

# FLORA & FAUNA ASSESSMENT – LAKESIDE GOOLWA RESIDENTIAL PARK EXPANSION, GOOLWA NORTH, SA.



**GOOLWA TOURIST  
RESORT PTY LTD**



GRANT FLEMING ENVIRONMENTAL

**FINAL REPORT**

**17 MARCH 2024**

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## EXECUTIVE SUMMARY

Grant Fleming Environmental (GFE) has prepared the Flora and Fauna Assessment (FFA) for the proposed expansion of the Lakeside Goolwa Residential Park located at 4, 6-8, 12 and 16 Banfield Road, Goolwa North, SA 5214 (site) for Goolwa Tourist Resort Pty Ltd (client).

This report presents the findings of a desktop review of literature and databases and a site assessment of flora and fauna conducted on 21 December 2023. Prior to European settlement the site would have supported an *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland. No native vegetation associations were found to exist at the site and while some native species were present they did not meet the threshold to be designated native vegetation under the NV Act. Scattered native trees at the site were determined to have been planted and are therefore not afforded protection under the NV Act. No threatened plant species were observed at the site and are considered unlikely to occur given vegetation clearance and the prolonged level of disturbance associated with cropping at the site. Three species listed as Weeds of National Significance namely; *\*Lycium ferocissimum* (African Boxthorn), *\*Asparagus asparagoides* (Bridal Veil Creeper) and *\*Tamarix aphylla* (Tamarisk) were present at the site. Numerous plant species were found to have spread into the paddock from the garden surrounding the residence at 6-8 Banfield Road.

No threatened fauna were located at the site, although it is considered that *Calyptorhynchus funereus* (Yellow-tailed Black Cockatoo) listed as Vulnerable under the NPW Act are likely to forage amongst the pine trees located on the adjoining property. Two immature *Elanus axillaris* (Black-shouldered Kites) were observed using the trees near the eastern residence and retention of these trees is recommended to support these birds within the conservation zone.

Of the species listed within the EPBC Act MNES search of the buffered site those that may utilize the *Phragmites australis* (Common Reed) fringing wetland may forage along the far eastern edge of the site. Listed species with the potential to occur at the site include *Botaurus poiciloptilus* (Australasian Bittern), *Gallinago hardwickii* (Latham's Snipe), *Rostratula australis* (Australian Painted Snipe), *Ardea intermedia plumifera* (Plumed Egret) and *Egretta garzetta nigripes* (Little Egret). The site itself does not offer primary habitat for these species.

The opportunity exists to facilitate revegetation or to allow natural regeneration of the fringing wetland plant community adjacent to the eastern boundary of the site that is a RAMSAR listed wetland of International significance.

The potential exists to utilize the conservation zone for passive recreational activities such as bird watching and this could include construction of a hide and associated boardwalk. The conservation zone could become a significant environmental asset to the Residential Park and landscaping should consider creating habitat for Woodland birds by incorporating constituent native plant species of the pre-European settlement *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland.

### Recommendations

- Implement pest and weed control measures across the site.
- Remove the pile of vegetation cuttings and waste material as soon as practicable as it is a fire hazard and likely harbors pests.
- Revegetate or facilitate natural regeneration of the fringing wetland at the eastern boundary of the site.

- Incorporate *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland constituent native plant species to create habitat for Woodland birds within the conservation zone and site landscaping.
- Retain existing trees near the residence at eastern end of the site to support the pair of immature *Elanus axillaris* (Black-shouldered Kites).

## GLOSSARY OF TERMS AND ABBREVIATIONS

GLOSSARY OF TERMS AND ABBREVIATIONS	
*	Indicates an exotic species established or recorded in the area of interest. Typically exotic species are those that naturally occur elsewhere in the world, but have been deliberately or accidentally introduced to Australia. Exotic fauna may be regarded as pests or vermin.
#	Indicates a species native to Australia but not naturally occurring in the area of interest.
AC	Alexandrina Council
BDBSA	Biological Database of South Australia
CR	Critically Endangered; Red List category of threat
DA	Development Application
DENR	Department of Environment and Natural Resources (Now Department for Environment and Water).
DEWNR	Department of Water and Natural Resources
DRA	Data Review Area, comprised of the site and a buffer area around the site
EN	Endangered: Red List category of threat
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFA	Flora and Fauna Assessment
GFE	Grant Fleming Environmental
GIS	Geographic Information System
ha	Hectare, 1 hectare = 10,000 metres <sup>2</sup> .
LG Act	Local Government Act 1999
LSA Act	<i>Landscape South Australia Act 2019</i>
MNES	Matters of national environmental significance
NCC	National Construction Code
NPW Act	South Australian National Parks and Wildlife Act 1972
NT	Near Threatened; Red List category of threat
NV Act	South Australian <i>Native Vegetation Act 1991</i>
P&D Code	Planning and Design Code, South Australia
PDI Act	<i>Planning, Development and Infrastructure Act 2016</i>
SMLR	Southern Mount Lofty Ranges
Species	One or more groups (populations) of individuals that can interbreed within the group, but that do not, under natural conditions exchange genes with other groups (populations) (Alleby 1992).
Taxon	Refers to a taxonomic category and therefore may refer to a species, genus, family or other category. Plural form is taxa.
VU	Vulnerable; Red List category of threat.

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# 1 INTRODUCTION

## 1.1 Purpose

Grant Fleming Environmental (GFE) has been engaged by Goolwa Tourist Resort Pty Ltd (Client) to undertake a Flora and Fauna Assessment (FFA) of the proposed Code Amendment at the following properties; CT 5693/461, CT 5692/583, CT 5062/315 and CT 6095/954 that make up the site (site), Figure 1.

The site is the subject of a Code Amendment to rezone the site from ‘Rural Living’ to ‘Residential Park’ to form an expansion of the Lakeside Goolwa Residential Park. It is acknowledged that a portion of CT 6095/954 is zoned Conservation and this area is proposed to remain unchanged. GFE understands that the purpose of the Code Amendment is to facilitate the future development of a residential park. The site is located within the Native Vegetation Overlay of the Planning and Development Code (P&D Code) under the Planning Development and Infrastructure Act 2016 (PDI Act). The flora and fauna assessment is required to determine if native vegetation is present at the site and if any threatened species of flora and fauna at the state or national level are or are likely to be present.

## 1.2 Proposed Development

The site is located entirely within the Alexandrina Council (AC) Local Government Area (LGA), Figure 1. The location of the proposed development is summarised in Table 1. The site is comprised of four properties that occupy 9.1024 ha. The site is located adjacent to the existing Lakeside Goolwa Residential Park and the future development involves the expansion of the Residential Park

**Table 1. Location of Proposed Residential Park**

Landowner:	Goolwa Tourist Resort Pty Ltd		
Site Address:	16 Banfield Road, Goolwa North 12 Banfield Road, Goolwa North 6-8 Banfield Road, Goolwa North 4 Banfield Road, Goolwa North		
Local Government Area:	Alexandrina Council	Hundred:	Goolwa North
Title ID:	CT 5693/461 CT5692/583 CT 5062/315 CT 6095/954	Parcel ID	Parcel D13542 A103 Parcel D13542 A106 Parcel D13542 A107 Parcel D89165 A54

Subject to future design and the outcome of the Code Amendment process, the Residential Park development may include a nursery, community garden shed and to accommodate caravan storage and a residential area for up to 180 ground leases, a linear park, river conservation zone, outdoor recreation area, pool, courts and resort function centre. The main entry into the Residential Park will likely be from Banfield Road.



## 1.3 Objectives

The objectives of this Flora and Fauna Assessment are as follows:

- Identification of the flora and fauna species present or with the potential to be present on the site.
  - Determine if a more detailed or targeted surveys are required.
- Determine the likelihood of the occurrence of threatened flora and fauna, listed under the South Australian *National Parks and Wildlife Act 1972* (NPW Act), South Australian *Native Vegetation Act 1991* (NV Act) and/or the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act).
- Map the distribution of threatened flora and fauna from observations or existing records.
- Identify potential opportunities and constraints upon site flora and fauna posed by the proposed rezoning.

## 1.4 Surrounding land use

Immediately north of the site (Allotment 103) is Fidock Road, Photo 1 while rural residential properties occur to the north of Allotments D13542 A106, D13542 A107 and D89165 A54, Photo 2.



Photo 1 Rural residential land north of D13542 A103 across Fidock Road.



**Photo 2 Rural residential land north of D89165 A54**

East of D13542 A103, the allotment that extends from Banfield Road through to Fidock Road are rural residential properties, while to the east of D89165 A54 is an arm of Currency Creek, Photo 3. The creek bank is dominated by *Phragmites australis* (Common Reed) and the area is mapped as supporting a Tall Closed Grassland (RM2902) native vegetation association with an open water channel beyond the bank of reeds.



**Photo 3 View East towards Currency Creek – *Phragmites australis* (Common Reed).**

South of the site is Banfield Road are residential properties that form Goolwa North, Photo 5. There is an existing residence on D13542 A107 that forms part of the site, Photo 4 and there is another residence located in the far south eastern corner of the site. The vegetation immediately surrounding both

residences has been planted and is therefore not afforded protection under the NV Act. Further to the southeast of the site is the existing Lakeside Goolwa Residential Park.



**Photo 4 Residential property (6-8 Banfield Road) that forms part of the site.**



**Photo 5 Residential properties on the southern side of Banfield Road, opposite the site.**

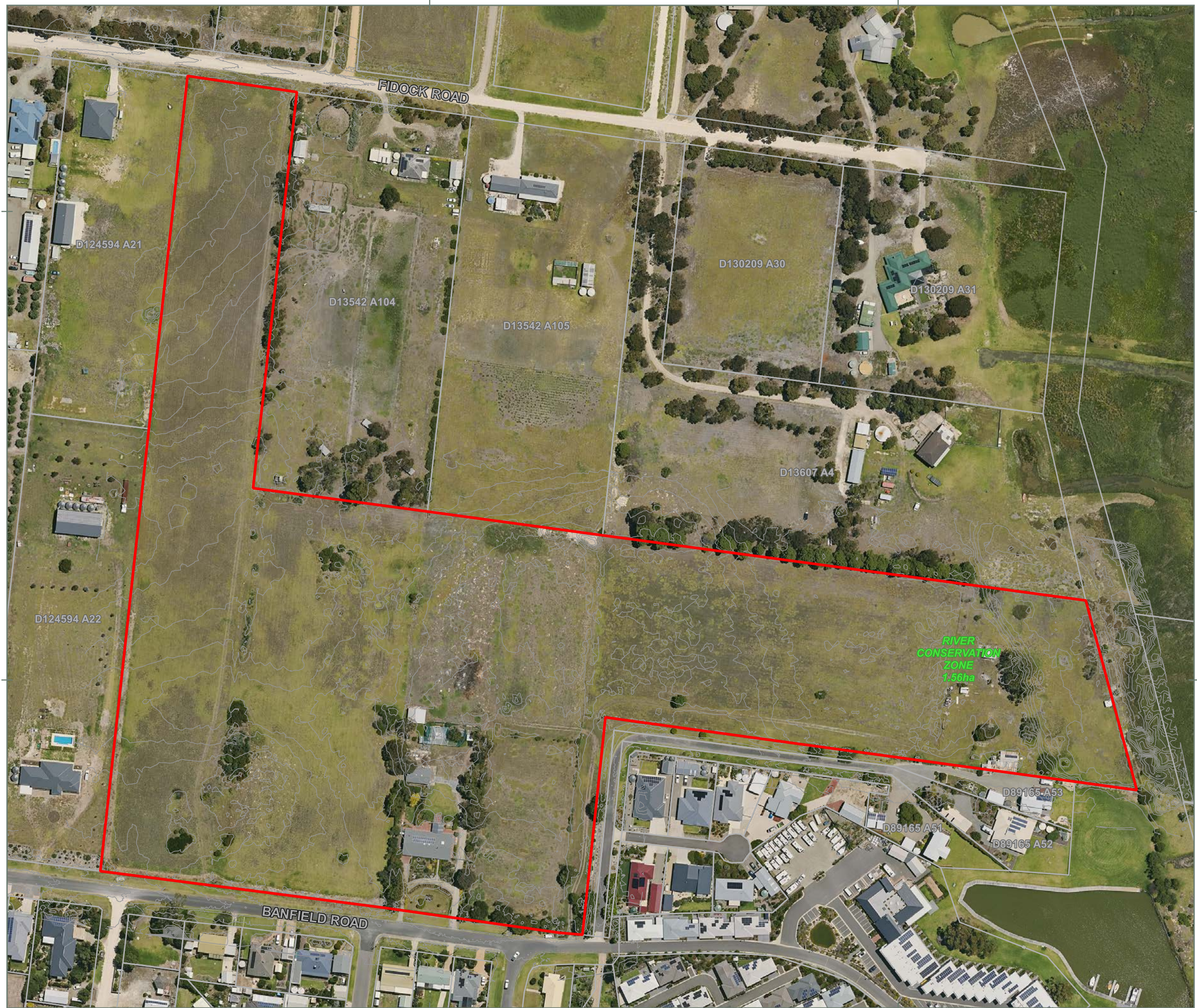
The western side of the site is characterised by rural residential properties that have Olive groves planted and beyond the adjoining properties the majority of properties are rural residential with intensive land use with some areas of dryland agriculture remaining further to the west.



**Photo 6 Olive production west of the site.**

The generalised land use surrounding the site is shown in, Figure 3.

301750 302000



6070750

6070500

6070750

6070500

**FLORA AND FAUNA ASSESSMENT -  
LAKESIDE GOOLWA RESIDENTIAL  
PARK CODE AMENDMENT,  
GOOLWA NORTH SA**

**SOUTHERN LIFESTYLE VILLAGES  
PTY LTD**

**PROPOSED CODE  
AMENDMENT**

**Legend**

- Elevation Contour
- Approximate Cadastral Boundary
- ▭ Site Boundary

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1. Aerial image sourced from Metromap, aerial dated 20.01.2024, sourced 05.03.2024.
2. Roads data sourced from SA Data, sourced 25.05.2021.
3. Base drawing sourced from the client.

0 20 40 60 80 100 m

**SCALE (at A3): 1:2,000**  
**PROJECTION: GDA2020 / MGA zone 54**  
**DRAWING NO: GFE-036-F0001-Rev0.qgs**  
**DATE: 19/03/2024**  
**DRAWN: KB**  
**CHECKED: GF**

**FIGURE 1**



301750 302000



**FLORA AND FAUNA ASSESSMENT -  
LAKESIDE GOOLWA RESIDENTIAL  
PARK CODE AMENDMENT,  
GOOLWA NORTH SA**

**SOUTHERN LIFESTYLE VILLAGES  
PTY LTD**

**REGIONAL LOCATION MAP**

**Legend**

- Road
- NPWSA Reserve / Conservation Area
- Site Boundary
- Vegetation Heritage Agreement
- SA Vegetation**
- Allocasuarina Forest and Woodland
- Coastal Shrubland
- Eucalyptus Forest and Woodland
- Grassland
- Melaleuca Forest and Woodland
- Melaleuca Shrubland >1m
- Rushland / Sedgeland
- Sapphire Shrubland
- Shrubland >1m

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1. Aerial image sourced from Metromap, aerial dated 20.01.2024, sourced 05.03.2024.
2. Roads, conservation areas, vegetation heritage area and SA vegetation data sourced from SA Data, sourced 25.05.2021 and 17.11.2023.
3. Base drawing sourced from the client.

0 500 1,000 1,500 2,000 m



**SCALE (at A3): 1:37,500**  
**PROJECTION: GDA2020 / MGA zone 54**  
**DRAWING NO: GFE-036-F0002-Rev0.qgs**  
**DATE: 19/03/2024**  
**DRAWN: KB**  
**CHECKED: GF**



**FIGURE 2**

**FLORA AND FAUNA ASSESSMENT -  
LAKESIDE GOOLWA RESIDENTIAL  
PARK CODE AMENDMENT,  
GOOLWA NORTH SA**

**SOUTHERN LIFESTYLE VILLAGES  
PTY LTD**

**SURROUNDING LAND USE**

**Legend**

- Road
- Site Boundary
- Generalised Land Use**
- Agriculture / Horticulture
- Commercial / Retail Commercial
- Education
- Food Industry
- Golf Course / Recreation
- Livestock
- Mine / Quarry
- Public Institution
- Reserve
- Residential / Non-private  
Residential / Rural Residential
- Utility Industry
- Vacant / Vacant Residential

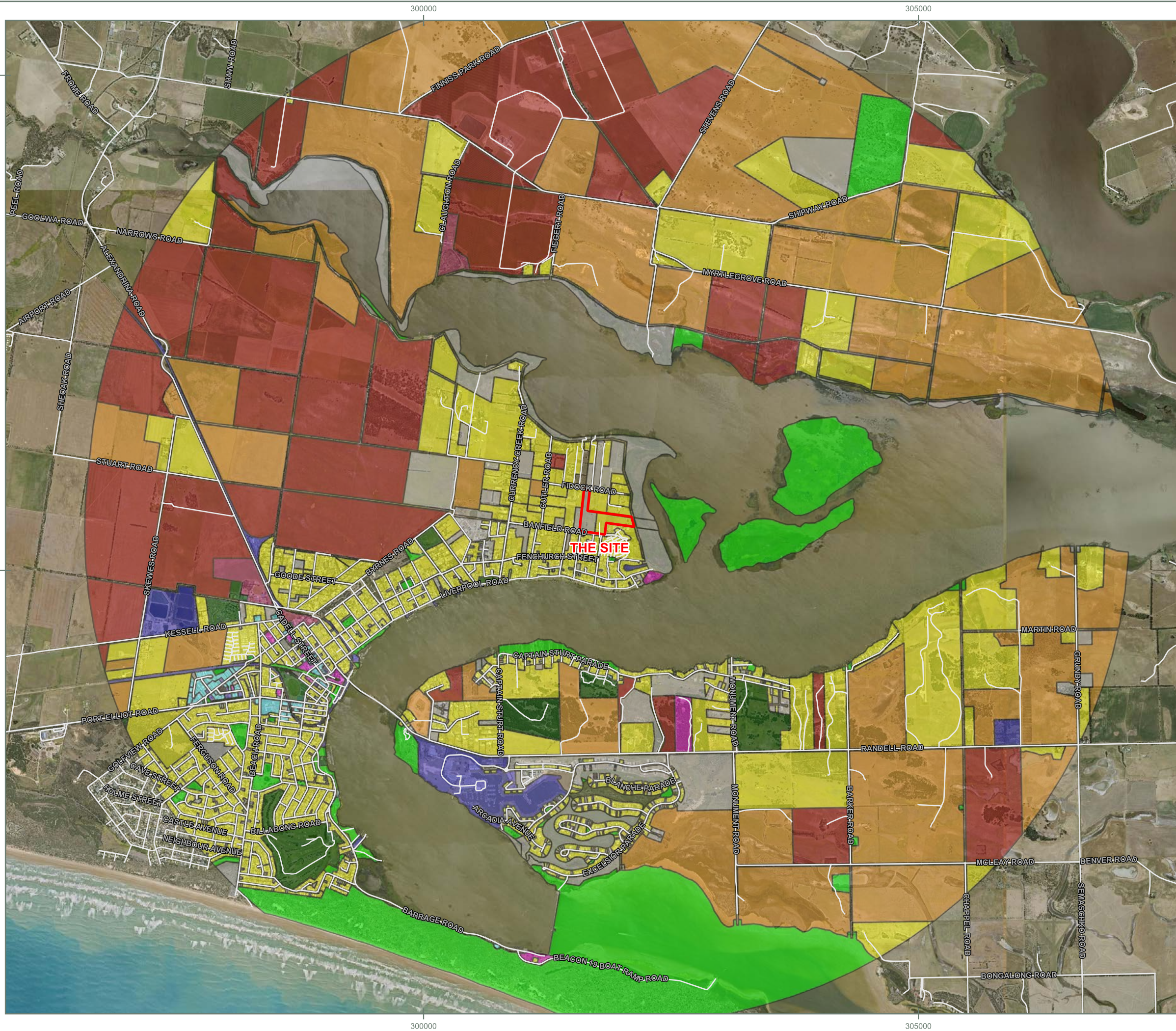
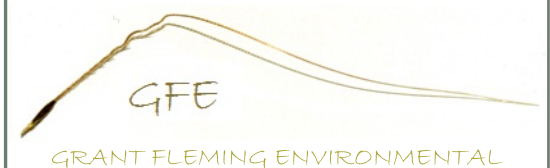
**COPYRIGHT**

1. Aerial image sourced from Metromap, aerial dated 20.01.2024, sourced 05.03.2024.
2. Roads and generalised land use data sourced from SA Data, sourced 25.05.2021 and 17.11.2023.
3. Base drawing sourced from the client.

0 500 1,000 1,500 2,000 m

SCALE (at A3): 1:37,500  
 PROJECTION: GDA2020 / MGA zone 54  
 DRAWING NO: GFE-036-F0003-Rev0.qgs  
 DATE: 19/03/2024  
 DRAWN: KB  
 CHECKED: GF

**FIGURE 3**



## 1.5 Legislative Context

### 1.5.1 *Native Vegetation Act 1991*

The proposed development is located within the application boundary of the *Native Vegetation Act 1991* (NV Act), that is the NV Act applies to the proposed development area. A native vegetation clearance application is required to be submitted to the Native Vegetation Council (NVC) for approval prior to removal of any native vegetation at the site.

Native vegetation including scattered native trees that has been planted at the site is not defined as native vegetation under the NV Act and is therefore not afforded protection. It should be noted though that regrowth from planted native vegetation is defined as native vegetation under the NV Act and is afforded protection.

### 1.5.2 *National Parks and Wildlife Act 1972*

Landscape managers must be cognisant of the potential for any vegetation clearance to have a negative impact upon threatened plant and animal species present within the landscape and to take measures to avoid such impacts. Threatened flora and fauna species are listed under the NPW Act.

### 1.5.3 *Landscape South Australia Act 2019*

The proposed development is located within the Hills and Fleurieu Landscape Management Region established in accordance with the *Landscape South Australia Act 2019* (LSA Act). A part of this legislation that is relevant to the proposed development is the requirement for landholders to control proclaimed weed and pest species.

### 1.5.4 *Environment Protection Biodiversity and Conservation Act 1999*

The EPBC Act protects Matters of National Environmental Significance (MNES) that includes threatened flora and fauna species and threatened ecological habitats as well as wetlands of international importance (listed under the RAMSAR convention). Actions that may impact upon MNES may require referral to Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act.

### 1.5.5 *Planning Development and Infrastructure Act 2016*

The site is located within the Native Vegetation Overlay of the Planning and Design Code of the *Planning, Development and Infrastructure Act 2016* (PDI Act).

The Regulated Tree Overlay under the P&D Code does not apply in Alexandrina Council area. The significant and regulated tree provisions under the *Planning Development and Infrastructure Act 2016* (PDI Act) do not apply to the site. Remnant native trees remain protected under the NV Act that takes precedence.



## 2 METHODS

### 2.1 Desktop Review

A desktop review of flora and fauna records held within the Biological Database of South Australia (BDBSA) for the buffered (5 km) site was conducted. A search for Protected Matters of National Environmental Significance (MNES) under the EPBC Act and threatened species listed under the SA National Parks Wildlife Act was conducted for the site with a 5km buffer applied. Records of marine species were removed from the Protected Matters search results as the site is entirely terrestrial. Only flora and fauna species listed within the Protected Matters Report as “*Species or species habitat known to occur in the area*” were evaluated for their potential to occur at the site, an approach that is consistent with the direction from the Native Vegetation Branch of the South Australian Department of Environment and Water.

### 2.2 Field Survey

#### 2.2.1 Flora

A site walkover was conducted on 21 December 2023 in order to ascertain if any native vegetation associations occurred at the site and to assess the vegetation present including remnant scattered trees.

As no native vegetation associations were recorded at the site a Native Vegetation Council *Bushland Condition Assessment* was not conducted. A flora species list was recorded during the site walkover with labelled voucher specimens obtained for verification of the identification and each specimen was photographed in the field. Voucher specimens were processed and retained for future reference. Features of interest were recorded using a GPS, photographed and notes recorded. The cover rating of each species identified was recorded utilizing the Bushland Assessment datasheet.

At the residence located at D13542 A107 (6-8 Banfield Road, Goolwa North) the property was walked over and it was determined that remnant native vegetation was not present at the property. Furthermore it was considered unnecessary to identify all plant species and cultivars present within the English style garden that surrounded the house. Plant species were recorded where they had escaped the garden and established within the adjacent paddock.

Scattered trees and shrubs were identified and assessed across the site. Trees present at the site were predominantly associated with the two residences present.

#### 2.2.2 Fauna

A number of areas of interest were selected to be visited, based upon aerial photography and the potential to provide habitat for fauna.

No trapping was conducted at the site, with the presence of fauna determined by sightings and the presence of scats, tracks and signs. Observations of animals were opportunistic in nature, with a limited amount of active searching conducted that included turning rocks, searching through vegetation and raking deep leaf litter. Birds on and overhead of the site were observed with binoculars and where possible were photographed. Tracks, scats and other traces were identified where possible using Triggs (2008). Observations were recorded utilizing an opportune records data sheet adapted from that developed for DENR (2007).

## 3 RESULTS

### 3.1 Flora

Prior to European settlement the site is mapped as having supported an *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland over an open grassy and herbaceous understorey (Naturemaps 2024). Typical understorey plants are listed as including *Lomandra multiflora* ssp. *dura* (Stiff Iron-grass), *Lomandra effusa* (Scented Matt-rush), *Rytidosperma* spp. (Wallaby Grasses) and *Austrostipa* spp. (Spear Grasses). The eastern edge of the site adjacent Currency Creek is mapped as having supported a *Phragmites australis* (Common Reed), with or without *Typha* spp. (Cumbungi) Grassland. Of the species listed as being likely to have been present prior to European settlement only *Phragmites australis* (Common Reed) was located at the site, where this species was extending into the south east corner of the site Photo 7. It is considered that other species located are likely to have been components of the vegetation assemblage prior to European settlement, including *Distichlis distichophylla* (Australian Salt Grass), *Duma florulenta* (Tangled Lignum), *Salicornia quinqueflora* (Beaded Glasswort) and *Tetragonia implexicoma* (Bower Spinach) and these species were all recorded in the eastern portion of the site.



Photo 7 Common Reed (*Phragmites australis*) colonizing the eastern edge of the site adjacent Currency Creek.

#### 3.1.1 EPBC Protected Matters

Two species were listed as “Species or species habitat known to occur within the area” within the Protected Matters report. The two species were *Caladenia tensa* (Greencomb Spider-orchid) listed as Endangered under the EPBC Act and *Olearia pannosa* subsp. *pannosa* (Silver Daisy-bush) listed as Vulnerable under the EPBC Act. These species were not located during the site assessment and it is considered Unlikely that either species would occur at the site given the extensive disturbance that has occurred due to cropping.

### 3.1.2 BDBSA Records

No BDBSA records were returned for the site. A total of 58 BDBSA records were returned from the 5 km buffered site area for the last 20 years. Of these records 42 were attributed to revegetation programs within the buffer area. The 16 records of remnant plants listed as threatened species under state or national legislation included the species listed in Table 2.

**Table 2 BDBSA records of threatened species over the last 20 years within 5km of the site with a 5 km buffer applied.**

Species Name	Common Name	State Rating	National Rating
<i>Acacia dodonaeifolia</i>	Hop-bush Wattle	R	-
<i>Acacia iteaphylla</i>	Flinders Ranges Wattle	R	-
<i>Austrostipa echinata</i>	Spiny Spear-grass	R	-
<i>Billardiera scandens var. scandens</i>	Eastern Apple-berry	R	-
<i>Ceratophyllum demersum</i>	Hornwort	R	-
<i>Diuris behrii</i>	Behr's Cowslip Orchid	V	-
<i>Eucalyptus fasciculosa</i>	Pink Gum	R	-
<i>Leptorhynchos scaber</i>	Annual Buttons	R	-
<i>Olearia pannosa ssp. pannosa</i>	Silver Daisy-bush	V	VU

None of the species listed in Table 2 were identified at the site and all species listed as considered Unlikely to occur at the site due to the extensive disturbance.

### 3.1.3 Field Survey

The site walkover recorded nine native plant species that are considered to be endemic to the region and these species are listed in Table 3.

**Table 3 Endemic native plant species.**

Species Name	Common Name	Family
<i>Acacia longifolia var sopharae</i>	Coast wattle	FABACEAE
<i>Distichlis distichophylla</i>	Australian Salt Grass	POACEAE
<i>Duma florulenta</i>	Tangled Lignum	POLYGONACEAE
<i>Dysphania pumilio</i>	Small Crumbweed	CHENOPODIACEAE
<i>Enchyaena tomentosa</i>	Ruby Saltbush	CHENOPODIACEAE
<i>Oxalis perennans</i>	Native Sorrel	OXALIDACEAE
<i>Phragmites australis</i>	Common Reed	POACEAE
<i>Salicornia quinqueflora</i>	Beaded Glasswort	CHENOPODIACEAE
<i>Tetragonia implexicoma</i>	Bower Spinach	AIZOACEAE

The site assessment also recorded four native species present, *Acacia cyclops* (Western Coast Wattle), *Agonis flexuosa* (Western Australian peppermint), *Hakea drupacea* (Sweet Hakea) and *Lophostemon confertus* (Brush Box) that are not endemic to South Australia. Of these species *Acacia cyclops* (Western Coast Wattle) is a fast growing widespread colonizing weed within coastal regions. This wattle was located forming isolated stands within the open paddock near Location C. The trees present across the site were considered to have been planted and are therefore not considered to be native vegetation under the NV Act and are not protected under the NV Act. The planted tree species and non-endemic species are listed in Table 4.

**Table 4 Non-endemic native species and planted species located at the site.**

Species Name	Common Name	Family
# <i>Acacia cyclops</i>	Western Coast Wattle	FABACEAE
<i>Acacia retinodes</i>	Wirilda (planted)	FABACEAE
# <i>Agonis flexuosa</i>	Western Australian Peppermint (planted)	MYRTACEAE
<i>Callistemon salignus</i>	Willow Bottlebrush (planted)	MYRTACEAE
<i>Eucalyptus odorata</i>	Peppermint Box (planted)	MYRTACEAE
<i>Eucalyptus camaldulensis</i>	Red Gum (planted)	CHENOPODIACEAE
<i>Eucalyptus cladocalyx</i>	Sugar Gum (planted)	MYRTACEAE
<i>Eucalyptus leucoxydon</i>	Blue Gum (planted)	CHENOPODIACEAE
# <i>Hakea drupacea</i>	Sweet Hakea (planted)	MYRTACEAE
# <i>Lophostemon confertus</i>	Brush Box (planted)	MYRTACEAE
<i>Melaleuca lanceolata</i>	Dryland Tea Tree (planted)	CHENOPODIACEAE
# denotes native species not endemic to South Australia		

The specimen of *Acacia retinodes* (Wirilda) was located adjacent the north western corner of the residence within D13542 A107 and was determined to have been planted, Photo 8.



**Photo 8 *Acacia retinodes* (Wirilda) planted adjacent residence fence.**

No native vegetation associations were located during the site assessment and the individual native species that were recorded largely consisted of individual scattered plants, failing to reach the threshold in order to qualify as native vegetation in accordance with the NV Act.

No threatened species were located or are considered likely to occur at the site due to the extensive land clearance and high level of sustained disturbance.

### 3.1.4 Weed Species

The site walkover identified 51 environmental weed and exotic pasture grass species present at the site. Additional exotic species were present amongst the garden plantings surrounding the residence located at the site and were excluded from this list. Additional herbaceous species are considered likely to occur at the site as the survey was conducted in summer and additional forbs may emerge following winter and spring rainfall.

The dominant species were *\*Scabiosa atropurpurea* (Pincushion), *\*Ehrharta calycina* (Perennial Veldt Grass), *\*Lagurus ovatus* (Hare's Tail Grass), *\*Aizoon pubescens* (Galenia), *\*Vulpia muralis* (Fescue) and *\*Hypochaeris glabra* (Smooth Cat's Ear).

Eleven species are Declared Weed Species within South Australia, Table 5 and three of these species are also classed as Weeds of National Significance (WoNS), including *\*Asparagus asparagoides* (Bridal Veil Creeper), *\*Lycium ferocissimum* (African Boxthorn) and *\*Tamarix aphylla* (Tamarisk). Bridal Veil Creeper was present under the planted trees opposite the shack at the eastern end of the site, Photo 9. The African Boxthorn had formed a large mixed stand at Location B with *#Acacia cyclops* (Western Coast Wattle), Photo 11 and nearby to Location C with *\*Populus alba* (White Poplar), Figure 4 and Photo 12.

**Table 5 List of environmental weed and pasture species identified.**

Species Name	Common Name	Family
<i>*Acanthus mollis</i>	Oyster Plant	ACANTHACEAE
<i>*Aizoon pubescens</i>	Galenia	AIZOACEAE
<i>*Aptenia cordifolia</i>	Heart-leaf Iceplant	AIZOACEAE
<i>*Asparagus asparagoides</i>	Bridal Veil Creeper <sup>WoNS, SA19</sup>	ASPARAGACEAE
<i>*Avena barbata</i>	Bearded Oat	POACEAE
<i>*Bromus diandrus</i>	Great Brome	POACEAE
<i>*Bromus hordeaceus</i>	Soft Brome	POACEAE
<i>*Cenchrus clandestinus</i>	Kikuyu	POACEAE
<i>*Cirsium vulgare</i>	Spear Thistle	ASTERACEAE
<i>*Citrus sinensis</i>	Orange	RUTACEAE
<i>*Cynodon dactylon</i>	Couch Grass	POACEAE
<i>*Echium plantagineum</i>	Salvation Jane <sup>SA40</sup>	BORAGINACEAE
<i>*Ehrharta calycina</i>	Perennial Veldt Grass	POACEAE
<i>*Euphorbia terracina</i>	False Caper <sup>SA46</sup>	EUPHORBIACEAE
<i>*Ficus carica</i>	Fig	MORACEAE
<i>*Foeniculum vulgare</i>	Fennel	APIACEAE
<i>*Gnaphalium polycaulon</i>	Many-stem Cudweed	ASTERACEAE
<i>*Hordeum marinum</i>	Sea Barley Grass	POACEAE
<i>*Hypochaeris glabra</i>	Smooth Cat's-ear	ASTERACEAE
<i>*Juniperus x-media</i>	Creeping Juniper	CUPRESSACEAE
<i>*Lactuca serriola</i>	Prickly Lettuce	ASTERACEAE
<i>*Lagurus ovatus</i>	Hare's tail Grass	POACEAE
<i>*Lavendula dentata</i>	French Lavender	LAMIACEAE
<i>*Lepidium africanum</i>	Common Peppergrass	BRASSICACEAE

Species Name	Common Name	Family
* <i>Limonium sinuatum</i>	Wild Statice	POLEMONIACEAE
* <i>Lycium ferocissimum</i>	African Boxthorn <sup>WoNS, SA19</sup>	SOLANACEAE
* <i>Marrubium vulgare</i>	Horehound <sup>SA38</sup>	LAMIACEAE
* <i>Medicago polymorpha</i>	Burr medic	FABACEAE
* <i>Olea europaea</i>	European Olive <sup>SA27</sup>	OLEACEAE
* <i>Pinus halepensis</i>	Aleppo Pine <sup>SA47</sup>	PINACEAE
* <i>Piptatherum milliaceum</i>	Rice Millet	POACEAE
* <i>Polygonum aviculare</i>	Wire Weed	POLYGONACEAE
* <i>Populus alba</i>	White Poplar	SALICACEAE
* <i>Plantago coronopus ssp coronopus</i>	Buck's Horn Plantain	PLANTAGINACEAE
* <i>Portulaca oleracea</i>	Pigweed	PORTULACACEAE
* <i>Prunus armeniaca</i>	Apricot	ROSACEAE
* <i>Prunus dulcis</i>	Almond	ROSACEAE
* <i>Prunus persica</i>	Nectarine	ROSACEAE
* <i>Punica granatum</i>	Pomegranate	LYTHRACEAE
* <i>Pyrus communis</i>	Pear	ROSACEAE
* <i>Reichardia tingitana</i>	False Sow Thistle	ASTERACEAE
* <i>Rhamnus alaternus</i>	Italian Buckthorn <sup>SA63</sup>	ROSACEAE
* <i>Rosa canina</i>	Dog Rose <sup>SA24</sup>	ROSACEAE
* <i>Scabiosa atropurpurea</i>	Pincushion	CAPRIFOLIACEAE
* <i>Solanum linnaeanum</i>	Apple of Sodom <sup>SA46</sup>	SOLANACEAE
* <i>Solanum nigrum</i>	Nightshade	SOLANACEAE
* <i>Sonchus oleraceus</i>	Common Sow Thistle	ASTERACEAE
* <i>Stenotaphrum secundatum</i>	Buffalo Grass	POACEAE
* <i>Tamarix aphylla</i>	Tamarisk <sup>WoNS, SA50</sup>	TAMARICACEAE
* <i>Trifolium arvense</i>	Hare's Foot Clover	FABACEAE
* <i>Vulpia muralis</i>	Fescue	POACEAE
<p>*denotes introduced species                      WoNS = Weed of National significance                      SA19 = Declared Weed in South Australia Class 19                      SA24 = Declared Weed in South Australia Class 24                      SA27 = Declared Weed in South Australia Class 27                      SA38 = Declared Weed in South Australia Class 38                      SA40 = Declared Weed in South Australia Class 40                      SA46 = Declared Weed in South Australia Class 46                      SA47 = Declared Weed in South Australia Class 47                      SA50 = Declared Weed in South Australia Class 50                      SA63 = Declared Weed in South Australia Class 63</p>		



Photo 9 \**Asparagus asparagoides* (Bridal veil Creeper) WoNS



Photo 10 Tamarisk tree (\**Tamarix aphylla*) WoNS growing under the stobie pole at (E30213 N6070461)



Photo 11 Stand of African Boxthorn (*\*Lycium ferocissimum*) at Location B.



Photo 12 Stand of White Poplar (*\*Populus alba*) with African Boxthorn near Location C.

While pasture grasses associated with environmental weeds dominated the entire site some isolated trees, Photo 13 and shrubs were present along with stands of shrubs and woody weeds in particular along what may have historically been the fence line between Allotment 103 and Allotment 106, at Location C on Figure 4. The majority of the trees present at the site had been planted near the two residences that occur at the site. Typically these trees were planted in alignment, Photo 14 and often included species not endemic to either the area or South Australia.





Photo 13 Individual Olive tree (\**Olea europaea*) at (E301704 N6070408)



Photo 14 Eucalypts planted at the residence in the east of the site.

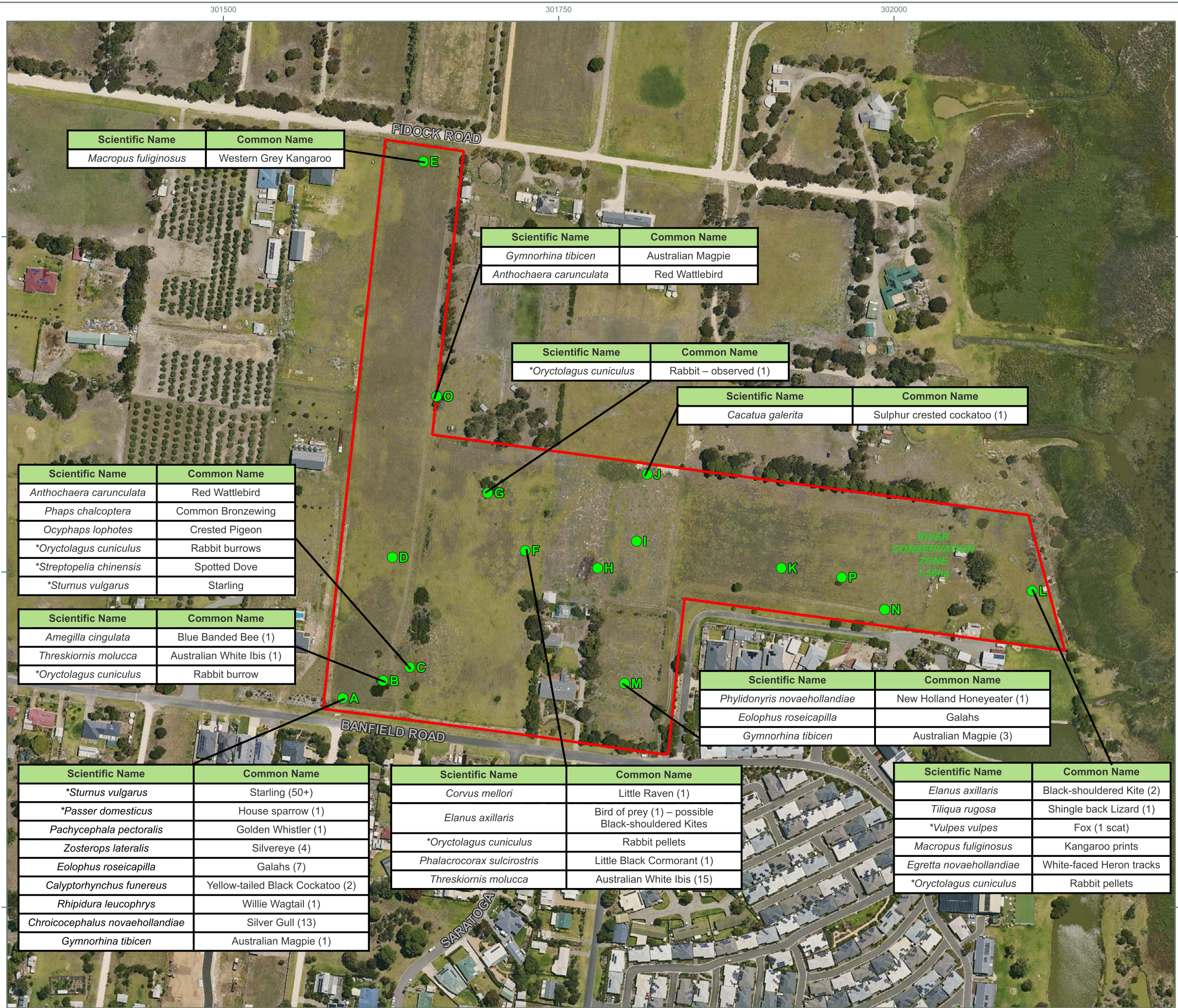
**FLORA AND FAUNA ASSESSMENT -  
LAKESIDE GOOLWA RESIDENTIAL  
PARK CODE AMENDMENT,  
GOOLWA NORTH SA**

**SOUTHERN LIFESTYLE VILLAGES  
PTY LTD**

**DISTRIBUTION OF FLORA  
AND FAUNA**

**Legend**

- Flora and Fauna Distribution Point
- Site Boundary



Scientific Name	Common Name
<i>Macropus fuliginosus</i>	Western Grey Kangaroo

Scientific Name	Common Name
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Anthochaera carunculata</i>	Red Wattlebird

Scientific Name	Common Name
* <i>Oryctolagus cuniculus</i>	Rabbit – observed (1)

Scientific Name	Common Name
<i>Cacatua galerita</i>	Sulphur crested cockatoo (1)

Scientific Name	Common Name
<i>Anthochaera carunculata</i>	Red Wattlebird
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Ocyphaps lophotes</i>	Crested Pigeon
* <i>Oryctolagus cuniculus</i>	Rabbit burrows
* <i>Streptopelia chinensis</i>	Spotted Dove
* <i>Sturnus vulgarus</i>	Starling

Scientific Name	Common Name
<i>Amegilla cingulata</i>	Blue Banded Bee (1)
<i>Threskiornis molucca</i>	Australian White Ibis (1)
* <i>Oryctolagus cuniculus</i>	Rabbit burrow

Scientific Name	Common Name
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater (1)
<i>Eolophus roseicapilla</i>	Galahs
<i>Gymnorhina tibicen</i>	Australian Magpie (3)

Scientific Name	Common Name
* <i>Sturnus vulgarus</i>	Starling (50+)
* <i>Passer domesticus</i>	House sparrow (1)
<i>Pachycephala pectoralis</i>	Golden Whistler (1)
<i>Zosterops lateralis</i>	Silvereye (4)
<i>Eolophus roseicapilla</i>	Galahs (7)
<i>Calyptorhynchus funereus</i>	Yellow-tailed Black Cockatoo (2)
<i>Rhipidura leucophrys</i>	Willie Wagtail (1)
<i>Chroicocephalus novaehollandiae</i>	Silver Gull (13)
<i>Gymnorhina tibicen</i>	Australian Magpie (1)

Scientific Name	Common Name
<i>Corvus mellori</i>	Little Raven (1)
<i>Elanus axillaris</i>	Bird of prey (1) – possible Black-shouldered Kites
* <i>Oryctolagus cuniculus</i>	Rabbit pellets
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant (1)
<i>Threskiornis molucca</i>	Australian White Ibis (15)

Scientific Name	Common Name
<i>Elanus axillaris</i>	Black-shouldered Kite (2)
<i>Tiliqua rugosa</i>	Shingle back Lizard (1)
* <i>Vulpes vulpes</i>	Fox (1 scat)
<i>Macropus fuliginosus</i>	Kangaroo prints
<i>Egretta novaehollandiae</i>	White-faced Heron tracks
* <i>Oryctolagus cuniculus</i>	Rabbit pellets

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1. Aerial image sourced from Metromap, aerial dated 20.01.2024, sourced 05.03.2024.
2. Roads data sourced from SA Data, sourced 25.05.2021.
3. Base drawing sourced from the client.

0 20 40 60 80 100 m



**SCALE (at A3): 1:2,750**  
**PROJECTION:** GDA2020 / MGA zone 54  
**DRAWING NO:** GFE-036-F0004-Rev0.qgs  
**DATE:** 19/03/2024  
**DRAWN:** KB  
**CHECKED:** GF

**FIGURE 4**

## 3.2 Fauna

### 3.2.1 EPBC Protected Matters

The EPBC Act MNES search of the site with a 5 km buffer applied indicated that “*The Coorong and Lakes Alexandrina and Albert Wetland*” that is a Wetland of International Importance (RAMSAR Wetland) is located within the buffered site area. This wetland of National and International importance has the SA Reference Code SA063. The boundary of this wetland extends into the area that appears to be a road reserve, that is, the narrow strip of land east of parcel D89165 A54 and between parcel H150400 S328 that extends into Currency Creek. The boundary of *The Coorong and Lakes Alexandrina and Albert Wetland* does not extend into the site. The River Murray Wetlands catalogue identifies the Lake Alexandrina Fringing Wetland with an International Status and National Status of 1. This fringing wetland dominated by *Phragmites australis* (Common Reed) is mapped as occurring adjacent the site. The eastern end of the site is zoned Conservation and if vegetation management is minimized then it is considered likely that the stand of Common Reed will extend into the site along the eastern perimeter.

While the EPBC Act MNES search of the site with a 5 km buffer applied indicated that the “*Swamps of the Fleurieu Peninsula*” community is “*known to occur within the area*” however this community corresponds to the fringing wetland and does not extend onto the site.

There are a number of species identified by the buffered (5km) EPBC Act MNES search of the site that are recorded as “species or species habitat known to occur within area”, “Roosting known to occur within area” or “Foraging known to occur”. These records include the following species: Birds: *Arenaria interpres* (Ruddy Turnstone), *Botaurus poiciloptilus* (Australasian Bittern), *Calidris acuminata* (Sharp-tailed Sandpiper), *Calidris canutus* (Red Knot), *Calidris ferruginea* (Curlew Sandpiper), *Calidris tenuirostris* (Great Knot), *Charadrius mongolus* (Lesser Sand Plover), *Gallinago hardwickii* (Latham’s Snipe), *Limosa lapponica baueri* (Nunivak Bar-tailed Godwit), *Limosa limosa* (Black-tailed Godwit), *Melanodryas cucullata cucullata* (South-eastern Hooded Robin), *Neophema chrysogaster* (Orange-bellied Parrot), *Neophema chrysostoma* (Blue-winged Parrot), *Numenius madagascariensis* (Eastern Curlew), *Pachyptila turtur subantarctica* (Fairy Prion), *Pluvialis squatarola* (Grey Plover), *Rostratula australis* (Australian Painted Snipe), *Sternula nereis nereis* (Australian Fairy Tern), *Stipiturus malachurus intermedius* (Fleurieu Peninsula Southern Emu-wren), *Thalassarche steadi* (White-capped Albatross), *Thinornis cucullatus cucullatus* (Eastern Hooded Plover), *Tringa nebularia* (Common Greenshank), *Xenus cinereus* (Terek Sandpiper).

The records include the following Migratory Wetlands Species that have not been previously listed: *Actitis hypoleucos* (Common Sandpiper), *Calidris alba* (Sanderling), *Calidris melanotos* (Pectoral Sandpiper), *Calidris ruficollis* (Red-necked Stint), *Charadrius bicinctus* (Double-banded Plover), *Charadrius veredus* (Oriental Plover), *Limosa lapponica* (Bar-tailed Godwit), *Phalaropus lobatus* (Red-necked Phalarope), *Philomachus pugnax* (Ruff), *Pluvialis fulva* (Pacific Golden Plover), *Pluvialis squatarola* (Grey Plover), *Tringa glareola* (Wood Sandpiper), *Tringa nebularia* (Common Greenshank), *Tringa stagnatilis* (Marsh Sandpiper), *Xenus cinereus* (Terek Sandpiper).

Of the species listed within the EPBC Act MNES search of the site with a 5 km buffer it is considered that the species with the potential to utilize the site include *Botaurus poiciloptilus* (Australasian Bittern), *Gallinago hardwickii* (Latham’s Snipe) and *Rostratula australis* (Australian Painted Snipe) as they may occur within the Common Reed community that forms the fringing wetland to the site. The site itself does not offer primary habitat for these species.

### 3.2.2 BDBSA Records

The search of BDBSA records for the site with a 5 km buffer applied did not return any occurrence records for the site and all records in Table 6 occur in the buffer area. The likelihood of fauna occurring at the site is considered to be largely determined by the ability of those species listed in Table 6 to utilise the fringing wetland habitat adjacent to the east of the site. This habitat is suited to species that may utilise the dense stand of Common Reed such as *Gallinago hardwickii* (Latham's Snipe), *Lewin pectoralis pectoralis* (Lewin's Rail) and *Zapornia tabuensis* (Spotless Crake) and while the site does not contain this habitat it is possible that these species could forage the far eastern portion of the site that is zoned Conservation. Evidence located at the site of a White-faced Heron having been present indicates that other Herons and Egrets may also utilise the same area of the site, this includes *Ardea intermedia plumifera* (Plumed Egret) and *Egretta garzetta nigripes* (Little Egret).

It is considered Possible that *Coturnix ypsilophora australis* (Brown Quail) may utilise the existing paddocks if they were to continue to be cropped or the existing areas of higher grass were retained.

The presence of an individual Aleppo Pine (*\*Pinus halapensis*) at the site may provide a small amount of foraging for this *Calyptorhynchus funereus* (Yellow-tailed Black Cockatoo), while the presence of the pines adjacent the property are more likely to attract this species to the area for feeding and roosting.

As an individual *Phalacrocorax sulcirostris* (Little Black Cormorant) was observed at the site it is considered Possible that *Anhinga novaehollandiae novaehollandiae* (Australasian Darter) could utilise the site as these species occupy similar habitats.

**Table 6 Occurrence of fauna at site with 5 km buffer applied.**

SPECIES	COMMON NAME	EPBC ACT	NPW ACT	Likelihood of occurrence
<i>Actitis hypoleucos</i>	Common Sandpiper		R	Unlikely
<i>Anhinga novaehollandiae novaehollandiae</i>	Australasian Darter		R	Possible
<i>Anthochaera chrysoptera</i>	Little Wattlebird	ssp		Unlikely
<i>Ardea intermedia plumifera</i>	Plumed Egret		R	Possible
<i>Biziura lobata menziesi</i>	Musk Duck		R	Unlikely
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	VU		Unlikely
<i>Calidris canutus</i>	Red Knot	VU	ssp	Unlikely
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	E	Unlikely
<i>Cereopsis novaehollandiae novaehollandiae</i>	Cape Barren Goose		R	Unlikely
<i>Cladorhynchus leucocephalus</i>	Banded Stilt		V	Unlikely
<i>Coturnix ypsilophora australis</i>	Brown Quail		V	Possible
<i>Dasyornis broadbenti broadbenti</i>	Rufous Bristlebird		R	Unlikely
<i>Egretta garzetta nigripes</i>	Little Egret		R	Possible
<i>Gallinago hardwickii</i>	Latham's Snipe	VU	R	Possible
<i>Haematopus fuliginosus fuliginosus</i>	Sooty Oystercatcher		R	Unlikely
<i>Haematopus longirostris</i>	Pied Oystercatcher		R	Unlikely
<i>Lewin pectoralis pectoralis</i>	Lewin's Rail		V	Possible

SPECIES	COMMON NAME	EPBC ACT	NPW ACT	Likelihood of occurrence
<i>Limosa lapponica baueri</i>	Bar-tailed Godwit (ssp. baueri)	EN	R	Unlikely
<i>Limosa limosa melanuroides</i>	Black-tailed Godwit	sp	R	Unlikely
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (YP, MN, AP, MLR, MM, SE)	EN	R	Unlikely
<i>Microeca fascinans</i>	Jacky Winter		ssp	Unlikely
<i>Neophema elegans elegans</i>	Elegant Parrot		R	Unlikely
<i>Neophema petrophila zietzi</i>	Rock Parrot		R	Unlikely
<i>Numenius phaeopus variegatus</i>	Whimbrel		R	Unlikely
<i>Oxyura australis</i>	Blue-billed Duck		R	Unlikely
<i>Platycercus elegans</i>	Crimson Rosella	ssp		Unlikely
<i>Pluvialis fulva</i>	Pacific Golden Plover		R	Unlikely
<i>Pluvialis squatarola squatarola</i>	Grey Plover	sp		Unlikely
<i>Podiceps cristatus australis</i>	Great Crested Grebe		R	Unlikely
<i>Spatula rhynchotis</i>	Australasian Shoveler		R	Unlikely
<i>Sternula nereis nereis</i>	Fairy Tern	VU	E	Unlikely
<i>Stictonetta naevosa</i>	Freckled Duck		V	Unlikely
<i>Trichosurus vulpecula</i>	Common Brushtail Possum		R	Unlikely
<i>Tringa brevipes</i>	Grey-tailed Tattler		R	Unlikely
<i>Tringa glareola</i>	Wood Sandpiper		R	Unlikely
<i>Tringa nebularia</i>	Common Greenshank	EN		Unlikely
<i>Varanus rosenbergi</i>	Heath Goanna		V	Unlikely
<i>Xenus cinereus</i>	Terek Sandpiper	VU	R	Unlikely
<i>Zanda funerea whiteae</i>	Yellow-tailed Black Cockatoo		V	Possible
<i>Zapornia tabuensis</i>	Spotless Crake		R	Possible

### 3.2.3 Field Survey

The field survey recorded incidental records of fauna observed in addition to signs, tracks and scats. The distribution of the fauna assessment results are presented in Figure 4.

A total of 24 fauna species were identified as occurring at the site including 20 bird species, three mammals and one reptile species.

An individual *Tiliqua rugosa* (Shingle-back Lizard) was observed at Location L, Figure 4 at the residence to the east of the site and was the only reptile located. The full list of fauna species located at the site is provided in Table 7.

**Table 7 Site fauna species list**

Species Name	Common Name	Comment
<b>Introduced Bird Species</b>		
<i>*Passer domesticus</i>	House sparrow	1 observed
<i>*Streptopelia chinensis</i>	Spotted Dove	1 observed
<i>*Sturnus vulgarus</i>	Starling	A flock of 50+ birds
<b>Endemic Bird Species</b>		
<i>Anthochaera carunculata</i>	Red Wattlebird	2 observed
<i>Cacatua galerita</i>	Sulphur crested cockatoo	1 observed
<i>Calyptorhynchus funereus</i>	Yellow-tailed Black Cockatoo	2 observed flying over the site
<i>Chroicocephalus novaehollandiae</i>	Silver Gull	13 observed
<i>Corvus mellori</i>	Little Raven	1 observed
<i>Egretta novaehollandiae</i>	White-faced Heron	Tracks observed
<i>Elanus axillaris</i>	Black-shouldered Kite	2 observed
<i>Eolophus roseicapilla</i>	Galahs	7 observed
<i>Gymnorhina tibicen</i>	Australian Magpie (1)	4 observed
<i>Ocyphaps lophotes</i>	Crested Pigeon	1 observed
<i>Pachycephala pectoralis</i>	Golden Whistler	1 observed
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	1 observed
<i>Phaps chalcoptera</i>	Common Bronzewing	1 observed
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	1 observed
<i>Rhipidura leucophrys</i>	Willie Wagtail	1 observed
<i>Threskiornis molucca</i>	Australian White Ibis	16 observed foraging
<i>Zosterops lateralis</i>	Silvereye	4 observed
<b>Introduced Mammals</b>		
<i>*Oryctolagus cuniculus</i>	European Rabbit	Rabbit burrows, scat and 1 individual
<i>*Vulpes vulpes</i>	Red Fox	Track observed.
<b>Endemic Mammals</b>		
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	Kangaroo footprints and scat
<b>Endemic Reptile</b>		
<i>Tiliqua rugosa</i>	Shingle back Lizard	1 observed

Of the bird species located three were introduced species, namely *\*Sturnus vulgarus* (Starling), *\*Passer domesticus* (House Sparrow) and *\*Streptopelia chinensis* (Spotted Dove).

Two *Calyptorhynchus funereus* (Yellow-tailed Black Cockatoo) individuals flew approximately 500 m west of Location A. This species listed as Vulnerable under the NPW Act is considered likely to overfly the site in order to feed upon the pine trees that are planted adjacent the northern property boundary of D89165 A54 in the east of the site. There is a single Aleppo pine (*\*Pinus halapensis*) that may provide a small

amount of food for this species but this is insignificant as a food source in comparison to the mature pine trees that can be seen in the background of Photo 15.

A pair of immature *Elanus axillaris* (Black-shouldered Kites) was observed using the trees at the residence, Photo 15 and Photo 16 and it is possible that they had a nest within the *Melaleuca lanceolata* (Dryland Tea Tree) at the rear of the building, although they did not return to the tree whilst being observed.



Photo 15 Black-shouldered Kite roosting at the eastern end of the site.



Photo 16 A pair of Black-shouldered Kites located near the eastern residence

## Tracks, Scats and Signs

At Location L near the eastern residence there were a number of tracks in mud that included those identified as belonging to White-faced Heron (*Egretta novaehollandiae*) and Red Fox (*Vulpes vulpes*) with scats belonging to European Rabbit (*Oryctolagus cuniculus*), Photo 17.



**Photo 17** White-faced Heron tracks (yellow lines), Red Fox track (white circle) and Rabbit pellets (green circles) at Location L.

Rabbit scats were located at several locations across the site including Location F and accumulations like that shown in Photo 18 are used to mark territory, with accumulations of scats typically located on slightly elevated patches of ground. An individual rabbit was observed at Location G while rabbit warrens were located at Location C.





**Photo 18 Rabbit scat at Location F.**

Evidence of *Macropus fuliginosus* (Western Grey Kangaroo) was observed at the site in the form of footprints in mud, Photo 19 located at the eastern end of the site and in the form of scat located at the northern end of the site adjacent Fidock Road (Location E), Figure 4.



**Photo 19 Hind footprints of Western Grey Kangaroo**

### 3.2.4 Pest Species

The pest bird species present at the site included the introduced *\*Sturnus vulgarus* (Starling) that was observed in a flock of 50+ birds and *\*Passer domesticus* (House Sparrow) that was recorded from an individual observation. Both of these species are listed within Class 4 under the LSA Act. While an introduced species the Spotted Dove (*\*Streptopelia chinensis*) is generally not considered a pest.

Two of the most significant pests within Australia were recorded at the site including the European Rabbit (*\*Oryctolagus cuniculus*) listed under Class 9 of the LSA Act that was directly observed and the Red Fox (*\*Vulpes vulpes*) listed under Class 5 of the LSA Act that was detected at the site by the presence of footprints.

At several locations, such as B, C and G, Figure 4 rabbit burrows were present and these vegetated areas often with debris or dead timber afforded protection to pest animals, Photo 20.



**Photo 20 Location G - habitat supporting pest animals.**

The mound of vegetation and rubbish that was approximately 1.75 m tall, 12 m wide and 22 m long was likely to provide habitat for pest species and also presents a significant fire hazard as has the potential to self-combust due to the size of the pile, Photo 21.

In order to control pest animals across the site it is recommended that the mound of vegetation and rubbish be removed and overgrown areas, such as that shown in Photo 20 are to be brought under control.



Photo 21 Piled vegetation and rubbish – Location H, Figure 4.

## 4 DISCUSSION

No native vegetation associations exist at the site and while a small number of native plant species were recorded across the site they occur below the threshold to comprise native vegetation in accordance with the NV Act. Native species of trees identified across the site were determined to have been planted and are therefore not afforded protection under the NV Act. The significant and regulated tree provisions under the P&D Code in accordance with the PDI Act do not apply to the site. Several weeds of National Significance were located at the site and these are recommended to be controlled along with other plant species that are declared weeds under the LSA Act.

No threatened flora or fauna were located at the site, although it is considered that the *Calyptorhynchus funereus* (Yellow-tailed Black Cockatoo) listed as Vulnerable under the NPW Act are likely to forage amongst the pine trees located on the adjoining property and may forage on fallen pine cones that have fallen onto the ground on the site next to this vegetation. While not a listed species a pair of immature *Elanus axillaris* (Black-shouldered Kites) were observed using the trees near the eastern residence and retention of the trees is recommended to support these birds within the conservation zone.

It is recommended that any future proposed landscaping associated with the conservation zone consider incorporating habitat for Woodland birds by incorporating constituent native plant species of the pre-European settlement *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland.

The large mound of vegetation and rubbish present at the site is likely to harbor pest animal species and has the potential to spontaneously combust due to the amount of material present, with this risk increasing with the addition of material and the addition of moisture. It is recommended that this mound of material be removed as soon as practicable as it is considered to be an attractive target for an arsonist.

The opportunity exists to facilitate the revegetation or to allow natural regeneration of the fringing wetland plant community adjacent to the eastern boundary of the site. An advantage of this action would be to provide an additional buffer against wave erosion, while a fire break would need to be incorporated into the planning process to ensure that bushfire risk is mitigated from the expansion of the reed bed.

The potential exists to utilize the conservation zone for passive recreational activities such as bird watching and this could include construction of a hide and associated boardwalk. The conservation zone could become a significant environmental asset to the Residential Park in particular as the site is adjacent a RAMSAR listed wetland of international significance.

## 5 RECOMMENDATIONS

The following recommendations are made regarding the proposed development of the site as a residential park with respect to minimising the effect upon flora and fauna at the site and within the adjoining conservation area.

- Implement pest and weed control measures across the site.
- Remove the pile of vegetation cuttings and waste material as soon as practicable as it is a fire hazard and likely harbors pests.
- Revegetate or facilitate natural regeneration of the fringing wetland at the eastern boundary of the site.
- Incorporate *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland constituent native plant species to create habitat for Woodland birds within the conservation zone and site landscaping.
- Retain existing trees near the residence at eastern end of the site to support the pair of immature *Elanus axillaris* (Black-shouldered Kites).

## 6 LIMITATIONS

This Flora and Fauna Assessment has been completed based upon the information provided to Grant Fleming Environmental (GFE) and the agreed scope of works between GFE and Goolwa Tourist Resort Pty Ltd (client).

A comprehensive fauna trapping programme was not conducted as part of the fauna assessment. Field observations were made while assessing vegetation and bushfire risk at the site. This approach was considered sufficient to address the preliminary investigation of fauna at the site, meeting the proposed scope of work, as well as giving consideration to the site's largely disturbed nature.

To obtain the most reliable results typically fauna assessments are undertaken over multiple seasons. Consequently it can be expected that not all the fauna occurring at the site would have been encountered or identified during the current assessment. Nevertheless, an assessment of the likelihood of rare and/or threatened species to occur on the site was conducted based upon; knowledge of the site, findings of previous studies, species records, habitat preferences of the species, knowledge of the life histories of the species, professional judgement and experience of the assessor.

The statements presented in this document are intended to advise you of what your realistic expectations of this document should be. The document is not intended to reduce the level of responsibility accepted by GFE but rather to ensure all parties who may rely on this report are aware of the responsibilities each assumes in doing so.

GFE has prepared this Flora and Fauna Assessment in accordance with the usual care and thoroughness of the consulting profession, by reference to applicable industry standards, guidelines and assessment criteria in existence at the date of issue of this Report and based upon the information and advice provided to GFE. For the reasons outlined, no warranty or guarantee, whether expressed or implied, is made as to the data, observations and recommendations expressed in this Flora and Fauna Assessment.

Any reliance of this Flora and Fauna Assessment by a third party shall be entirely at such party's own risk. GFE provides no warranty or guarantee to any third party, express or implied, as to the information and or professional advice indicated in this Flora and Fauna Assessment, and accept no liability whatsoever for or in any respect of any use or reliance upon this Flora and Fauna Assessment by a third party.

## SIGNATURE PAGE

### GRANT FLEMING ENVIRONMENTAL

A handwritten signature in blue ink, appearing to read 'G Fleming', is centered on the page.

Grant Fleming BSc(Hons), BAppSc, MAppSc  
Principal Environmental Scientist

## 7 REFERENCES

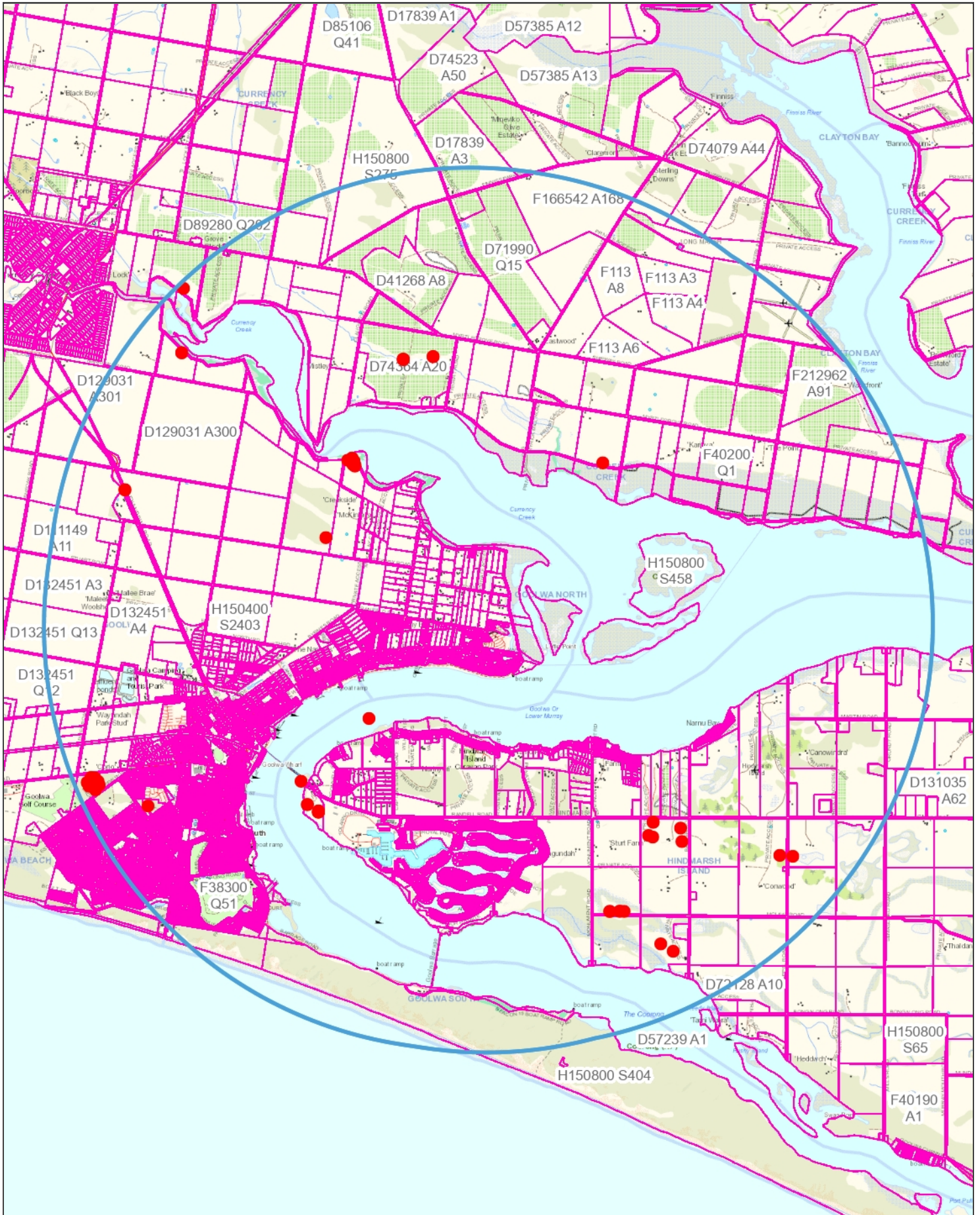
DENR 2007. *Guidelines for Vertebrate Surveys in South Australia. Using the Biological Survey of South Australia*. Government of South Australia.

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## APPENDIX A THREATENED FLORA - BDBSA

# BDBSA Threatened Species (5 km, 20 years).



Map data is compiled from a variety of sources and hence its accuracy is variable.

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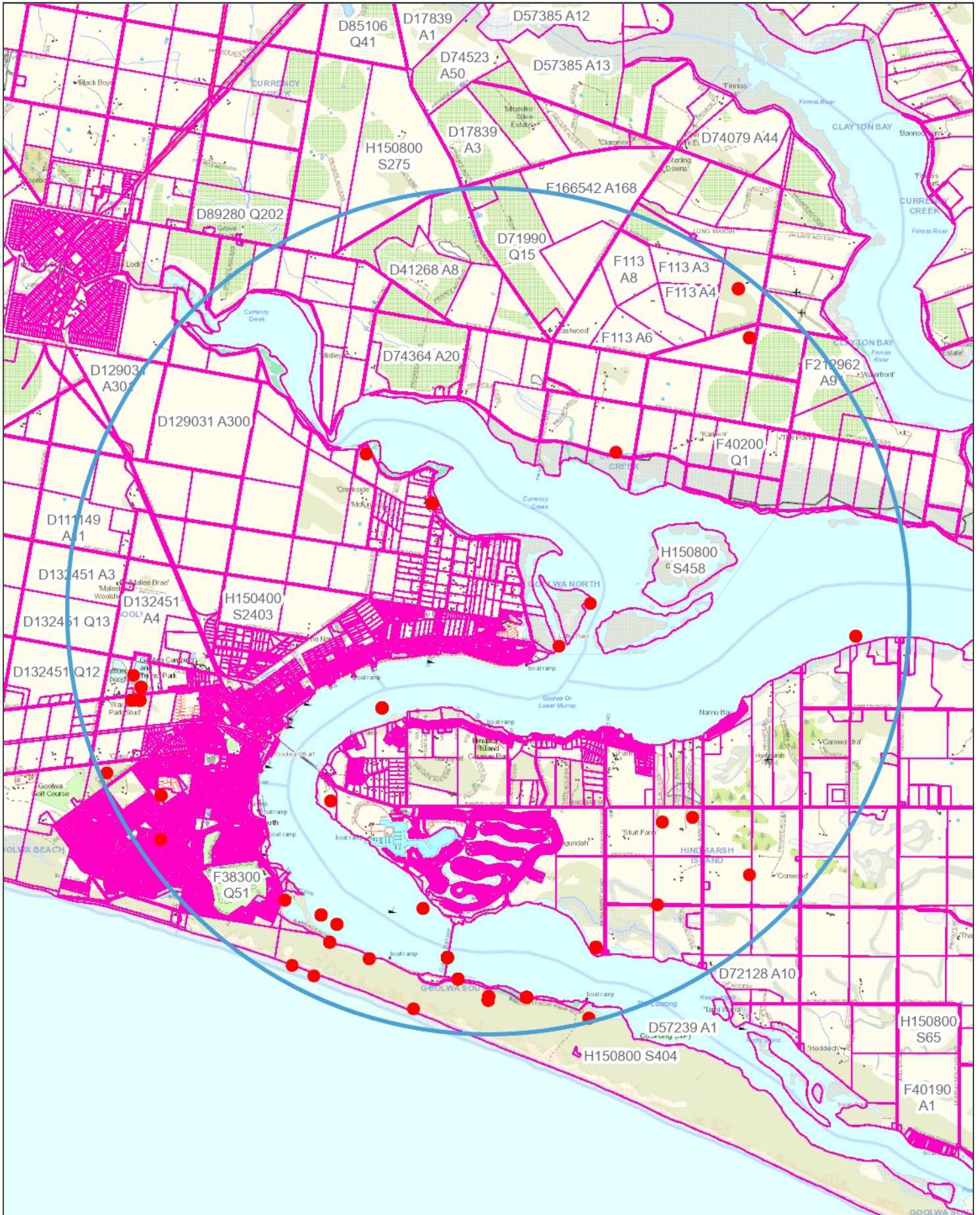
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 Datum: Geocentric Datum of Australia, 2020  
 Projection: Web Mercator (Auxiliary Sphere)



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## APPENDIX B THREATENED FAUNA - BDBSA

# BDBSA Threatened Fauna (5 km, 20 years).



Map data is compiled from a variety of sources and hence its accuracy is variable.

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