

Native Vegetation Clearance

Outer Harbor LNG Project

Data Report

Clearance under the *Native Vegetation Regulations 2017*

9/10/2020

Prepared by [REDACTED], T&M Ecologists Pty Ltd

and [REDACTED], JBS&G Australia Pty Ltd



¹ Note that some of the specific detail in the report has been extracted from Brook, J. (2020). Venice Marine Ecological Assessment. Unpublished report prepared for Venice Energy.

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1. Application information

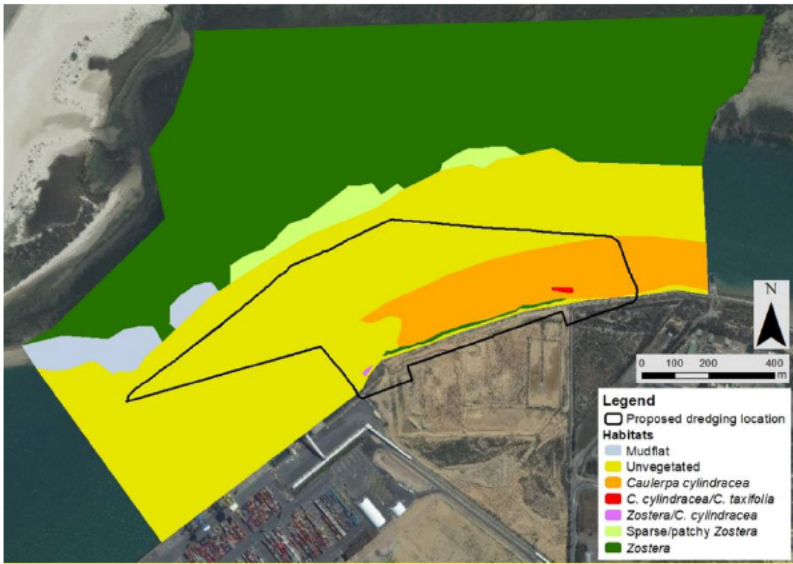
Application Details

Applicant:	Venice Energy Pty Ltd		
Key contact:	Level 1, 217 Gouger St, Adelaide SA 5000		
Landowner:	Minister for Transport and Infrastructure (leased to Finders Ports Pty Ltd) Pelican Point Power Ltd The Crown		
Site Address:	n/a. Site is in the Port River channel, Outer Harbor		
Local Government Area:	City of Port Adelaide Enfield (part). Majority of the site is out of council land	Hundred:	Port Adelaide (part). Majority of the site is out of Hundreds
Title ID:	CT CT/6106/376 CT/5858/214 Crown land (Port River channel)	Parcel ID	Allotment 4 Deposited Plan 73109 Allotment 155 Deposited Plan 57695

Summary of proposed clearance

Purpose of clearance	Clearance approval is required to allow dredging of the navigation and approach channels and two new berth pockets (Berths 9 and 10) at Outer Harbor in the Port of Adelaide. This is a component of the Outer Harbor LNG Project which involves the construction and operation of a liquefied natural gas (LNG) import terminal and berth infrastructure to accommodate a floating storage and regasification unit (FSRU), a liquified natural gas carrier and other necessary infrastructure required to import, store and regasify LNG and deliver the gas to domestic and industrial customers.
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure.
Description of the vegetation under application	The vegetation is a narrow band of seagrass (<i>Zostera nigricaulis</i>), considered to have been exposed to some disturbance, but overall considered to be in moderate to good condition. This vegetation may provide foraging habitat for the state Rare Australasian Darter (<i>Anhinga novaehollandiae</i>), but is not considered to provide habitat for any other species of state or national conservation significance.
Total proposed clearance - area (ha) and number of trees	0.54 hectares
Level of clearance	4
Overlay (Planning and Design Code)	Native Vegetation Overlay

Map of proposed clearance area: Seagrass beds of *Zostera* as per the image below.



Mitigation hierarchy	Only the minimum envelope to allow for the requirements of the berthing facilities will be dredged. The bulk of dredging will be undertaken in the cooler months of the year to minimise potential environmental impacts, such as sedimentation. There is no option to rehabilitate the area, as it will be maintained as a berth for ongoing use. The clearance will be offset by an appropriate payment into the Native Vegetation Fund.
SEB Offset proposal	Payment of \$40,619.35 plus admin fee of \$2,030.97 will be made in a single payment into the Native Vegetation Fund.

2. Purpose of clearance

2.1 Description

Clearance approval is required to allow dredging of the navigation, approach channels and two new berth pockets (Berths 9 and 10) at Outer Harbor in the Port of Adelaide. This is a component of the Outer Harbor LNG Project which involves the construction and operation of a liquefied natural gas (LNG) import terminal and berth infrastructure to accommodate a floating storage and regasification unit (FSRU), a liquified natural gas carrier and other necessary infrastructure required to import, store and regasify LNG and deliver the gas to domestic and industrial customers.

Approximately 1.8 million m³ of material will be dredged from the Port River and adjacent berth construction areas for ocean disposal (see Section 2.4 for details).

This application covers direct clearance of seagrass for the Project as a result of the dredging activities. Refer to Section 4.3 for discussion of the potential for indirect impacts.

The terrestrial component of the Project Site is exempt from clearance controls under the Native Vegetation Act as it is situated within metropolitan Adelaide.

This draft Data Report has been prepared to support the Development Application for the Project. Formal clearance approval under the Native Vegetation Act will be sought subsequent to development approval.

2.2 Background

The site of the proposed clearance is in the Port River channel at Outer Harbor. The current channel at the site has been formed by historic dredging and land reclamation activities and ongoing maintenance dredging. The dredging program is located immediately adjacent to the eastern-most extent of the recently completed Flinders Ports Outer Harbor Channel Widening Project.

The Port River at Outer Harbor is primarily used as a shipping channel and is also utilised by Flinders Port vessels (e.g. tugboats), tourist vessels, commercial fishers, recreational boaters and anglers and kayakers. The Port River in this area is periodically dredged to maintain the shipping channel and support port operations.

The clearance area is located immediately adjacent to land at Outer Harbor and Pelican Point which has been reclaimed over the preceding 50 to 100 years from the intertidal mangrove and samphire flats which originally formed this part of the Lefevre Peninsula. The land immediately adjacent to the proposed clearance is used for dredged sand/silt deposition from Port River channel maintenance, while land to the west supports port operations and land to the east contains the Pelican Point Power Station.

2.3 General location map

The project is located in the Outer Harbor area, about 20km NNW of the Adelaide city centre. Figure 1 provides an overview of the location of the project, and Figure 2 provides detail of the proposed dredging area.



Figure 1: Location of proposed project (marked with blue dot).



Figure 2: Proposed dredging location (yellow outline) and Project Site (marked pink). The dredge material placement area (inset) does not support native vegetation and has been previously used for prior projects. The *Native Vegetation Act 1991* does not apply for the terrestrial components.

2.4 Details of the proposal

Navigation and approach channels in the vicinity of the new berth facility will be dredged to 13 m depth (below chart datum) to allow the safe manoeuvre of the FSRU and LNG transport vessels and passing vessels. Approximately 1.8 million m³ of material will be dredged by dredging equipment from the Port River and adjacent berth construction areas for ocean disposal at the previously EPA-approved Dredge Material Placement Area (DMPA), located approximately 30 km west of Port River in the Gulf St Vincent. Approximately 100,000 m³ of material will be excavated via land-based excavation of reclaimed land from the existing shoreline to facilitate berth construction and will be re-used on land near Berth 9 and 10 (or re-used or disposed off-site).

The proposed dredging location and the marine habitats present are shown in Figure 3. The vast majority of the dredge footprint does not support native vegetation, and a narrow band of seagrass (*Zostera nigricaulis*) on the southern (reclaimed) shoreline is the only native vegetation present within the proposed dredging location (see Section 4 for further detail).

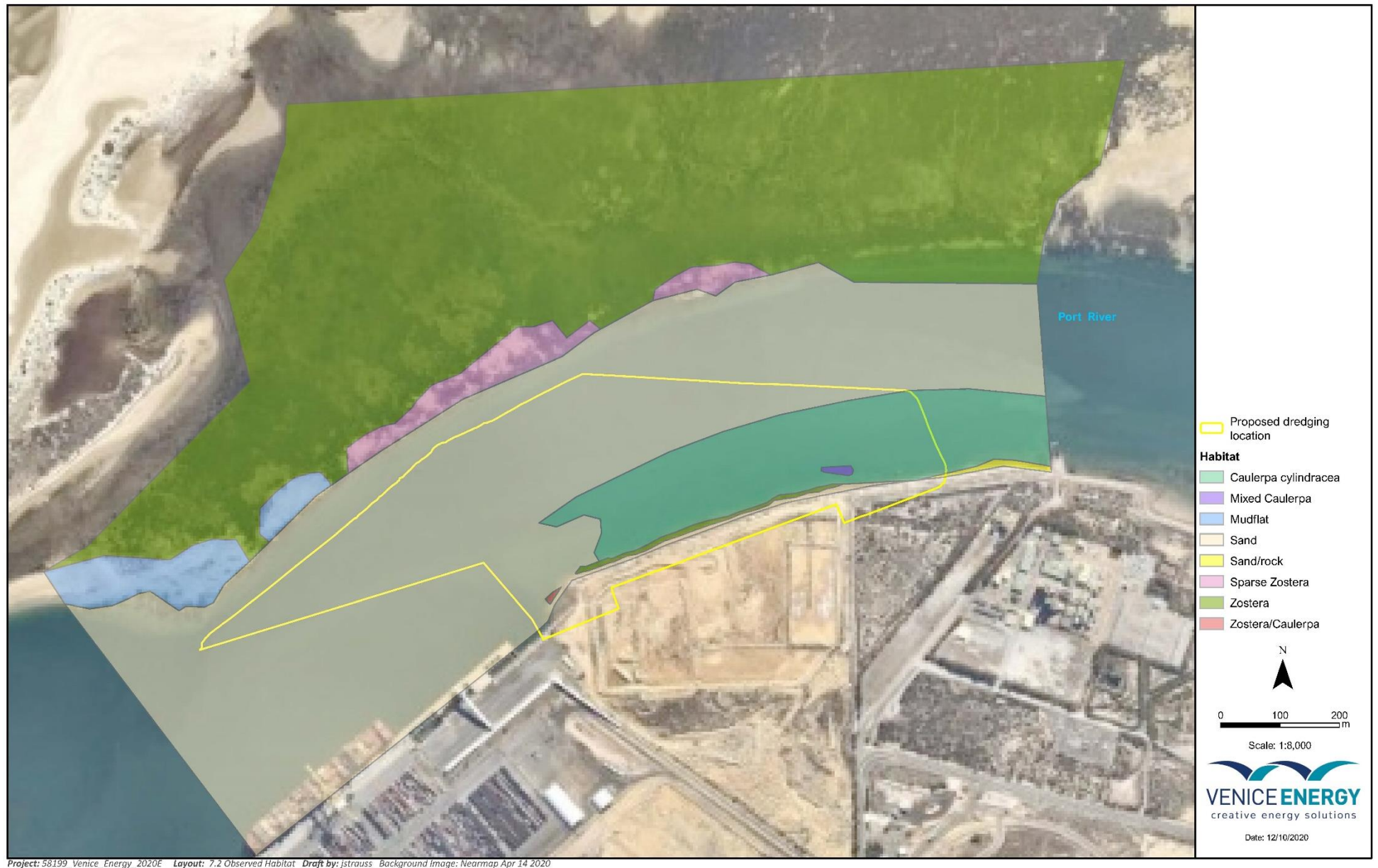


Figure 3: Project Site map showing observed marine habitats within and surrounding the proposed dredging location.

2.5 Approvals required or obtained

The Project will be assessed under the Crown development (Section 49) provisions of the *Development Act 1993*. A Development Application has been submitted under the sponsorship of the Department for Energy and Mining.

Key approvals relevant to the Project are briefly summarised below.

Legislation	Comment
South Australia	
<i>Development Act 1993</i>	Development approval has been sought under the Crown development (Section 49) provisions of the Development Act.
<i>Environment Protection Act 1993</i>	The Project will involve a number of prescribed activities of environmental significance (e.g. dredging, fuel burning, hydrocarbon storage) which will require a licence under the Environment Protection Act.
<i>Crown Land Management Act 2009</i>	A licence will be required for the use of the use of the DMPA.
<i>Harbors and Navigation Act 1993</i>	A lease / licence may be required for use of seabed land within the port. An activities licence is required for activities requiring exclusive use of a designated area of waterway. If relevant a Notice to Mariners relating to an exclusion zone will be required.
<i>Landscape South Australia Act 2019</i>	Authorisation may be required to undertake a water affecting activity e.g. drilling / plugging / backfilling / sealing a well.
<i>Work Health and Safety Act 2012</i> <i>Work Health and Safety Regulations 2012</i>	Notification of a major hazard facility (MHF) will be required. A safety case will be developed by Venice Energy to demonstrate that the Project complies with legislative responsibilities as a part of the MHF licence application.
Commonwealth	
<i>Environment Protection and Biodiversity and Conservation Act 1999</i>	The project is not likely to have a significant impact on matters of national environmental significance. Based on a self-assessment, there were no impacts that indicate a requirement for this project to be referred under the EPBC Act.

2.6 Native Vegetation Regulation

Regulation 12 and Schedule 1, Clause 34 - Infrastructure

Clearance of vegetation— (a) incidental to the construction or expansion of a building or infrastructure where the Minister has, by instrument in writing, declared that the Minister is satisfied that the clearance is in the public interest; or (b) required in connection with the provision of infrastructure or services to a building or proposed building, or to any place, provided that any development authorisation required by or under the Development Act 1993 has been obtained.

2.7 Development Application information (if applicable)

Zone, Subzone and Overlay (Native Vegetation Overlay / State Significant Native Vegetation Overlay) are not applicable in the area of the proposed dredging (however the Native Vegetation Act applies).

3. Method

3.1 Flora assessment

The flora assessment in this data report is based on the information contained in Brook, J. (2020). *Venice Marine Ecological Assessment. Unpublished report prepared for Venice Energy* (which is appended to the Project's Development Application).

A number of information sources were used to characterise the benthic communities within and surrounding the Proposed Dredging Location (PDL):

- Existing habitat maps (BMT WBM 2017, DEH 2008b, NRS 2004) and aerial photography
- Results of towed camera surveys undertaken by BMT WBM (2020)
- Observations and photographs from spot dives undertaken on 3 June 2020, to collect sediment samples
- A towed camera survey undertaken by J Diversity Pty Ltd on 4 June 2020 (see below)
- Low-tide ground-truthing of *Zostera* seagrass habitat on 10 June 2020
- Bathymetry spatial data sourced from Flinders Ports

The towed camera survey undertaken on 4 June 2020 used composite standard definition footage, streamed to a screen on the vessel for live analysis by a trained marine ecologist. Custom software was used to assign habitat attributes to GPS points. The main features recorded were the percentage cover of seagrasses, macroalgae (including *Caulerpa* pest species) and wrack as ranges: <1, 1–5, 5–10, 10–20% and increments of 20% thereafter, and counts of fauna including bivalves (a potential host of POMS) and European fan worms (a pest species). Additional post-field processing and quality assurance was undertaken to ensure the habitat point data were consistent with the video and field notes.

Navigation was assisted by a geographical information system, which was used to show the position of the vessel relative to the PDL (albeit an earlier version), additional habitat mapping data (see above) and the habitat data already accumulated during the towed camera survey.

The area surveyed included the PDL and surrounding area within the channel, and the *Zostera* seagrass on the north side of the Port River. A number of potential reference areas were also surveyed, including:

- two of the reference locations identified for the Outer Harbor Channel Widening Project (OHCWP) (BMT WBM 2019b). These locations were dominated by *Zostera* at five of the ten sites across these locations. Transects were undertaken at additional sites within these locations that appeared from the aerial photograph to have a high percentage cover of vegetation.
- an area mapped as *Zostera* by BMT WBM (2017).
- an area 3 km further upstream along the Port River (near the quarantine station) likely to have both *Zostera* and *Caulerpa* habitat, based on findings by Golder Associates (2017b).

The various sources of information were synthesised to create a habitat map of the PDL and immediate surrounds, using ArcGIS to draw polygons manually, with midpoints between data points of different habitat classes used to define boundaries if other information was not available.

3.2 Fauna assessment

A desktop review of ecological databases and existing datasets was undertaken. This included:

- EPBC Protected Matters Search Tool (PMST)
- Birdlife Australia data
- Biological Database of South Australia (BDBSA)

In addition, observations of marine fauna were gathered during floristic assessment in 3.1 above, and observations of marine birds (from surveys across 2 days in June 2020 as part of the terrestrial part of the project) were also included in the assessment of habitat values for threatened species.

3.3 Marine assessment scoresheet

The Marine Assessment scoresheet, as provided by the Native Vegetation Management Unit dated 27 July 2018 was used to calculate Unit Biodiversity Scores. The scores allocated in this sheet were generally conservative.

4. Assessment Outcomes

4.1 Vegetation Assessment

General description of the vegetation, the site and matters of significance

Habitat within the northern part of the main Proposed Dredging Location (PDL), which overlaps the existing channel, was unvegetated substrate (Figure 4), generally silty sand with large shell fragments patchy areas of gravel or lumps of clay, or sparse wrack of the seagrass *Zostera nigricaulis* (Plate 1). There was evidence of bioturbation in some areas with isolated occurrences or patches of the razor clam *Pinna bicolor*, European fan worm *Sabella spallanzanii*, feather-duster worm *Myxicola infundibulum*, sand crab *Ovalipes australiensis* and blue swimmer crab *Portunus armatus*.

Unvegetated habitat extended inshore at the western end of the main PDL component, with fine sand and razor clams (Figure 4, Plate 2). Further east the inshore area of the main PDL component comprised a dense cover of the introduced *Caulerpa cylindracea* that extended along the shoreline length of the PDL and for at least 200 metres further east (Plate 3). The pest species *Caulerpa taxifolia* was recorded among the *C. cylindracea* by towed camera and on a spot dive near the eastern end of the PDL (Figure 4, Plate 4).

In the shallow subtidal areas of the main PDL component, the *C. cylindracea* transitioned to sand and *Zostera nigricaulis* (Figure 4, Plate 5), the latter forming a band of approximately 10 metres width, generally 0–10 m offshore, along most of the shoreline. The inshore area at the western end of the PDL was mixed *Zostera* and *C. cylindracea*, partially covered by the filamentous brown alga *Hinckia* sp. (Plate 6). Razor clams were patchily distributed throughout the *C. cylindracea* within the PDL inshore section of the PDL.

It should be noted that the towed camera surveys and spot dives were generally focussed within an earlier alignment of the PDL, with the habitat map generated from the various sources of information, including this field survey. The map shown in Figure 4 shows the *Zostera nigricaulis* narrow band as ending before the eastern end of the PDL, as this was the extent of the area surveyed. The area east of the end of this band was not surveyed at fine enough detail to map *Zostera*. The mapping to the east of the end of this band is based upon other sources.

A conservative approach has therefore been adopted by assuming that the *Zostera* extends eastwards to the end of the PDL in a strip 10 m wide. The area of *Zostera* would consequently be approximately 0.54 ha.

The only vegetated areas that need to be addressed for direct clearance under the *Native Vegetation Act 1991* are the areas of seagrass *Zostera nigricaulis*, as the other species are introduced macroalgae species. The seagrass area is described below:

Vegetation Association	Zostera nigricaulis seagrass bed				
See Plate 5 for representative photo.					
General description	Overall the seagrass areas showed some signs of disturbance, with areas of patchy growth and some bare ground, but were considered to be in a moderate to good condition. This community is generally a monoculture in natural situations where it is present.				
Threatened species or community	The seagrass areas are not considered to be a threatened ecological community. They may provide foraging habitat for the state Rare Australasian Darter (Anhinga novaehollandiae), but are not considered to provide habitat for any other species of state or national conservation significance. This is discussed further in section 4.2.				
Landscape context score	1	Vegetation Condition Score	56.19	Conservation significance score	1.02
Unit biodiversity Score	57.31	Area (ha)	0.54	Total biodiversity Score	30.95

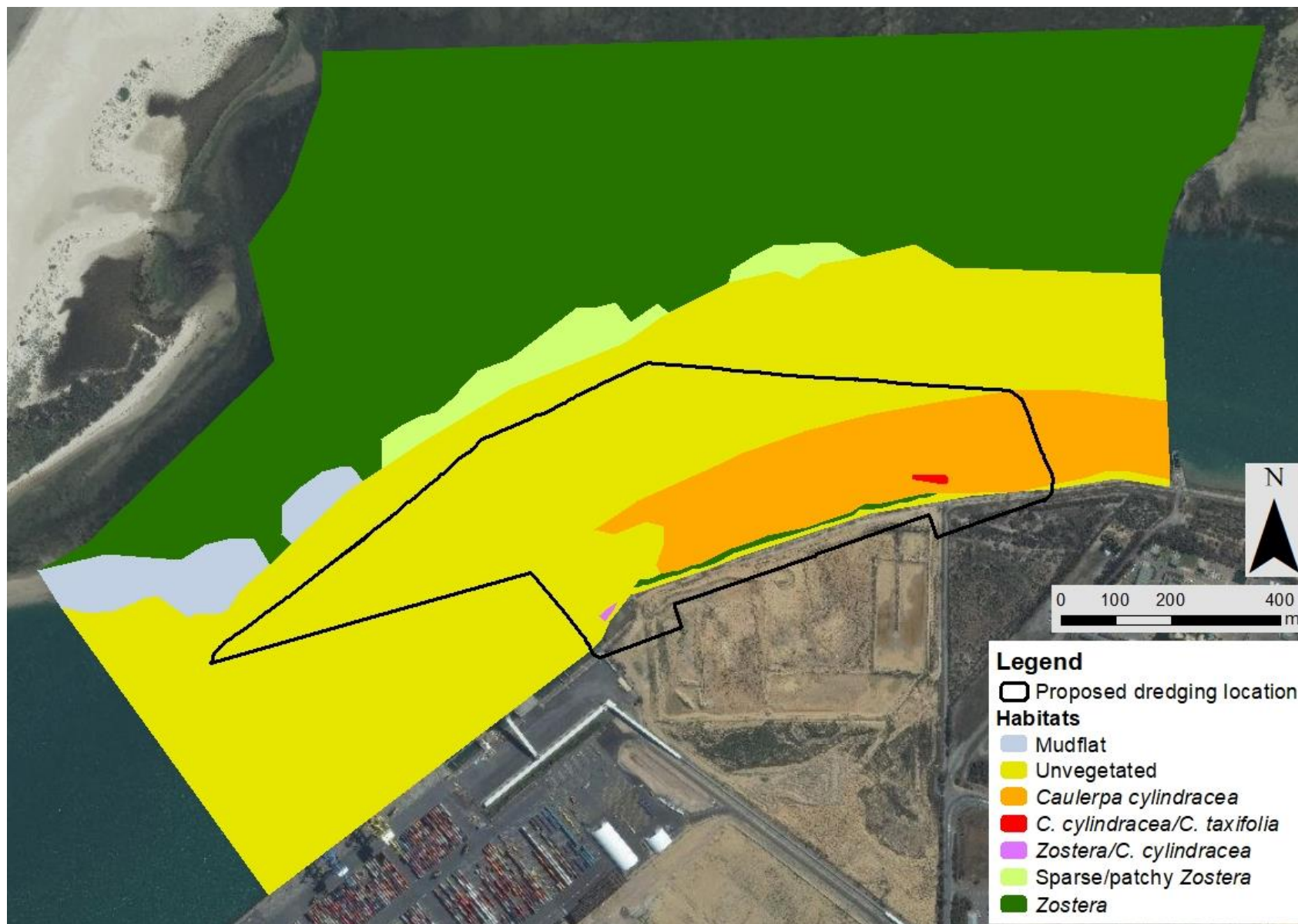


Figure 4: Site map showing areas of proposed impact and location of seagrass (*Zostera*). Note that a conservative approach has been applied in the assessment and it has been assumed that the narrow band of *Zostera* in the dredging location extends eastwards to the end of the dredging location.



Plate 1. Sand, gravel and shell grit in the existing channel within the PDL.



Plate 2. Soft sand with razor clams *Pinna bicolor*



Plate 3. *Caulerpa cylindracea*



Plate 4. *Caulerpa taxifolia* amongst *C. cylindracea*



Plate 5. *Zostera nigricaulis* and razor clam *Pinna bicolor*



Plate 6. Mixed *Zostera*, *Caulerpa cylindracea* with epiphyte *Hincksia* sp.

4.2 Threatened Species assessment

Note that only marine species or species that will feed in marine environments have been included in this list, and only species with "Species habitat known to occur within area" from the Protected Matters Search Tool. A full list of species from database review is provided in Appendix 7.1

Species observed on site, or recorded within 5km of the application area since 1995, or the vegetation is considered to provide suitable habitat

Species name	Common name	EPBC Act	NPW Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Arctocephalus tropicalis</i>	Subantarctic Fur Seal	EN	E	1	2009	In the Australian region, the only established breeding colony occurs on Macquarie Island, 1500 km south-southeast of Australia and some wide-ranging (mostly juvenile) vagrants occasionally reach beaches on Tasmania, the Australian mainland and offshore islands with more than 50 individuals having been recorded from New South Wales to Western Australia since the 1970s	Unlikely to utilize habitats provided by small area of seagrass.
<i>Carcarodon carcharias</i>	Great White Shark	VU		2	NA	Wide ranging species, with most frequent observations around seal breeding colonies, the closest of which is The Pages island group 150 km to the south. No records within search area.	Unlikely to provide feeding habitat for this species.
<i>Chelonia mydas</i>	Green Turtle	VU	V	1,2	2017	Key breeding and foraging habitat is in tropical Australia. Three records (BDBSA) within study area, at Outer Harbor near Bird Island, in Barker Inlet and at Inner Harbor from spring and summer during the past 17 years.	Unlikely to provide significant habitat for this species – vagrant at best.
<i>Dermochelys coriacea</i>	Leatherback Turtle	EN	V	1,2	1996	Pelagic feeder with no known breeding habitat in Australia. One record from Largs Bay in autumn 1996.	Unlikely to provide significant habitat for this species – sheltered waters unlikely to be favoured.
<i>Eubalaena australis</i>	Southern Right Whale	EN	V	2	NA	Open ocean species – unlikely to enter sheltered channel	Unlikely to utilize habitats provided by small area of seagrass.
<i>Neophoca cinerea</i>	Australian Sea Lion	VU	V	1,2	2018	Temperate water species ranging from western Victoria to Western Australia. The study site is not close to any known major breeding or haul-out sites, with the nearest being The Pages island group 150 km to the south. Eight records from various seasons between 1984 and 2018 in search area, including at Pelican Point in January 2012 and Outer Harbor breakwaters in May 2005 and November 2011.	Unlikely to utilize habitats provided by small area of seagrass.
<i>Anhinga novaehollandiae</i>	Australasian Darter		R	1,3	2013	The Darter is found in wetlands and sheltered coastal waters, mainly in the Tropics and Subtropics. It prefers smooth, open waters, for feeding, with tree trunks, branches, stumps or posts fringing the water, for resting and drying its wings ² .	Possibly may forage through the seagrass beds.

² Birdlife Australia Bird Profiles (2019). <http://www.birdlife.org.au/bird-profile/australasian-darter>

Species name	Common name	EPBC Act	NPW Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Pandion haliaetus cristatus</i>	Osprey		E	1,3	2016	This species mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They require extensive areas of open fresh, brackish or saline water for foraging ³ . Two records only.	Unlikely to feed in the small patch of habitat provided by seagrass.
<i>Sterna hirundo</i>	Common Tern		R	1,3	2018	The Common Tern is mainly coastal when not breeding and found in offshore waters, ocean beaches, estuaries and large lakes. Common Terns are occasionally seen in freshwater swamps, floodwaters, sewage farms and brackish and saline lakes ⁴ .	Unlikely - may feed on pelagic fish in the water column, but unlikely to feed in the small patch of habitat provided by seagrass.
<i>Sternula nereis</i>	Fairy Tern	V	E	1,2,3	2018	This species utilises a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands, beaches and spits. ⁵	Unlikely - may feed on pelagic fish in the water column, but unlikely to feed in the small patch of habitat provided by seagrass.
Source; 1- BDBSA, 2 - PMST, 3 – Birdlife Australia post-2006 NP&W Act; E= Endangered, V = Vulnerable, R= Rare EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable							

Criteria for the likelihood of occurrence of species within the Study area.

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provide limited habitat or feeding resources for the species. Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provide no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 -40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

³ http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=952 accessed 22/3/2019.

⁴ Birdlife Australia Bird Profiles (2019) <http://birdlife.org.au/bird-profile/common-tern> accessed 10/10/2019.

⁵ Department of Sustainability, Environment, Water, Population and Communities (2011). Approved Conservation Advice for *Sternula nereis nereis* (Fairy Tern). Canberra, ACT: Department of Sustainability, Environment, Water, Population and Communities. <http://www.environment.gov.au/biodiversity/threatened/species/pubs/82950-conservation-advice.pdf> accessed 2/10/2019.

4.3 Cumulative impact

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.

Direct impacts

The proposed dredging location shown in Figure 2 encompasses the direct disturbance footprint. There are no further direct impacts planned or likely to result from this Project.

Indirect impacts

The proposed dredging will be undertaken immediately adjacent to the area that was dredged in 2019 for the Flinders Ports Outer Harbor Channel Widening Project (OHCWP).

Dredging of about 500,000 m³ of sediment for the OHCWP took place in 2019 on the northern side of the swing basin (which is adjacent to and west of the proposed dredging location), near the *Zostera* beds which are located north of the shipping channel. Seagrass monitoring before and after the dredging showed no loss of *Zostera* from two impact sites at distances of 1.5 and 2 km from the swing basin (BMT 2020)⁶. Overall, seagrass percentage cover and seagrass mapping for the OHCWP indicated little to no loss of seagrass due to the OHCWP (BMT 2020).

The amount of material dredged by the Project (1.8 million m³) will be similar to the total OHCWP dredge volume, but with all dredging to occur in the PDL, adjacent to the swing basin and the *Zostera* beds. Some minor seagrass loss may occur, however based on results of the OHCWP seagrass monitoring (BMT 2020) this is not likely to be extensive. Initial investigations also indicate that the proposed dredging location contains a lower proportion of fine sediment than the OHCWP, which may result in less sediment being transported away by the dredge plume.

Dredging methods which limit turbidity as far as practicable will also be utilized in order to minimize the potential for indirect impacts. The dredging method will use a trailing suction hopper dredge and a backhoe dredge, which will reduce the amount of fine sediment spill when compared to alternate methods (e.g. use of a cutter suction dredge to remove the harder material or use of side casting equipment) which creates additional turbidity. In addition, a Dredge Management Plan (approved by EPA) will be implemented which will include trigger values for management action and a real time adaptive management approach of dredge plumes.

Monitoring of seagrasses in the vicinity of the Project would be undertaken before and after dredging. If monitoring indicates that indirect seagrass loss has occurred through turbidity and sedimentation impacts from the Project, an appropriate SEB offset would be provided.

It is noted that the area where indirect impact may occur is covered by the SEB payment that Flinders Ports made for the OHCWP prior to dredging being undertaken (which was based on the conservative assumption that all seagrass would be lost in this area, which has not been supported by monitoring). Any determination of an appropriate SEB for the Project if indirect impacts did occur would need to take this into account.

4.4 Address the Mitigation Hierarchy

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimize, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NP&W Act.

a) Avoidance – outline measures taken to avoid clearance of native vegetation

The proposed dredging location avoids the areas of seagrass on the northern side of the Port River channel.

⁶ BMT (2020), Adelaide Outer Harbor Channel Widening Project: Post-dredging Seagrass Survey 2020.

- b) Minimization – if clearance cannot be avoided, outline measures taken to minimize the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).**

Only the minimum envelope to allow for the requirements of the berthing facilities will be dredged. The bulk of dredging will be undertaken in the cooler months of the year to minimize potential environmental impacts, such as sedimentation.

- c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.**

There is no option to rehabilitate the area, as it will be maintained as a berth for ongoing use.

- d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.**

The clearance will be offset by an appropriate payment into the Native Vegetation Fund.

4.5 Principles of Clearance (Schedule 1, Native Vegetation Act 1991)

The Native Vegetation Council will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the Native Vegetation Regulations. The Native Vegetation Council will consider all the Principles of clearance of the Act as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act 2016*.

Principle of clearance	Considerations
Principle 1a - it comprises a high level of diversity of plant species	<u>Relevant information</u> Only one native plant species occurred in the assessment area. Patches; Bushland Plant Diversity Score - 30
	<u>Assessment against the principles</u> Seriously at variance
	<u>Moderating factors that may be considered by the NVC</u> <i>Zostera nigricaulis</i> seagrass beds are generally a monoculture. As such, they will always contain a full complement of species (as per the Marine spreadsheet), and so will always score 30 points in the marine spreadsheet. However, it is considered that this could be moderated to being at variance with the Principles, as one species generally would not be considered to be a high level of diversity.
Principle 1b - significance as a habitat for wildlife	The seagrass patch may provide foraging habitat for the state Rare Australasian Darter (<i>Anhinga novaehollandiae</i>), but is not considered to provide habitat for any other species of state or national conservation significance.
	Threatened Fauna Score – 1.02 Unit biodiversity Score – 57.31
	<u>Assessment against the principles</u> Seriously at Variance

	<u>Moderating factors that may be considered by the NVC</u> The <i>Zostera nigricaulis</i> seagrass bed scores above 50 for Unit Biodiversity Score, and so is considered to be Seriously at Variance with this Principle. Whilst the seagrass is in moderate condition, the small patch that will be removed is not considered likely to form habitat for any species of conservation significance, and as such could be moderated to being At Variance with this Principle.
Principle 1c - plants of a rare, vulnerable or endangered species	No rare, vulnerable or endangered plant species present.
	<u>Assessment against the principles</u> Not at Variance
	<u>Moderating factors that may be considered by the NVC</u> NA
Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:	The <i>Zostera</i> seagrass is not considered to be Rare, Vulnerable or Endangered.
	<u>Assessment against the principles</u> Not at Variance
	<u>Moderating factors that may be considered by the NVC</u>
Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	Seagrass <i>Zostera</i> beds are abundant in nearby marine waters. Whilst there has been some localized clearance associated with dredging the Outer Harbor Channel, the small patch of seagrass being cleared for this project is not considered significant as a remnant of vegetation in an areas which has been extensively cleared. Total Biodiversity Score – 30.95
	Not at variance
	<u>Moderating factors that may be considered by the NVC</u>
Principle 1f - it is growing in, or in association with, a wetland environment.	Marine environment – this Principle is for terrestrial freshwater wetlands.
	<u>Assessment against the principles</u> Not at Variance
	<u>Moderating factors that may be considered by the NVC</u>
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	The seagrass bed is underwater, and located adjacent to private land that has no public access. As such, it is not considered to contribute significantly to the amenity of the area in which it is growing or located.
	<u>Assessment against the principles</u> Not at Variance
	<u>Moderating factors that may be considered by the NVC</u>

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	
	Area (ha)	0.54
	Total biodiversity Score	30.95
Seriously at variance with principle 1(b), 1(c) or 1 (d)		Principle 1(b)
Risk assessment outcome		Level 4

4.7 NVC Guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

5. Clearance summary

Clearance Area(s) Summary table

Insert table from the Summary Clearance Table for **patches** of vegetation assessed using the Bushland or Rangeland Assessment Method.

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
		30	0	0	0.02	57.31	0.54	30.95	1			32.5	40619.35	2030.97
						Total	0	0				0.00	\$40619.35	\$2030.97

6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

- ☐ Establish a new SEB Area on land owned by the proponent.
- ☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____
- ☐ Apply to have SEB Credit assigned from another person or body. The [application form](#) needs to be submitted with this Data Report.
- ☐ Apply to have an SEB to be delivered by a Third Party. The [application form](#) needs to be submitted with this Data Report.
- ☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

If a proponent proposes to achieve the SEB by paying into the Native Vegetation Fund, summary information must be provided on the amount required to be paid and the manner of payment:

Payment of \$40,619.35 plus admin fee of \$2030.97 will be made in a single payment into the Native Vegetation Fund.

7. Appendices

Appendix 1. Fauna Species List

A1.1 Mammals/Bats

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Arctocephalus forsteri</i>	Long-nosed Fur Seal (New Zealand Fur Seal)			RA
<i>Arctocephalus tropicalis</i>	Subantarctic Fur Seal	EN	E	
<i>Austronomus australis</i>	White-striped Free-tailed Bat			
<i>Balaenoptera musculus</i>	Blue Whale	EN	E	
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			LC
<i>Delphinus delphis</i>	Short-beaked Common Dolphin			LC
<i>Globicephala macrorhynchus</i>	Short-finned Pilot Whale		R	
<i>Hydromys chrysogaster</i>	Water Rat			
<i>Mormopterus planiceps</i>	Southern Free-tailed Bat			LC
<i>Neophoca cinerea</i>	Australian Sea Lion	VU	V	RA
<i>Physeter macrocephalus</i>	Sperm Whale		R	
<i>Tursiops aduncus</i>	Indo-Pacific Bottlenose Dolphin			VU
<i>Tursiops truncatus</i>	Common Bottlenose Dolphin			LC
*Conservation status: AUS = Environment Protection and Biodiversity Conservation Act 1999; SA= Schedules of the National Parks and Wildlife Act 1972; Region = Gillam, S. and Urban, R. (2014) <i>Regional Species Conservation Assessment Project, Phase 1 Report: Regional Species Status Assessments, Adelaide and Mount Lofty Ranges NRM Region</i>. Department of Environment, Water and Natural Resources, South Australia. RE = Regionally Extinct, CE = Critically Endangered, E/EN = Endangered, V/VU = Vulnerable, R/RA = Rare, NT = Near Threatened				

A1.2 Birds

A1.2.1 Biological Database of SA

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater			
<i>Acanthiza apicalis</i>	Inland Thornbill			
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			LC
<i>Acanthiza iredalei</i>	Slender-billed Thornbill	ssp	ssp	
<i>Acanthiza iredalei rosinae</i>	Slender-billed Thornbill (Gulf St Vincent)	VU	V	
<i>Acanthiza pusilla</i>	Brown Thornbill			VU
<i>Acanthiza pusilla samueli</i>	Brown Thornbill (MLR)			
<i>Acanthorhynchus tenuirostris halmaturinus</i>	Eastern Spinebill (KI, MLR, southern FR)			
<i>Accipiter cirrocephalus cirrocephalus</i>	Collared Sparrowhawk			
<i>Accipiter fasciatus fasciatus</i>	Brown Goshawk			
<i>Acrocephalus australis australis</i>	Australian Reed Warbler			RA
<i>Actitis hypoleucos</i>	Common Sandpiper		R	
<i>Alauda arvensis arvensis</i>	Eurasian Skylark			
<i>Anas castanea</i>	Chestnut Teal			
<i>Anas gracilis</i>	Grey Teal			
<i>Anas platyrhynchos</i>	Mallard (Northern Mallard)			
<i>Anas superciliosa</i>	Pacific Black Duck			
<i>Anhinga novaehollandiae</i>	Australasian Darter		R	
<i>Anthochaera carunculata</i>	Red Wattlebird			
<i>Anthochaera chrysoptera chrysoptera</i>	Little Wattlebird (mainland SA)			
<i>Anthus australis</i>	Australian Pipit			
<i>Apus pacificus</i>	Pacific Swift (Fork-tailed Swift)			RA
<i>Ardea alba modesta</i>	Great Egret			
<i>Ardea intermedia</i>	Intermediate Egret		R	
<i>Ardea pacifica</i>	White-necked Heron			
<i>Ardea sp.</i>				
<i>Ardenna carneipes</i>	Flesh-footed Shearwater		R	
<i>Ardenna tenuirostris</i>	Short-tailed Shearwater			
<i>Arenaria interpres</i>	Ruddy Turnstone		R	
<i>Artamus personatus</i>	Masked Woodswallow			RA
<i>Aythya australis</i>	Hardhead			
<i>Biziura lobata</i>	Musk Duck		R	
<i>Botaurus poiciloptilus</i>	Australasian Bittern	EN	E	
<i>Bubulcus ibis coromandus</i>	Eastern Cattle Egret		R	LC
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo			
<i>Cacatua sanguinea sanguinea</i>	Little Corella			LC
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo			RA
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper			
<i>Calidris alba alba</i>	Sanderling		R	
<i>Calidris canutus rogersi</i>	Red Knot	sp	E	
<i>Calidris cinereus</i>	Terek Sandpiper		R	
<i>Calidris falcinellus sibirica</i>	Broad-billed Sandpiper			

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	E	
<i>Calidris melanotos</i>	Pectoral Sandpiper		R	
<i>Calidris pugnax</i>	Ruff		R	
<i>Calidris ruficollis</i>	Red-necked Stint			
<i>Calidris subminuta</i>	Long-toed Stint		R	
<i>Calidris tenuirostris</i>	Great Knot	CR	E	
<i>Carduelis carduelis britannica</i>	European Goldfinch			
<i>Cereopsis novaehollandiae novaehollandiae</i>	Cape Barren Goose		R	
<i>Chalcites basalus</i>	Horsfield's Bronze Cuckoo			
<i>Chalcites lucidus</i>	Shining Bronze Cuckoo			RA
<i>Chalcites osculans</i>	Black-eared Cuckoo			EN
<i>Charadrius bicinctus</i>	Double-banded Plover			
<i>Charadrius leschenaultii</i>	Greater Sand Plover	VU	R	
<i>Charadrius mongolus mongolus</i>	Lesser Sand Plover	sp	E	VU
<i>Charadrius ruficapillus</i>	Red-capped Plover			
<i>Chenonetta jubata</i>	Maned Duck			
<i>Chlidonias hybrida</i>	Whiskered Tern			
<i>Chlidonias leucopterus</i>	White-winged Tern			
<i>Chloris chloris</i>	European (Common) Greenfinch			
<i>Chroicocephalus novaehollandiae</i>	Silver Gull			
<i>Cincloramphus cruralis</i>	Brown Songlark			
<i>Circus approximans</i>	Swamp Harrier			
<i>Circus assimilis</i>	Spotted Harrier			
<i>Cisticola exilis exilis</i>	Golden-headed Cisticola			
<i>Cladorhynchus leucocephalus</i>	Banded Stilt		V	VU
<i>Colluricincla harmonica</i>	Grey Shrike-thrush			NT
<i>Columba livia</i>	Feral Pigeon			
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			LC
<i>Corvus mellori</i>	Little Raven			
<i>Corvus sp.</i>	Crows			
<i>Coturnix pectoralis</i>	Stubble Quail			
<i>Coturnix ypsilophora</i>	Brown Quail		ssp	VU
<i>Cracticus torquatus</i>	Grey Butcherbird			
<i>Cygnus atratus</i>	Black Swan			
<i>Daption capense</i>	Cape Petrel			
<i>Dicaeum hirundinaceum hirundinaceum</i>	Mistletoebird			
<i>Egretta garzetta</i>	Little Egret		R	
<i>Egretta novaehollandiae</i>	White-faced Heron			
<i>Egretta sacra sacra</i>	Pacific Reef Heron		R	
<i>Elanus axillaris</i>	Black-shouldered Kite			
<i>Elseya melanops</i>	Black-fronted Dotterel			
<i>Eolophus roseicapilla</i>	Galah			
<i>Epthianura albifrons</i>	White-fronted Chat			
<i>Epthianura aurifrons</i>	Orange Chat			VU

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Epthianura tricolor</i>	Crimson Chat			RA
<i>Erythronyx cinctus</i>	Red-kneed Dotterel			
<i>Eudyptula minor</i>	Little Penguin			DD
<i>Falco berigora</i>	Brown Falcon			LC
<i>Falco cenchroides</i>	Nankeen Kestrel			
<i>Falco longipennis</i>	Australian Hobby			
<i>Falco peregrinus</i>	Peregrine Falcon		R	
<i>Falco subniger</i>	Black Falcon		R	RA
<i>Fulica atra</i>	Eurasian Coot			
<i>Gallinula tenebrosa</i>	Dusky Moorhen			
<i>Gallirallus philippensis mellori</i>	Buff-banded Rail			VU
<i>Gavicalis virescens</i>	Singing Honeyeater			
<i>Geopelia placida</i>	Peaceful Dove			
<i>Glossopsitta concinna</i>	Musk Lorikeet			
<i>Grallina cyanoleuca</i>	Magpielark			
<i>Gymnorhina tibicen</i>	Australian Magpie			LC
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher		R	
<i>Haematopus longirostris</i>	(Australian) Pied Oystercatcher		R	NT
<i>Haematopus sp.</i>				
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle		E	CR
<i>Haliastur sphenurus</i>	Whistling Kite			
<i>Hieraaetus morphnoides</i>	Little Eagle		V	
<i>Himantopus leucocephalus</i>	White-headed Stilt			
<i>Hirundapus caudacutus caudacutus</i>	White-throated Needletail	sp	V	RA
<i>Hirundo neoxena</i>	Welcome Swallow			
<i>Hydroprogne caspia</i>	Caspian Tern			
<i>Lalage tricolor</i>	White-winged Triller			
<i>Larus dominicanus dominicanus</i>	Kelp Gull		R	LC
<i>Larus pacificus</i>	Pacific Gull			
<i>Limosa haemastica</i>	Hudsonian Godwit			
<i>Limosa lapponica</i>	Bar-tailed Godwit	ssp	R	
<i>Limosa limosa</i>	Black-tailed Godwit		R	
<i>Macronectes giganteus</i>	Southern Giant Petrel	EN	V	VU
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck			
<i>Malurus cyaneus</i>	Superb Fairywren			
<i>Malurus cyaneus leggei</i>	Superb Fairywren (Mainland SA)			
<i>Malurus leucopterus</i>	White-winged Fairywren			
<i>Manorina flavigula</i>	Yellow-throated Miner	ssp	ssp	
<i>Manorina melanocephala</i>	Noisy Miner			LC
<i>Melithreptus gularis</i>	Black-chinned Honeyeater		ssp	CR
<i>Melithreptus lunatus</i>	White-naped Honeyeater			RA
<i>Melopsittacus undulatus</i>	Budgerigar			
<i>Microcarbo melanoleucos melanoleucos</i>	Little Pied Cormorant			
<i>Mirafrja javanica</i>	Horsfield's Bush Lark			RA

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Morus serrator</i>	Australasian Gannet			LC
<i>Neophema chrysostoma</i>	Blue-winged Parrot		V	
<i>Neophema elegans</i>	Elegant Parrot		R	
<i>Neophema petrophila</i>	Rock Parrot		R	RA
<i>Ninox boobook</i>	Australian Boobook			VU
<i>Numenius madagascariensis</i>	Far Eastern Curlew	CR	E	
<i>Numenius minutus</i>	Little Curlew			
<i>Numenius phaeopus</i>	Whimbrel		R	
<i>Nycticorax caledonicus</i>	Nankeen Night Heron			LC
<i>Nymphicus hollandicus</i>	Cockatiel			
<i>Oceanites oceanites exasperatus</i>	Wilson's Storm Petrel			LC
<i>Ocyphaps lophotes</i>	Crested Pigeon			
<i>Oxyura australis</i>	Blue-billed Duck		R	
<i>Pachycephala inornata</i>	Gilbert's Whistler		R	EN
<i>Pachycephala pectoralis</i>	Australian Golden Whistler			
<i>Pachycephala rufiventris rufiventris</i>	Rufous Whistler			
<i>Pachyptila desolata</i>	Antarctic Prion			
<i>Pachyptila salvini</i>	Salvin's Prion			
<i>Pachyptila turtur</i>	Fairy Prion			
<i>Pandion haliaetus cristatus</i>	Eastern Osprey		E	
<i>Pardalotus punctatus</i>	Spotted Pardalote			
<i>Pardalotus striatus</i>	Striated Pardalote			LC
<i>Pardalotus xanthopygus (NC)</i>	Yellow-tailed Pardalote			
<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet			LC
<i>Passer domesticus domesticus</i>	House Sparrow			
<i>Pelecanus conspicillatus</i>	Australian Pelican			
<i>Petrochelidon ariel</i>	Fairy Martin			
<i>Petrochelidon nigricans</i>	Tree Martin			
<i>Phalacrocorax carbo</i>	Great Cormorant			
<i>Phalacrocorax fuscescens</i>	Black-faced Cormorant			
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant			
<i>Phalacrocorax varius</i>	Great Pied Cormorant			
<i>Phalaropus lobatus</i>	Red-necked Phalarope			
<i>Phaps chalcoptera</i>	Common Bronzewing			
<i>Phaps elegans</i>	Brush Bronzewing			
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater			LC
<i>Phylidonyris novaehollandiae novaehollandiae</i>	New Holland Honeyeater (mainland SA)			
<i>Platalea flavipes</i>	Yellow-billed Spoonbill			
<i>Platalea regia</i>	Royal Spoonbill			
<i>Platycercus elegans</i>	Crimson Rosella			
<i>Plegadis falcinellus</i>	Glossy Ibis		R	
<i>Pluvialis fulva</i>	Pacific Golden Plover		R	
<i>Pluvialis squatarola</i>	Grey Plover			
<i>Podiceps cristatus</i>	Great Crested Grebe		R	

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe			
<i>Poodytes gramineus goulburni</i>	Little Grassbird			
<i>Porphyrio porphyrio</i>	Purple Swamphe			LC
<i>Porzana fluminea</i>	Australian Crake (Australian Spotted Crake)			
<i>Porzana pusilla</i>	Baillon's Crake			RA
<i>Psephotus haematonotus</i>	Red-rumped Parrot			NT
<i>Psephotus haematonotus haematonotus</i>	Red-rumped Parrot (eastern SA except NE)			
<i>Pterodroma lessonii</i>	White-headed Petrel			
<i>Ptilotula penicillata</i>	White-plumed Honeyeater			
<i>Puffinus puffinus gavia (NC)</i>	Fluttering Shearwater			
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet			
<i>Rhipidura albiscapa</i>	Grey Fantail			
<i>Rhipidura leucophrys leucophrys</i>	Willie Wagtail			
<i>Sericornis frontalis (NC)</i>	White-browed Scrubwren			
<i>Spatula rhynchotis</i>	Australasian Shoveler		R	
<i>Spilopelia chinensis</i>	Spotted Dove			
<i>Stercorarius parasiticus</i>	Parasitic Jaeger (Arctic Jaeger)			LC
<i>Sterna hirundo longipennis</i>	Common Tern		R	
<i>Sterna paradisaea</i>	Arctic Tern			
<i>Sterna sp.</i>				
<i>Sterna striata</i>	White-fronted Tern			
<i>Sternula nereis</i>	Fairy Tern	VU	E	
<i>Stiltia isabella</i>	Australian Pratincole			VU
<i>Streptopelia risoria</i>	Barbary Dove			
<i>Sturnus vulgaris vulgaris</i>	Common Starling			
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe			
<i>Tadorna tadornoides</i>	Australian Shelduck			
<i>Taeniopygia guttata</i>	Zebra Finch			VU
<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross	VU	E	
<i>Thalasseus bergii</i>	Greater Crested Tern			LC
<i>Threskiornis moluccus</i>	Australian White Ibis			
<i>Threskiornis sp.</i>				
<i>Threskiornis spinicollis</i>	Straw-necked Ibis			LC
<i>Todiramphus sanctus</i>	Sacred Kingfisher			
<i>Tribonyx ventralis</i>	Black-tailed Nativehen			
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet			LC
<i>Tringa glareola</i>	Wood Sandpiper		R	
<i>Tringa nebularia</i>	Common Greenshank			
<i>Tringa stagnatilis</i>	Marsh Sandpiper			
<i>Turdus merula merula</i>	Common Blackbird			
<i>Turnix velox</i>	Little Buttonquail			RA
<i>Vanellus miles</i>	Masked Lapwing			
<i>Vanellus tricolor</i>	Banded Lapwing			RA
<i>Zapornia tabuensis tabuensis</i>	Spotless Crake		R	

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Zosterops lateralis</i>	Silvereye			

A1.2.2 Birdlife Australia

Scientific Name	Common Name
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater
<i>Acanthiza apicalis</i>	Inland Thornbill
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
<i>Acanthiza iredalei</i>	Slender-billed Thornbill
<i>Acanthiza pusilla</i>	Brown Thornbill
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk
<i>Accipiter fasciatus</i>	Brown Goshawk
<i>Actitis hypoleucos</i>	Common Sandpiper
<i>Alauda arvensis</i>	Eurasian Skylark
<i>Anas castanea</i>	Chestnut Teal
<i>Anas gracilis</i>	Grey Teal
<i>Anas platyrhynchos</i>	Northern Mallard
<i>Anas superciliosa</i>	Pacific Black Duck
<i>Anhinga novaehollandiae</i>	Australasian Darter
<i>Anthochaera carunculata</i>	Red Wattlebird
<i>Anthochaera chrysoptera</i>	Little Wattlebird
<i>Anthus novaeseelandiae</i>	Australasian Pipit
<i>Ardea alba</i>	Great Egret
<i>Ardea intermedia</i>	Intermediate Egret
<i>Ardea pacifica</i>	White-necked Heron
<i>Arenaria interpres</i>	Ruddy Turnstone
<i>Aythya australis</i>	Hardhead
<i>Biziura lobata</i>	Musk Duck
<i>Bubulcus ibis</i>	Cattle Egret
<i>Cacatua sanguinea</i>	Little Corella
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper
<i>Calidris alba</i>	Sanderling
<i>Calidris canutus</i>	Red Knot
<i>Calidris falcinellus</i>	Broad-billed Sandpiper
<i>Calidris ferruginea</i>	Curlew Sandpiper
<i>Calidris melanotos</i>	Pectoral Sandpiper
<i>Calidris pugnax</i>	Ruff
<i>Calidris ruficollis</i>	Red-necked Stint
<i>Calidris subminuta</i>	Long-toed Stint
<i>Calidris tenuirostris</i>	Great Knot
<i>Cereopsis novaehollandiae</i>	Cape Barren Goose
<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo
<i>Charadrius bicinctus</i>	Double-banded Plover
<i>Charadrius leschenaultii</i>	Greater Sand Plover
<i>Charadrius mongolus</i>	Lesser Sand Plover
<i>Charadrius ruficapillus</i>	Red-capped Plover
<i>Chenonetta jubata</i>	Australian Wood Duck
<i>Chlidonias hybrida</i>	Whiskered Tern

Scientific Name	Common Name
<i>Chloris chloris</i>	Common Greenfinch
<i>Chroicocephalus novaehollandiae</i>	Silver Gull
<i>Cincloramphus cruralis</i>	Brown Songlark
<i>Circus approximans</i>	Swamp Harrier
<i>Circus assimilis</i>	Spotted Harrier
<i>Cladorhynchus leucocephalus</i>	Banded Stilt
<i>Colluricincla harmonica</i>	Grey Shrike-thrush
<i>Columba livia</i>	Rock Dove
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
<i>Corvus coronoides</i>	Australian Raven
<i>Corvus mellori</i>	Little Raven
<i>Coturnix pectoralis</i>	Stubble Quail
<i>Cracticus torquatus</i>	Grey Butcherbird
<i>Cygnus atratus</i>	Black Swan
<i>Egretta garzetta</i>	Little Egret
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Egretta sacra</i>	Eastern Reef Egret
<i>Elanus axillaris</i>	Black-shouldered Kite
<i>Elseyornis melanops</i>	Black-fronted Dotterel
<i>Eolophus roseicapilla</i>	Galah
<i>Epthianura albifrons</i>	White-fronted Chat
<i>Erythronyctes alba</i>	Red-kneed Dotterel
<i>Falco berigora</i>	Brown Falcon
<i>Falco cenchroides</i>	Nankeen Kestrel
<i>Falco longipennis</i>	Australian Hobby
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Fulica atra</i>	Eurasian Coot
<i>Gallinago hardwickii</i>	Latham's Snipe
<i>Gallinula tenebrosa</i>	Dusky Moorhen
<i>Gavicalis virescens</i>	Singing Honeyeater
<i>Gelochelidon macrotarsa</i>	Australian Gull-billed Tern
<i>Geopelia placida</i>	Peaceful Dove
<i>Glossopsitta concinna</i>	Musk Lorikeet
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher
<i>Haematopus longirostris</i>	Australian Pied Oystercatcher
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle
<i>Haliastur sphenurus</i>	Whistling Kite
<i>Heteroscenes pallidus</i>	Pallid Cuckoo
<i>Himantopus leucocephalus</i>	Black-winged Stilt
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Hydroprogne caspia</i>	Caspian Tern
<i>Hypotaenidia philippensis</i>	Buff-banded Rail

Scientific Name	Common Name
<i>Larus dominicanus</i>	Kelp Gull
<i>Larus pacificus</i>	Pacific Gull
<i>Limosa haemastica</i>	Hudsonian Godwit
<i>Limosa lapponica</i>	Bar-tailed Godwit
<i>Limosa limosa</i>	Black-tailed Godwit
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck
<i>Malurus cyaneus</i>	Superb Fairy-wren
<i>Malurus lamberti</i>	Variegated Fairy-wren
<i>Malurus leucopterus</i>	White-winged Fairy-wren
<i>Manorina melanocephala</i>	Noisy Miner
<i>Melithreptus lunatus</i>	White-naped Honeyeater
<i>Microcarbo melanoleucos</i>	Little Pied Cormorant
<i>Neophema elegans</i>	Elegant Parrot
<i>Neophema petrophila</i>	Rock Parrot
<i>Northiella haematogaster</i>	Blue Bonnet
<i>Numenius madagascariensis</i>	Eastern Curlew
<i>Numenius phaeopus</i>	Whimbrel
<i>Nycticorax caledonicus</i>	Nankeen Night-Heron
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Oxyura australis</i>	Blue-billed Duck
<i>Pachycephala pectoralis</i>	Golden Whistler
<i>Pachycephala rufiventris</i>	Rufous Whistler
<i>Pachyptila turtur</i>	Fairy Prion
<i>Pandion haliaetus</i>	Osprey
<i>Pardalotus striatus</i>	Striated Pardalote
<i>Passer domesticus</i>	House Sparrow
<i>Pelecanus conspicillatus</i>	Australian Pelican
<i>Petrochelidon ariel</i>	Fairy Martin
<i>Petrochelidon nigricans</i>	Tree Martin
<i>Phalacrocorax carbo</i>	Great Cormorant
<i>Phalacrocorax fuscescens</i>	Black-faced Cormorant
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant
<i>Phalacrocorax varius</i>	Pied Cormorant
<i>Phalaropus lobatus</i>	Red-necked Phalarope
<i>Phaps elegans</i>	Brush Bronzewing
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater
<i>Platalea flavipes</i>	Yellow-billed Spoonbill
<i>Platalea regia</i>	Royal Spoonbill
<i>Platycercus elegans</i>	Crimson Rosella
<i>Plegadis falcinellus</i>	Glossy Ibis
<i>Pluvialis fulva</i>	Pacific Golden Plover
<i>Pluvialis squatarola</i>	Grey Plover
<i>Podiceps cristatus</i>	Great Crested Grebe
<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe
<i>Poodytes gramineus</i>	Little Grassbird

Scientific Name	Common Name
<i>Porzana fluminea</i>	Australian Spotted Crake
<i>Ptilotula penicillata</i>	White-plumed Honeyeater
<i>Puffinus gavia</i>	Fluttering Shearwater
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet
<i>Rhipidura fuliginosa</i>	Grey Fantail
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Sericornis frontalis</i>	White-browed Scrubwren
<i>Spatula rhynchotis</i>	Australasian Shoveler
<i>Sterna striata</i>	White-fronted Tern
<i>Sternula albifrons</i>	Little Tern
<i>Sternula nereis</i>	Fairy Tern
<i>Synoicus ypsilophora</i>	Brown Quail
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe
<i>Tadorna tadornoides</i>	Australian Shelduck
<i>Thalasseus bergii</i>	Crested Tern
<i>Thinornis cucullatus</i>	Hooded Plover
<i>Threskiornis moluccus</i>	Australian White Ibis
<i>Threskiornis spinicollis</i>	Straw-necked Ibis
<i>Todiramphus sanctus</i>	Sacred Kingfisher
<i>Tribonyx ventralis</i>	Black-tailed Native-hen
<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet
<i>Tringa brevipes</i>	Grey-tailed Tattler
<i>Tringa glareola</i>	Wood Sandpiper
<i>Tringa nebularia</i>	Common Greenshank
<i>Tringa stagnatilis</i>	Marsh Sandpiper
<i>Tringa totanus</i>	Common Redshank
<i>Turdus merula</i>	Common Blackbird
<i>Vanellus miles</i>	Masked Lapwing
<i>Vanellus tricolor</i>	Banded Lapwing
<i>Xenus cinereus</i>	Terek Sandpiper
<i>Zosterops lateralis</i>	Silvereye

A1.3 Reptiles

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Aprasia striolata</i>	Lined Worm-lizard			
<i>Chelodina longicollis</i>	Eastern Long-necked Turtle			
<i>Chelonia mydas</i>	Green Sea Turtle	VU	V	
<i>Christinus marmoratus</i>	Marbled Gecko			LC
<i>Ctenophorus pictus</i>	Painted Dragon			RA
<i>Delma malleri</i>	Gulfs Delma			LC
<i>Demansia psammophis</i>	Yellow-faced Whipsnake			VU
<i>Dermochelys coriacea</i>	Leatherback Turtle	EN	V	
<i>Hemiergis decresiensis</i>	Three-toed Earless Skink			LC
<i>Hemiergis peronii</i>	Four-toed Earless Skink			LC

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Lerista bougainvillii</i>	Bougainville's Skink			
<i>Lerista dorsalis</i>	Southern Four-toed Slider			LC
<i>Menetia greyii</i>	Dwarf Skink			
<i>Morethia adelaidensis</i>	Adelaide Snake-eye			LC
<i>Pogona barbata</i>	Eastern Bearded Dragon			LC
<i>Pseudemoia entrecasteauxii</i>	Southern Grass Skink			
<i>Pseudonaja textilis</i>	Eastern Brown Snake			LC
<i>Tiliqua rugosa</i>	Sleepy Lizard			LC
*Conservation status: AUS = Environment Protection and Biodiversity Conservation Act 1999; SA= Schedules of the National Parks and Wildlife Act 1972; Region = Gillam, S. and Urban, R. (2014) <i>Regional Species Conservation Assessment Project, Phase 1 Report: Regional Species Status Assessments, Adelaide and Mount Lofty Ranges NRM Region</i>. Department of Environment, Water and Natural Resources, South Australia. RE = Regionally Extinct, CE = Critically Endangered, E/EN = Endangered, V/VU = Vulnerable, R/RA = Rare, NT = Near Threatened				

A1.4 Amphibians

Species	Common Name	Conservation Status		
		AUS	SA	Region
<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog			LC
<i>Crinia signifera</i>	Common Froglet			LC
Conservation status: EPBC= Environment Protection and Biodiversity Conservation Act 1999, SA= Schedules of the National Parks and Wildlife Act 1972; Region = Gillam, S. and Urban, R. (2014) <i>Regional Species Conservation Assessment Project, Phase 1 Report: Regional Species Status Assessments, Adelaide and Mount Lofty Ranges NRM Region</i>. Department of Environment, Water and Natural Resources, South Australia. RE = Regionally Extinct, CE = Critically Endangered, E/EN = Endangered, V/VU = Vulnerable, R/RA = Rare, NT = Near Threatened, NE = Not Evaluated				



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: 21/05/20 10:45:51

[Summary](#)

[Details](#)

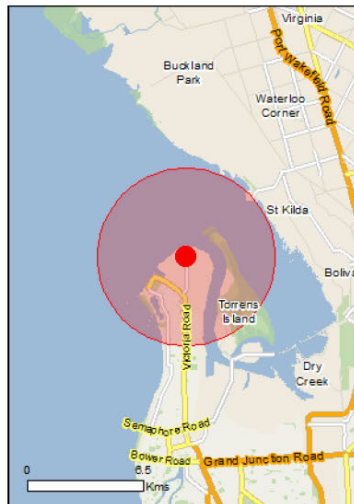
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

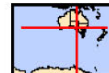
[Acknowledgements](#)



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:	42
Listed Migratory Species:	63

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <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:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	104
Whales and Other Cetaceans:	8
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:	2
Regional Forest Agreements:	None
Invasive Species:	35
Nationally Important Wetlands:	2
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
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		
Acanthiza iredalei rosinae		
Slender-billed Thornbill (Gulf St Vincent) [67080]	Vulnerable	Species or species habitat known to occur within area
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris		
Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus		
Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Diomedea antipodensis		
Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora		
Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans		
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi		
Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area

Name	Status	Type of Presence
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Extinct within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Thalassarche cauta cauta Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta steady White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophrys Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
Mammals		
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Caladenia tensa Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat likely to occur within area
Prasophyllum validum Sturdy Leek-orchid, Mount Remarkable Leek-orchid [10268]	Vulnerable	Species or species habitat may occur within area
Tecticornia flabelliformis Bead Glasswort [82664]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Sharks		
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to 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
Ardenna carneipes Flesh-footed Shearwater, Fleishy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Threatened	Type of Presence
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophrys Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Breeding known to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species

Name	Threatened	Type of Presence
Lamna nasus Porbeagle, Mackerel Shark [83288]		habitat may occur within area Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		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
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
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 known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur

Name	Threatened	Type of Presence
Gallinago megala Swinhoe's Snipe [864]		within area Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Thalasseus bergii Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting 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 - Australian National Railways Commission
Commonwealth Land - Defence Housing Authority

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]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
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 known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area

Name	Threatened	Type of Presence
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area
Larus dominicanus Kelp Gull [809]		Breeding known to occur within area
Larus novaehollandiae Silver Gull [810]		Breeding known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may 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
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Roosting known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Puffinus griseus Sooty Shearwater [1024]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Sterna bergii Crested Tern [816]		Breeding known to occur within area
Thalassarche cauta Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys tryoni Tryon's Pipefish [66193]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse,		Species or species

Name	Threatened	Type of Presence
New Zealand Potbelly Seahorse [66233]		habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Hypsognathus rostratus Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area
Kaupus costatus Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Vanacampus vercoi Verco's Pipefish [66286]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within

Name	Status	Type of Presence area
Extra Information		
State and Territory Reserves		[Resource Information]
Name	State	
Adelaide International Bird Sanctuary National Park - Winaityinaityi	SA	
Torrens Island	SA	
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	
Alauda arvensis Skylark [656]	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	
Carduelis chloris European Greenfinch [404]	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	
Pycnonotus jocosus Red-whiskered Bulbul [631]	Species or species habitat likely to occur within area	
Streptopelia chinensis Spotted Turtle-Dove [780]	Species or species habitat likely to occur within area	
Sturnus vulgaris Common Starling [389]	Species or species	

Name	Status	Type of Presence
Turdus merula Common Blackbird, Eurasian Blackbird [596]		habitat likely to occur within area Species or species 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
Capra hircus Goat [2]		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
Lepus capensis Brown Hare [127]		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
Sus scrofa Pig [6]		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		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to 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]		Species or species habitat may occur within area

Name	Status	Type of Presence
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to 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
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		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
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area
Nationally Important Wetlands		[Resource Information]
Name		State
Barker Inlet & St Kilda		SA
Port Gawler & Buckland Park Lake		SA

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

-34.76721 138.50159

Acknowledgements

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

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

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

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

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Appendix 2. Bushland, Rangeland or Scattered Tree Vegetation Assessment Scoresheets associated with the proposed clearance and SEB Area (to be submitted in Excel format)

Marine Assessment Scoresheet		(Version - 4 January 2018)	
Block	Seagrass Venice Energy	ASSESSOR(S)	James Brook and Tim Milne
Size of Block (Ha)	0.54		
NRM Region	Adelaide and Mount Lofty Ranges	DATE OF ASSESSMENT	4/06/2020
Map of the Block (Including the Sites)			
Landscape Context Scores			
Block Shape Cleared perimeter:Area (km/km2)			
Cleared Perimeter (m) =		2000	
Cleared Perimeter to area ratio		370.37	
<6 = 0.1 pts; 6 to <12 = 0.05 pts; 12 to <18 = 0.025 pt			
Score			0
Area of potential impact (both direct and indirect impacts) (Hectares)		0.54	
Patch size less than 2 ha = 0 pts; Patch size 2-5 ha = 0.01 pt;			
Patch size 5-10 ha = 0.02 pts; Patch size 10-20 ha = 0.04 pts;			
Patch size 20-100 ha = 0.08 pts; Patch size >100 ha = 0.15 pts;			
Score			0
Note: Blocks will score a minimum Landscape Context Score of		LANDSCAPE CONTEXT SCORE (max 1.25)	
		1	

[illegible]

Vegetation Condition Scores																																			
SITE:		Outer Harbor																																	
VEGETATION ASSOCIATION DESCRIPTION		Zostera nigricaulis seagrass																																	
SIZE OF SITE (Ha)		0.54																																	
Native Plant species diversity Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)		Regeneration																																	
Species diversity highly diminished with the site predominantly (>95% of individuals) consisting of one species (7 points)		☐	No regeneration present (0 Points)																																
Species diversity partially reduced, with clear signs of loss of species or significant decline in distribution of some of the species present (14 points)		☐	Very low regeneration, consisting of highly scattered and unevenly distributed juvenile plants (5 points)																																
A full compliment of species present with limited signs of impacts on species diversity or distribution (30 points)		☒	Scattered regeneration over most of the site, but of limited age classes (10 points)																																
		☒	Regeneration over most of the site with juveniles of varying age classes (20 points)																																
			Regeneration Score (Max 20)																																
			20																																
Native Plant species diversity score (max score of 30)		30																																	
Introduced Species Scores Does the site contain introduced plant or algae species? (This may include algae species such as <i>Caulerpa taxifolia</i> and <i>Caulerpa racemosa</i>)		Native Plant life form																																	
Introduced spp. <5% of organic biomass (15 points)		☒	Seagrass bed heavily impacted and represented by scattered plants only (2 points)																																
Introduced spp. 5 - 15% of organic biomass (8 points)		☐	Seagrass bed impacted with limited structural diversity, largely uniform age classes and significantly reduced vegetation cover (4 points)																																
Introduced spp. 16 - 25% of organic biomass (4 points)		☐	Seagrass bed partly impacted, with reduced structural diversity, elements may be missing and partially reduced vegetation cover (8 points)																																
Introduced spp. 26 - 50% of organic biomass (2 points)		☐	Limited impacts on seagrass bed, with a diversity of structural features and a varied age class, with only a minor loss vegetation cover or structural elements (16 points)																																
Introduced spp. >50% of organic biomass (0 points)		☐	Seagrass bed showing very little or no sign of disturbance. A variety of life forms and associated age classes present. Vegetation cover near complete (30 points)																																
Weed Score (max score of 15)		15																																	
Bare Ground > 51% of site bare ground (0 points)		☐	Native Plant life form score (max 30)																																
26-50% bare ground (0.75 points)		☐	8																																
11-25% bare ground (1.25 points)		☐	Epiphyte growth																																
5-10 % bare ground (2.5 points)		☒	Epiphyte growth >15% (10 Points)																																
< 5% bare ground (5 points)		☐	Epiphyte growth between 15 and 50% (5 points)																																
Bare Ground (max score of 5)		2.5																																	
			Epiphyte growth between 50-100% (0 points)																																
			Epiphyte growth (max score of 10)																																
			10																																
Vegetation Condition Score calculation																																			
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms			58.00																																
Negative Vegetation Attributes Score = Weeds + Bare ground + Epiphyte growth			27.50																																
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 50) / 80))			56.19																																
<table border="1"> <thead> <tr> <th>Attribute</th> <th>Low</th> <th>Medium</th> <th>High</th> </tr> </thead> <tbody> <tr> <td>Native Plant Species Diversity</td> <td></td> <td></td> <td>Full bar</td> </tr> <tr> <td>Introduced Species Score</td> <td></td> <td></td> <td>Full bar</td> </tr> <tr> <td>Native Plant Life Forms</td> <td></td> <td>Partial bar</td> <td></td> </tr> <tr> <td>Regeneration</td> <td></td> <td></td> <td>Full bar</td> </tr> <tr> <td>Epiphyte growth</td> <td></td> <td></td> <td>Full bar</td> </tr> <tr> <td>Bare Ground</td> <td></td> <td>Partial bar</td> <td></td> </tr> <tr> <td>Vegetation Condition Score</td> <td></td> <td></td> <td>Full bar (Red)</td> </tr> </tbody> </table>				Attribute	Low	Medium	High	Native Plant Species Diversity			Full bar	Introduced Species Score			Full bar	Native Plant Life Forms		Partial bar		Regeneration			Full bar	Epiphyte growth			Full bar	Bare Ground		Partial bar		Vegetation Condition Score			Full bar (Red)
Attribute	Low	Medium	High																																
Native Plant Species Diversity			Full bar																																
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Regeneration			Full bar																																
Epiphyte growth			Full bar																																
Bare Ground		Partial bar																																	
Vegetation Condition Score			Full bar (Red)																																

Conservation Significance Score																											
Is the vegetation association considered a Threatened Ecological community or Ecosystem?			Yes/No																								
State (Provisional List of Threatened Ecosystems of SA) Rare community (0.05 pt)			☐																								
State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.1 pts)			☐																								
State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.15 pts)			☐																								
Nationally (EPBC Act) Vulnerable community (0.2 pts)			☐																								
Contains a Nationally (EPBC Act) Endangered or Critically Endangered community (0.3 pts)			☐																								
Note; all sites will score a minimum Conservation Significance Score of 1			Score 1																								
Number of Threatened Plant Species recorded for the site (within the site)			Number																								
*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.																											
State Rare species recorded (1 pt each)			0																								
State Vulnerable species recorded (2.5 pt each)			0																								
State Endangered recorded (5 pts each)			0																								
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Nationally Endangered or Critically endangered species recorded (20 pts each)			0																								
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts			0																								
Score			0																								
Potential habitat for Threatened Animal Species (number observed or previously recorded)			Number																								
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