <i>Erythronys cinctus</i> (Red-kneed Dotterel)			
323.	<i>Ethmostigmus rubripes</i>			
324.	5659 <i>Eucalyptus gomphocephala</i> (Tuart, Duart)			
325.	5708 <i>Eucalyptus marginata</i> (Jarrah, Djara)			
326.	13547 <i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
327.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
328.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
329.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
330.	4638 <i>Euphorbia peplus</i> (Petty Spurge)	Y		
331.	4648 <i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
332.	25621 <i>Falco berigora</i> (Brown Falcon)			
333.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
334.	24472 <i>Falco cenchroides</i> subsp. <i>cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
335.	25623 <i>Falco longipennis</i> (Australian Hobby)			
336.	24616 <i>Falculunculus frontatus</i> subsp. <i>leucogaster</i> (Western Shrike-tit, Crested Shrike-tit)			
337.	24041 <i>Felis catus</i> (Cat)	Y		
338.	1747 <i>Ficus carica</i> (Common Fig)	Y		
339.	32369 <i>Fissidens tenellus</i>			
340.	25727 <i>Fulica atra</i> (Eurasian Coot)			
341.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
342.	7976 <i>Galinsoga parviflora</i> (Potato Weed)	Y		
343.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
344.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
345.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
346.	<i>Gambusia affinis</i>			
347.	20475 <i>Gastrolobium capitatum</i>			
348.	20483 <i>Gastrolobium linearifolium</i>			
349.	42314 <i>Gavicalis virescens</i> (Singing Honeyeater)			
350.	16311 <i>Gazania linearis</i>	Y		
351.	32380 <i>Gemmabryum pachythecum</i>			
352.	32381 <i>Gemmabryum preissianum</i>			
353.	4341 <i>Geranium solanderi</i> (Native Geranium)			
354.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
355.	24271 <i>Gerygone fusca</i> subsp. <i>fusca</i> (Western Gerygone)			
356.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
357.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
358.	11051 <i>Gomphocarpus physocarpus</i>	Y		
359.	11083 <i>Gompholobium scabrum</i>			
360.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
361.	6161 <i>Gonocarpus pithyoides</i>			
362.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
363.	1982 <i>Grevillea crithmifolia</i>			
364.	15839 <i>Grevillea preissii</i> subsp. <i>preissii</i>			
365.	12824 <i>Grevillea vestita</i> subsp. <i>vestita</i>			
366.	5011 <i>Guichenotia ledifolia</i>			
367.	<i>Gymnopilus allantopus</i>			
368.	<i>Gymnopilus purpuratus</i>			
369.	1468 <i>Haemodorum laxum</i>			
370.	1470 <i>Haemodorum paniculatum</i> (Mardja)			
371.	2146 <i>Hakea costata</i> (Ribbed Hakea)			
372.	2175 <i>Hakea lissocarpha</i> (Honey Bush)			
373.	2214 <i>Hakea trifurcata</i> (Two-leaf Hakea)			
374.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
375.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
376.	24296 <i>Hamirostra isura</i> (Square-tailed Kite)			
377.	3961 <i>Hardenbergia comptoniana</i> (Native Wisteria)			

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378.	38791 <i>Hebeloma crustuliniforme</i>			
379.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
380.	8084 <i>Helminthotheca echioides</i> (Ox-tongue, Prickly Ox-tongue)	Y		
381.	6836 <i>Hemiandra incana</i>			
382.	6839 <i>Hemiandra pungens</i> (Snakebush)			
383.	25119 <i>Hemiergis quadrilineata</i>			
384.	<i>Henicops dentatus</i>			
385.	1293 <i>Hensmania turbinata</i>			
386.	1526 <i>Hesperantha falcata</i>	Y		
387.	443 <i>Heteropogon contortus</i> (Bunch Speargrass)			
388.	5112 <i>Hibbertia aurea</i>			
389.	5117 <i>Hibbertia cuneiformis</i> (Cutleaf Hibbertia)			
390.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
391.	45534 <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
392.	5154 <i>Hibbertia perfoliata</i>			
393.	43280 <i>Hibbertia sericosepala</i>			
394.	48381 <i>Hibbertia striata</i>			
395.	5173 <i>Hibbertia subvaginata</i>			
396.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
397.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
398.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
399.	<i>Hogna crispipes</i>			
400.	444 <i>Holcus lanatus</i> (Yorkshire Fog)	Y		
401.	6222 <i>Homalosciadium homalocarpum</i>			
402.	449 <i>Hordeum leporinum</i> (Barley Grass)	Y		
403.	3968 <i>Hovea trisperma</i> (Common Hovea)			
404.	5216 <i>Hybanthus calycinus</i> (Wild Violet)			
405.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
406.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
407.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
408.	<i>Idiommata blackwallii</i>			
409.	48529 <i>Inocybe isabellina</i>			
410.	48545 <i>Inocybe sabulosa</i>			
411.	910 <i>Isolepis cernua</i> (Nodding Club-rush)			
412.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
413.	919 <i>Isolepis oldfieldiana</i>			
414.	<i>Isometroides vesicus</i>			
415.	<i>Isopeda leishmanni</i>			
416.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
417.	4010 <i>Jacksonia floribunda</i> (Holly Pea)			
418.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
419.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
420.	1188 <i>Juncus pallidus</i> (Pale Rush)			
421.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
422.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
423.	1370 <i>Lachenalia reflexa</i>	Y		
424.	20019 <i>Lachnagrostis filiformis</i>			
425.	18585 <i>Lagenophora huegelii</i>			
426.	467 <i>Lagurus ovatus</i> (Hare's Tail Grass)	Y		
427.	<i>Lampona cylindrata</i>			
428.	25637 <i>Larus novaehollandiae</i> (Silver Gull)			
429.	25638 <i>Larus pacificus</i> (Pacific Gull)			
430.	4052 <i>Latrobea tenella</i>			
431.	<i>Latrodectus hasseltii</i>			
432.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
433.	1309 <i>Laxmannia squarrosa</i>			
434.	7574 <i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
435.	6880 <i>Leonotis leonurus</i> (Lion's Ear)	Y		
436.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
437.	15418 <i>Leptoceras menziesii</i>			
438.	2350 <i>Leptomeria pauciflora</i> (Sparse-flowered Currant Bush)			
439.	25133 <i>Lerista elegans</i>			
440.	25148 <i>Lerista lineopunctulata</i>			
441.	25165 <i>Lerista praepedita</i>			
442.	19821 <i>Lessertia frutescens</i>	Y		
443.	46454 <i>Leucoagaricus leucothites</i>			
444.	6360 <i>Leucopogon australis</i> (Spiked Beard-heath)			
445.	6405 <i>Leucopogon insularis</i>			
446.	6425 <i>Leucopogon oxycedrus</i>			
447.	6434 <i>Leucopogon polymorphus</i>			

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448.	6436 <i>Leucopogon propinquus</i>			
449.	40803 <i>Leucopogon squarrosus</i> subsp. <i>squarrosus</i>			
450.	25005 <i>Lialis burtonis</i>			
451.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
452.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
453.	6489 <i>Limonium sinuatum</i> (Perennial Sea Lavender)	Y		
454.	42461 <i>Limosa haemastica</i> (Hudsonian Godwit)	Y		Y
455.	36160 <i>Liparophyllum capitatum</i>			
456.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
457.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
458.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
459.	36860 <i>Lobelia tenuior</i> subsp. <i>dictyosperma</i>			Y
460.	1234 <i>Lomandra nigricans</i>			
461.	1239 <i>Lomandra preissii</i>			
462.	1246 <i>Lomandra suaveolens</i>			
463.	<i>Lycosa gilberta</i>			
464.	34736 <i>Lysinema pentapetalum</i>			
465.	5281 <i>Lythrum hyssopifolia</i> (Lesser Loosestrife)	Y		
466.	2838 <i>Macarthuria apetala</i>			
467.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
468.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
469.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
470.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
471.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
472.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
473.	<i>Masasteron tuart</i>			
474.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
475.	34676 <i>Meionectes brownii</i> (Swamp Raspwort)			
476.	5952 <i>Melaleuca preissiana</i> (Moonah)			
477.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
478.	5964 <i>Melaleuca seriata</i>			
479.	18598 <i>Melaleuca systema</i>			
480.	5983 <i>Melaleuca trichophylla</i>			
481.	<i>Melanoleuca fusca</i>			
482.	4516 <i>Melia azedarach</i> (White Cedar)			
483.	4085 <i>Melilotus indicus</i>	Y		
484.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
485.	25184 <i>Menetia greyii</i>			
486.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
487.	953 <i>Mesomelaena graciliceps</i>			
488.	955 <i>Mesomelaena pseudostygia</i>			
489.	<i>Microcarbo melanoleucos</i>			
490.	485 <i>Microlaena stipoides</i> (Weeping Grass)			
491.	8105 <i>Millotia myosotidifolia</i>			
492.	4100 <i>Mirbelia spinosa</i>			
493.	<i>Missulena granulosa</i>			
494.	29418 <i>Monoculus monstrosus</i>	Y		
495.	19179 <i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
496.	25240 <i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)			
497.	25192 <i>Morethia obscura</i>			
498.	2415 <i>Muehlenbeckia polybotrya</i>			
499.	24223 <i>Mus musculus</i> (House Mouse)	Y		
500.	<i>Myandra cambridgei</i>			
501.	25420 <i>Myobatrachus gouldii</i> (Turtle Frog)			
502.	7289 <i>Myoporum caprarioides</i> (Slender Myoporum)			
503.	6199 <i>Myriophyllum tillaeoides</i>			
504.	138 <i>Najas marina</i> (Prickly Water Nymph)			
505.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
506.	19161 <i>Nemesia strumosa</i>	Y		
507.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
508.	<i>Nephila edulis</i>			
509.	25252 <i>Notechis scutatus</i> (Tiger Snake)			
510.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
511.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
512.	24742 <i>Nymphicus hollandicus</i> (Cockatiel)			
513.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
514.	<i>Oecobius navus</i>			
515.	16390 <i>Oenothera drummondii</i> subsp. <i>drummondii</i>	Y		
516.	6503 <i>Olea europaea</i> (Olive)	Y		
517.	8149 <i>Olearia rudis</i> (Rough Daisybush)			

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518.	<i>Ommatolulus moreletii</i>			
519.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
520.	36177 <i>Ornduffia albiflora</i>			
521.	7122 <i>Orobancha minor</i> (Lesser Broomrape)	Y		
522.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
523.	17756 <i>Osteospermum ecklonis</i>	Y		
524.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
525.	24624 <i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
526.	24693 <i>Pachyptila desolata</i> (Antarctic Prion)			
527.	38817 <i>Panaeolus papilionaceus</i>			
528.	<i>Panus fasciatus</i>			
529.	25253 <i>Parasuta gouldii</i>			
530.	25255 <i>Parasuta nigriceps</i>			
531.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
532.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
533.	532 <i>Paspalum urvillei</i> (Vasey Grass)	Y		
534.	25687 <i>Passer domesticus</i> (House Sparrow)	Y		
535.	24641 <i>Passer domesticus</i> subsp. <i>domesticus</i> (House Sparrow)	Y		Y
536.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
537.	30472 <i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
538.	4343 <i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
539.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
540.	40423 <i>Pentameris airoides</i> (False Hairgrass)	Y		
541.	48805 <i>Pentameris patula</i>	Y		
542.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
543.	39057 <i>Perichaena corticalis</i>			
544.	39058 <i>Perichaena depressa</i>			
545.	39059 <i>Perichaena vermicularis</i>			
546.	13911 <i>Persicaria decipiens</i>			
547.	16984 <i>Persicaria lapathifolia</i>	Y		
548.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
549.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
550.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
551.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
552.	20368 <i>Petrophile axillaris</i>			
553.	48781 <i>Petrophile brevifolia</i> subsp. <i>brevifolia</i>			
554.	19825 <i>Petrotraghia dubia</i>	Y		
555.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
556.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
557.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
558.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
559.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
560.	<i>Phellinus gilvus</i>			
561.	18529 <i>Phillotheca spicata</i> (Pepper and Salt)			
562.	<i>Pholiota communis</i>			
563.	6734 <i>Phyla nodiflora</i> var. <i>nodiflora</i>	Y		
564.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
565.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
566.	17794 <i>Phyllanthus tenellus</i>	Y		
567.	39077 <i>Physarum straminipes</i>			Y
568.	2793 <i>Phytolacca octandra</i> (Red Ink Plant)	Y		
569.	5232 <i>Pimelea argentea</i> (Silvery Leaved Pimelea)			
570.	5244 <i>Pimelea floribunda</i>			
571.	5254 <i>Pimelea leucantha</i>			
572.	18352 <i>Pithocarpa pulchella</i> var. <i>melanostigma</i>			
573.	18353 <i>Pithocarpa pulchella</i> var. <i>pulchella</i>			
574.	19744 <i>Pittosporum angustifolium</i>			
575.	19745 <i>Pittosporum ligustrifolium</i>			
576.	7304 <i>Plantago major</i> (Greater Plantain)	Y		
577.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
578.	24842 <i>Platalea regia</i> (Royal Spoonbill)			
579.	<i>Platycephalus endrachtensis</i>			
580.	<i>Platycephalus</i> sp.			
581.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
582.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
583.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
584.	25007 <i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
585.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
586.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
587.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
588.	24680 <i>Podiceps cristatus</i> subsp. <i>australis</i> (Great Crested Grebe)			
589.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
590.	8179 <i>Podolepis nutans</i> (Nodding Podolepis)			
591.	8184 <i>Podotheca gnaphalioides</i> (Golden Long-heads)			
592.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
593.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
594.	582 <i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
595.	4689 <i>Poranthera ericoides</i> (Heath Poranthera)			
596.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
597.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
598.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
599.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
600.	25732 <i>Porzana pusilla</i> (Baillon's Crane)			
601.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
602.	109 <i>Potamogeton crispus</i> (Curly Pondweed)			
603.	1672 <i>Prasophyllum fimbria</i> (Fringed Leek Orchid)			
604.	8189 <i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
605.	<i>Pseudogobius olorum</i>			
606.	25511 <i>Pseudonaja affinis</i> (Dugite)			
607.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
608.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
609.	38830 <i>Psilocybe coprophila</i>			
610.	41651 <i>Pteridium esculentum</i> subsp. <i>esculentum</i>			
611.	1687 <i>Pterostylis dilatata</i>			
612.	2718 <i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
613.	11260 <i>Ptilotus drummondii</i> var. <i>drummondii</i> (Pussytail)			
614.	2742 <i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
615.	15856 <i>Ptilotus sericostachyus</i> subsp. <i>sericostachyus</i>			
616.	4181 <i>Pultenaea reticulata</i>			
617.	<i>Purpurecephalus spurius</i>			
618.	48835 <i>Pycnopus coccineus</i>			
619.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
620.	16367 <i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
621.	32480 <i>Racopilum cuspidigerum</i> var. <i>convolutaceum</i>			
622.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
623.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
624.	6014 <i>Regelia inops</i>			
625.	<i>Resupinatus trichotis</i>			Y
626.	18547 <i>Rhadinothamnus anceps</i>			
627.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
628.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
629.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (Willie Wagtail)			
630.	19942 <i>Ricinocarpos undulatus</i>			
631.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
632.	44608 <i>Rosulabryum billardieri</i>			
633.	38835 <i>Royoporus badius</i>			
634.	2429 <i>Rumex acetosella</i> (Sorrel)	Y		
635.	48906 <i>Russula delica</i>			
636.	40426 <i>Rytidosperma occidentale</i>			
637.	2906 <i>Sagina apetala</i> (Annual Pearlwort)	Y		
638.	13181 <i>Scaevola repens</i> var. <i>angustifolia</i>			
639.	13152 <i>Scaevola thesioides</i> subsp. <i>thesioides</i>			
640.	48834 <i>Schinus terebinthifolia</i>	Y		
641.	<i>Schizophyllum commune</i>			
642.	48356 <i>Schoenoplectus tabernaemontani</i>			
643.	984 <i>Schoenus curvifolius</i>			
644.	992 <i>Schoenus grandiflorus</i> (Large Flowered Bogrush)			
645.	1018 <i>Schoenus subfascicularis</i>			
646.	25884 <i>Senecio pinnatifolius</i> var. <i>latilobus</i>			
647.	8220 <i>Senecio vulgaris</i> (Common Groundsel)	Y		
648.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
649.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
650.	<i>Simonus lineatus</i>			Y
651.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
652.	30948 <i>Smicromis brevirostris</i> (Weebill)			
653.	47173 <i>Solanum lycopersicum</i> (Tomato)	Y		
654.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
655.	48866 <i>Solanum nitidibaccatum</i>	Y		
656.	7037 <i>Solanum symonii</i>			
657.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
658.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
659.	9069 <i>Stackhousia huegelii</i>			
660.	<i>Steatoda capensis</i>			
661.	2918 <i>Stellaria media</i> (Chickweed)	Y		
662.	15066 <i>Stenanthemum notiale</i> subsp. <i>chamelum</i>			
663.	19403 <i>Stenopetalum gracile</i>			
664.	38840 <i>Stereum hirsutum</i>			
665.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
666.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
667.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
668.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
669.	24943 <i>Strophurus spinigerus</i> subsp. <i>inornatus</i>			
670.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
671.	7679 <i>Stylidium adpressum</i> (Trigger-on-stilts)			
672.	25831 <i>Stylidium araeophyllum</i> (Stilt Walker)			
673.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
674.	7710 <i>Stylidium cygnorum</i>			
675.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
676.	25829 <i>Stylidium neurophyllum</i> (Coastal Plain Triggerplant)			
677.	32437 <i>Syntrichia antarctica</i>			
678.	32438 <i>Syntrichia pagorum</i>			
679.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
680.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
681.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
682.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
683.	45613 <i>Taraxacum khatoonae</i>	Y		
684.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
685.	4256 <i>Templetonia retusa</i> (Cockies Tongues)			
686.	2791 <i>Tersonia cyathiflora</i> (Button Creeper)			
687.	2824 <i>Tetragonia tetragonoides</i> (New Zealand Spinach)			
688.	20649 <i>Tetrapanax papyrifer</i>	Y		Y
689.	1708 <i>Thelymitra fuscolutea</i> (Chestnut Sun Orchid)			
690.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
691.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
692.	25519 <i>Tiliqua rugosa</i>			
693.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
694.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
695.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
696.	<i>Tremella mesenterica</i>			
697.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
698.	39094 <i>Trichia affinis</i>			
699.	39098 <i>Trichia favoginea</i>			
700.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
701.	24755 <i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> (Rainbow Lorikeet)	Y		
702.	32450 <i>Trichostomum eckelianum</i>			
703.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
704.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
705.	4291 <i>Trifolium arvense</i> (Hare's Foot Clover)	Y		
706.	4298 <i>Trifolium hirtum</i> (Rose Clover)	Y		
707.	14738 <i>Trifolium resupinatum</i> var. <i>resupinatum</i>	Y		
708.	11665 <i>Trymalium ledifolium</i> var. <i>ledifolium</i>			
709.	99 <i>Typha orientalis</i> (Bulrush, Cumbungi)			
710.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
711.	24983 <i>Underwoodisaurus millii</i> (Barking Gecko)			
712.	<i>Urodacus novaehollandiae</i>			
713.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
714.	45907 <i>Ustilago trichophora</i>			Y
715.	7125 <i>Utricularia australis</i>			
716.	7131 <i>Utricularia dichotoma</i> (Fairy Aprons)			
717.	12493 <i>Utricularia gibba</i>			
718.	7158 <i>Utricularia volubilis</i> (Twining Bladderwort)			
719.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
720.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
721.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
722.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
723.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
724.	<i>Venator immansueta</i>			
725.	<i>Venatrix pullastra</i>			
726.	6077 <i>Verticordia drummondii</i> (Drummond's Featherflower)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
727.	6101 <i>Verticordia nitens</i> (Morrison Featherflower, Kodjeningara)			
728.	6103 <i>Verticordia ovalifolia</i>			
729.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
730.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
731.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
732.	11137 <i>Vulpia fasciculata</i>	Y		
733.	7384 <i>Wahlenbergia capensis</i> (Cape Bluebell)	Y		
734.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
735.	7388 <i>Wahlenbergia multicaulis</i>			
736.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
737.	17910 <i>Washingtonia filifera</i>	Y		
738.	1401 <i>Wurmbea pygmaea</i>			
739.	8286 <i>Xanthium occidentale</i> (Noogoora Burr)	Y		
740.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
741.	6289 <i>Xanthosia huegelii</i>			
742.	44861 <i>Xerochrysum macranthum</i>			
743.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			
744.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			
745.	36218 <i>Zygodon menziesii</i>			

Conservation Codes

- T - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

APPENDIX 3

Protected Matters Search Tool Report



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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 03/05/19 12:18:41

[Summary](#)

[Details](#)

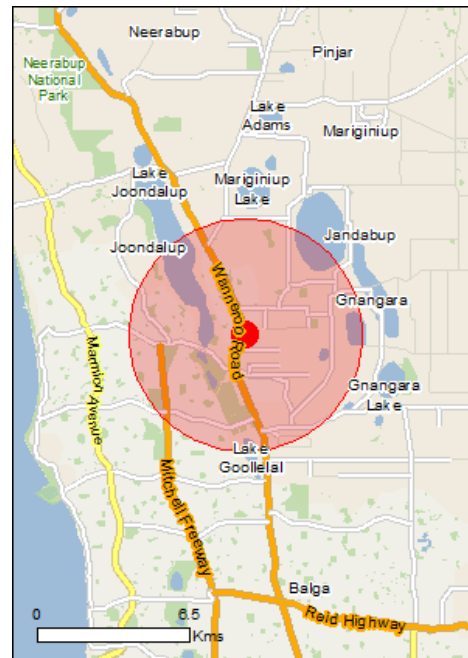
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

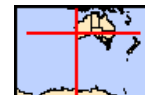
[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	20
Listed Migratory Species:	14

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	6
Regional Forest Agreements:	None
Invasive Species:	38
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

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.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
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Birds

Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
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Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
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Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
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Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
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Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
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Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
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Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
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Mammals

Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat may occur within area
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Dasyurus geoffroi Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
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Plants

Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
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Name	Status	Type of Presence
Anigozanthos viridis subsp. terraspectans Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
Caladenia huegeli 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-leaved 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 may occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Lepidosperma rostratum Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
Marianthus paralius [83925]	Endangered	Species or species habitat likely to occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area

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

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to 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 known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known 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 known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

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

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	habitat likely to occur within area Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may 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 known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Jandabup	WA
Lake Joondalup	WA
Unnamed WA46756	WA
Unnamed WA46926	WA
Unnamed WA50514	WA
Woodvale	WA

Invasive Species [\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species

Name	Status	Type of Presence habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus declinatus Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area

Name	Status	Type of Presence
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name	State	
Joondalup Lake	WA	

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-31.77189 115.81264

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.

APPENDIX 4

Conservation Codes

Conservation Codes for Western Australian Flora and Fauna

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such.

Categories of specially protected fauna and flora are:

T Threatened species – Schedules 1-4

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

- **Threatened fauna** is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the Wildlife Conservation Act.
- **Threatened flora** is flora that has been declared to be ‘likely to become extinct or is rare, or otherwise in need of special protection’, pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species – Schedule 1

Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN Endangered species – Schedule 2

Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU Vulnerable species - Schedule 3

Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX Presumed extinct species - Schedule 4

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA Migratory birds protected under an international agreement - Schedule 5

Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD Conservation dependent fauna - Schedule 6

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS Other specially protected fauna - Schedule 7

Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 Priority 1: 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, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 Priority 2: 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, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 Priority 3: 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. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4 Priority 4: Rare, 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 Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

A list of the current rankings can be downloaded from the Parks and Wildlife Threatened Species and Communities webpage at <http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities>

Commonwealth of Australia Conservation Codes

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following six categories:

Extinct

A native species is eligible to be included in the extinct category 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 is eligible to be included in the extinct in the wild category 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 taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered

A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable

A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.

Conservation dependent

A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

- a) the species 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.

The EPBC Act does not provide for listing in a data deficient category. Where sufficient data (evidence) is unavailable to allow assessment by the Threatened Species Scientific Committee against the criteria for listing, the species are found to be ineligible. A recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be data deficient. As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

APPENDIX 5

Aboriginal Heritage Inquiry System Reports

List of Registered Aboriginal Sites

Search Criteria

No Registered Aboriginal Sites in Custom search area - Polygon - 115.810068106601°E, 31.7732927081785°S (GDA94) : 115.810068106601°E, 31.7703465802997°S (GDA94) : 115.815057015368°E, 31.7703465802997°S (GDA94) : 115.815057015368°E, 31.7732927081785°S (GDA94) : 115.810068106601°E, 31.7732927081785°S (GDA94)

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at heritageenquiries@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land within or adjacent to the following Indigenous Land Use Agreement(s): Whadjuk People ILUA.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at <https://www.dpc.wa.gov.au/swnts/South-West-Native-Title-Settlement/Pages/default.aspx>.

Further advice can also be sought from the Department of Planning, Lands and Heritage at heritageenquiries@dplh.wa.gov.au.

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Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.



Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

Basemap Copyright

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Satellite, Hybrid, Road basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, HERE, DeLorme, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community.

Topographic basemap sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.

Aboriginal Heritage Inquiry System

For further important information on using this information please see the
 Department of Planning, Lands and Heritage's Disclaimer statement at
<https://www.dph.wa.gov.au/about-this-website>

Map of Registered Aboriginal Sites



Legend

- Registered Aboriginal Site
- Search Area
- Town
- Road
- River
- Local Government Authority

0.18 kilometres

 Map Scale 1 : 5,370
 MGA Zone 50 (GDA94)

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Mining Tenement, Petroleum Application, Petroleum Title
 boundary data copyright © the State of Western Australia
 (Department of Mines, Industry Regulation and Safety).



List of Other Heritage Places

Search Criteria

No Other Heritage Places in Custom search area - Polygon - 115.810068106601°E, 31.7732927081785°S (GDA94) : 115.810068106601°E, 31.7703465802997°S (GDA94) : 115.815057015368°E, 31.7703465802997°S (GDA94) : 115.815057015368°E, 31.7732927081785°S (GDA94) : 115.810068106601°E, 31.7732927081785°S (GDA94)

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Your heritage enquiry is on land within or adjacent to the following Indigenous Land Use Agreement(s): Whadjuk People ILUA.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at <https://www.dpc.wa.gov.au/swnts/South-West-Native-Title-Settlement/Pages/default.aspx>.

Further advice can also be sought from the Department of Planning, Lands and Heritage at heritageenquiries@dplh.wa.gov.au.

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Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.



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Aboriginal Heritage Inquiry System

Map of Other Heritage Places

For further important information on using this information please see the Department of Planning, Lands and Heritage's Disclaimer statement at <https://www.dph.wa.gov.au/about-this-website>



APPENDIX 6

Indicative POS Concept Plan

LEGEND

- Structure Plan Boundary
- POS Boundary
- Informal Pedestrian Path
- Jacksonia Sericea (P4)
- Clearing Permit Protection Area
- 3.8m perimeter Low Fuel Zone
- Retained Black Cockatoo Significant Tree



INDICATIVE POS CONCEPT PLAN

LOT 594 WANNEROO ROAD, HOCKING

our ref: BAR HOC_DES_ILL_002 A POS CONCEPT PLAN



