APPENDIX 12

EPBC Self-assessment & Preliminary Flora & Fauna Assessment : Succession Ecology

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Southern Barossa Winery & Tourist Accommodation Project

EPBC Self-assessment

DOCUMENT SPECIFICATION

Client:	**Turner & Townsend, on behalf of Strategic Alliance**
Client contact:	Melody Young
Client email:	Melody.young@turnertown.com
Succession Ecology contact:	Dr C. E. Timothy Paine
Succession Ecology email:	tim@successionecology.com.au
Prepared by:	Jessica Lynch, Nicholas Congedi, and Glenn Maxwell Smyth
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ACKNOWLEDGEMENT OF COUNTRY

Succession Ecology acknowledges and pays respect to the past, present and future Traditional Custodians and Elders of this nation and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.

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Succession Ecology was engaged by Turner & Townsend, on behalf of the Principal, Strategic Alliance, to conduct a self-assessment under the *Environmental Protection and Biodiversity Conservation Act 1999* (cth; *EPBC Act*) for the Southern Barossa Winery and Tourist Accommodation Project (hereafter "proposed action"). This self-assessment aims to determine whether the proposed action requires referral under the *EPBC Act*. It has been undertaken in accordance with guidelines provided by the Department of Climate Change, Energy, the Environment and Water (DCCEEW 2013a) and considers strategic assessments being undertaken, the Matters of National Environmental Significance (MNES) listed under the *EPBC Act*, the direct, indirect and facilitated potential impacts on MNES, addresses the mitigation hierarchy, and assesses potential impacts against the relevant Significant Impact Guidelines (DCCEEW 2013a).

A Significant Impact on a MNES is one which is "important, notable or of consequence, having regard to its context or intensity" (DCCEEW 2013a). Particular criteria may be applied to the various types of MNES to determine whether an action will have a Significant Impact. Results of the identification of strategic assessments and MNES relevant to the proposed action are as below:

- No applicable strategic assessments.
- One wetland of international importance known or likely to occur in the area.
- One Threatened Ecological Community known or likely to occur in the area.
- 15 Threatened Flora species known or likely to occur in the area.
- 18 Threatened Fauna species known or likely to occur in the area.
- No National Heritage Place known or likely to occur in the area.
- Four Migratory species known or likely to occur in the area.

One MNES was Identified as "possible" or "likely" to be impacted:

- No wetlands of international importance are likely to be impacted.
- No Threatened Ecological Communities are likely to be impacted.
- No Threatened Flora species are likely to be impacted.
- One Threatened Fauna species is possible to be impacted.
- No Threatened Migratory species are likely to be impacted.

Key mitigation actions that are recommended to be employed include:

- Avoid – No native vegetation on site will be removed during the construction and operation of the proposed action. No MNES will be exposed to stressful levels of noise, vibration, or light.
- Minimise – An Arborist will be engaged to lop trees for safety. Dust-producing activities will be mitigated to prevent food resources and trees from being impacted. Minimise guest activities beneath large trees when bats are present.
- Restore – As part of construction and operation, a Sediment Erosion and Deposition Management Plan, a Weed Management Plan, and a Rehabilitation Management Plan will be drafted to enhance environmental values and prevent the degradation of amenity values.
- Offset – No MNES will be impacted during construction or operation of this project. As such, no offsets are required.

A Significant Impact Assessment was undertaken to evaluate the potential for impacts to Grey-headed Flying-fox (*Pteropus poliocephalus*, GHFF) by the proposed action. A Significant Impact Assessment considers the mitigation actions that will be implemented. Assessment results show that there is **not** a "real chance or

possibility" for a Significant Impact to GHFF. The assessment found that the proposed action will have negligible impacts on individual GHFF, and no impact upon any nationally important GHFF camp. The results of the Significant Impact Assessment show that significant impacts **are not** likely for relevant MNES.

This assessment indicates that the Southern Barossa Winery and Tourist Accommodation Project **will not require** a Referral under the *EPBC Act.*

2 INTRODUCTION

Succession Ecology was engaged by Turner & Townsend on behalf of the Principal, Strategic Alliance, to conduct a self-assessment under the *Environmental Protection and Biodiversity Conservation Act 1999* (*EPBC Act*; EPBC Self-assessment) for the Southern Barossa Winery and Tourist Accommodation Project (proposed action). The results of the EPBC Self-assessment aim to determine whether the proposed action will trigger a referral under the *EPBC Act*. This EPBC Self-assessment has been undertaken in accordance with Significant Impact Guidelines 1.1, which is the relevant guideline provided by the Department of Climate Change, Energy, the Environment and Water (DCCEEW 2013a). It considers Matters of National Environmental Significance (MNES) listed under the *EPBC Act*, the direct, indirect and facilitated impacts on MNES, addresses the mitigation hierarchy and assesses potential impacts against the significant impact assessment criteria (Significant Impact Guidelines 1.1; DCCEEW, 2013a).

2.1 Project Background

The site of the proposed action is Lot 102, Hoffnungsthal Road, Williamstown, in the Southern Barossa Valley of South Australia. The proposed action has been declared an 'Impact Assessed' Development by the Minister for Planning. Turner & Townsend and the Principal must prepare a Scoping Application and an Environmental Impact Statement (EIS) assessment and submit to the South Australian State Planning Commission for review. The assessment will investigate potential bushfire hazards and risks, traffic impacts, infrastructure requirements, urban design, water management, environmental impacts, and more. Succession Ecology has previously investigated and reported on the baseline environmental values of the site, to support the scoping application and Environmental Impact Statement (Succession Ecology 2024).

The Barossa Valley is known worldwide for wine production. Much of its arable land is used for viticulture. The proposed development was cleared for rural purposes before 1949 and has been maintained that way ever since (Appendix B). The proposed action site is 4 km southeast from Lyndoch town centre, 5 km northeast from Williamstown town centre and 44 km northeast from the Adelaide CBD (Figure 1). It is located within the Barossa Council Area and the Northern and Yorke Landscape Management Region. A map of environmental values and locations of invasive species is shown in Figure 2.

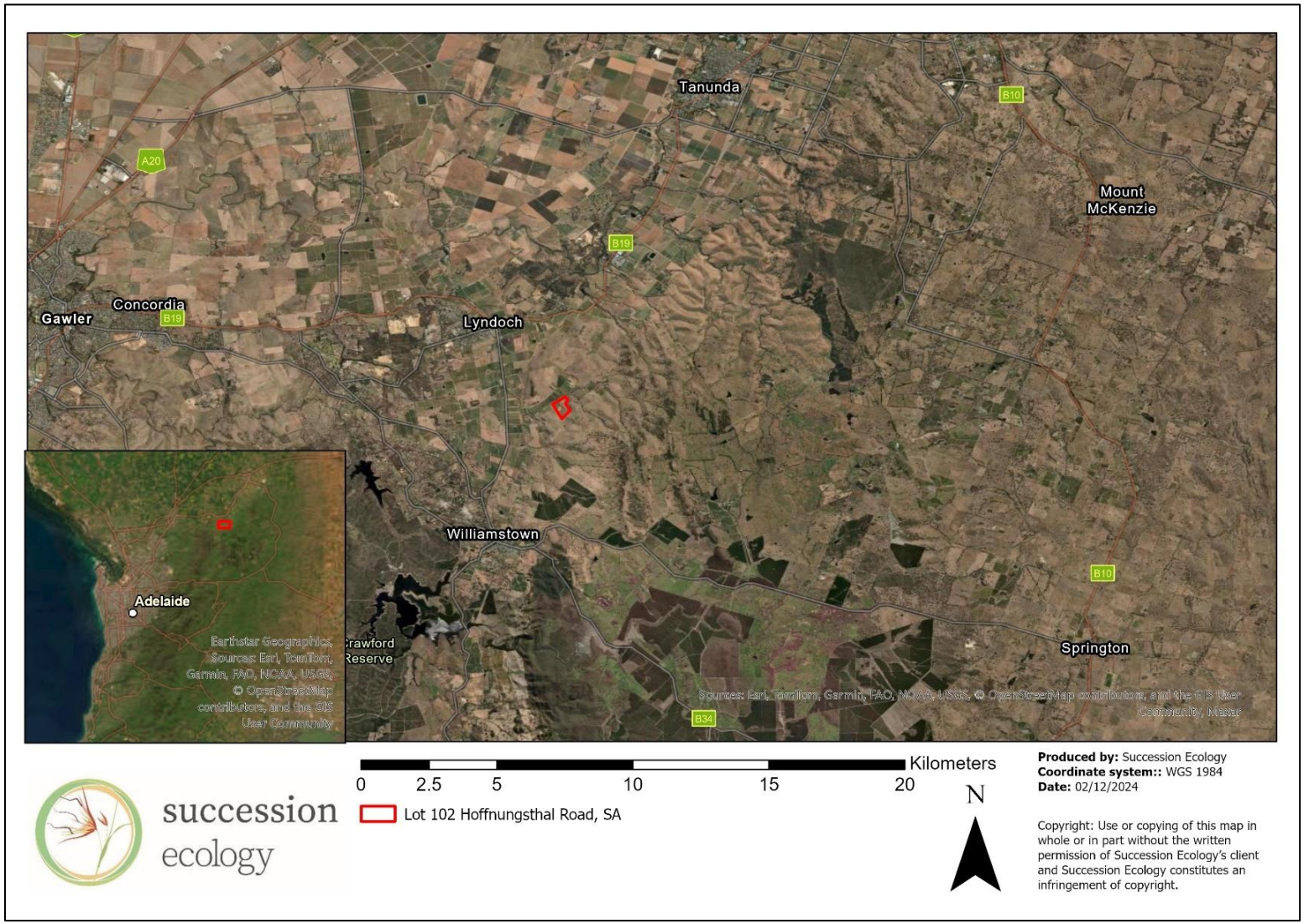

Figure 1: The proposed action is outlined in red, in context of surrounding towns and the Adelaide CBD.

2.1.1 Proposed Action

The proposed action is to be constructed in two stages:

Stage 1 (Hotel): The hotel (and associated external functional and car parking areas) will occupy an estimated 14,000 m2, and include approximately 150 rooms, restaurant/function space (max 450-person capacity), lounge bar, outdoor dining terrace, meeting/conference spaces, pool, fitness centre, a wellness spa, access tracks and a carpark

Stage 2 (Winery and Cellar Door): New winery and cellar door to be constructed together with an upgrade to the existing vineyard to facilitate wine production (up to a max of 500 tonnes per year), restaurant, VIP tasting room, function space, access tracks and a carpark.

Sources of impact

During the construction and operation of Stages 1 and 2 there will be multiple sources of potential direct and indirect impacts upon MNES assessed under Significant Impact Guidelines 1.1 (Matters of National Environmental Significance; (DCCEEW 2013a). The sources of these impacts stem from:

- an increase in anthropogenic activity (direct and indirect);
- construction of infrastructure (direct and indirect);
- altered hydrological processes (indirect);
- weed species colonisation (direct and indirect);
- cumulative impacts from additive effects of neighbouring and proposed action activities (direct and indirect);
- increased dust emissions (direct and indirect);
- non-hazardous and hazardous waste (direct and indirect);
- noise and light pollution (indirect).

These impacts and proposed mitigation actions are discussed in section 4.4, 4.5 and 4.6.

2.2 Environmental Context

The proposed action area is located within the Flinders Lofty Block Interim Biogeographic Regionalisation for Australia (IBRA) Region, the Mount Lofty Ranges Sub-region and the Rosedale Association. The local area contains relatively low remnant native vegetation with 16 % remnancy mapped within 5 km of the site (statistic derived from NatureMaps). The Rosedale IBRA association contains 5 % remnancy with only 11% of that vegetation protected, the Mount Lofty Ranges Sub-region has 15 % native vegetation remnancy and only 5.33 % of that vegetation is protected (Native Vegetation Council 2024).

Table 1: IBRA bioregion description (Thackway and Cresswell 1995).

IBRA region	Flinders Lofty Block
Landform	Ranges and hills with extensive rock outcrop and shallow soils; stony pediments and small basin plains; some remnants of stony downs; narrow valleys, some with gorges. Ranges and hills in form of hogback ridges in quartzite
Geology	Bare rock; some alluvium & colluvium (sand, silt & clay); less common dune sand & some sand mantles. Calcrete gravels derived from silcrete deposits & probably equate with Ripon Calcrete. Younger Telford gravels (Middle Pleistocene).
Soil	Loamy soils with weak pedologic development, crusty loamy soils with red clay subsoils

Vegetation	Chenopod Shrub, Samphire Shrub and Forbland. An increase in rainfall to the south corresponds with an increase in low open woodlands of *Eucalyptus obliqua* and *E. baxteri* on deep lateritic soils, and *E. fasciculosa* and *E. cosmophylla* on shallower or sandy soils
Climate	E6: Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter. In the South of the Flinders Lofty Block, the climate is more representative of mediterranean with vegetation growth beginning in winter and peaking in spring.

There are five conservation parks near the proposed action area. Kaiserstuhl Conservation Park located 10 km to the northeast, 6.5 km and 10 km South are Hale and Warren Conservation Parks, respectively, 10 km Southwest is Para Wirra Conservation Park and 5 km West is Sandy Creek Conservation Park. Finally, Mount Crawford pine forest, which is used for production forestry, is 10 km South of the proposed action area.

2.3 Vegetation and Habitat Present

Within the proposed action area, vegetation is restricted to scattered trees along an ephemeral creekline, broken down into two sections of differing quality. The northern section of the creekline contains large old remnant *Eucalyptus camaldulensis* (River Red Gum). These trees are estimated to be at least 85 years old and are in relatively healthy condition. The southern section of the creekline contains *E. leucoxylon* (South Australian Blue Gum), *Allocasuarina verticillata* (Drooping Sheoak) and *Acacia victoriae* (Bramble Wattle). The southern section of the creekline was devoid of vegetation until the early 2000's, at which time regenerating native and exotic vegetation can first be seen in historical satellite imagery provided by Google Earth.

The two sections of vegetation have been assessed as having high, and low-to-moderate environmental value, respectively (Figure 2). The northern section that contained the remnant River Red Gums was assessed as high environmental value, owing to its environmental and cultural context within the property and surrounding area. Large remnant River Red Gums are great habitat trees and are recognised by the South Australian Native Vegetation Council as an important faunal habitat component in a rural setting. The health of these trees varied from poor to good with the majority in good condition. Around 50 % of the large remnant River Red Gums had small, medium or large hollows. In total there were 57 small, 42 medium and 29 large hollows, observed from the ground, scattered among the River Red Gums. The understorey consisted of a mixture of herbaceous and woody weeds, which have restricted native species recruitment and juvenile growth.

The Southern section of the ephemeral creek was assessed as low to moderate health. Many of the trees were juvenile or early-age mature individuals. Almost all the trees assessed were competing with dense stands of woody weeds including *Olea europaea* (European Olive). In between these trees were high densities of herbaceous and woody weeds. Despite the high density of weeds, these trees provide habitat for fauna and stabilise the creek banks against erosion.

In the eastern corner of the northeastern paddock is another patch of early-age mature River Red Gums assessed as low to moderate environmental value. In the same paddock in southern corner was a cluster of juvenile River Red Gums, which were not assigned a quality category because of their age. Along the eastern fenceline to the south of the juvenile cluster were two isolated South Australian Blue Gums and along Hoffnungsthal Road were three large River Red Gums, which were assessed as high environmental value. Further west along Hoffnungsthal Road is a single juvenile South Australian Blue Gum.

For a detailed assessment of the site and its environmental and amenity values see "SBWTAP Preliminary Flora & Fauna Assessment Report" (Succession Ecology 2024).

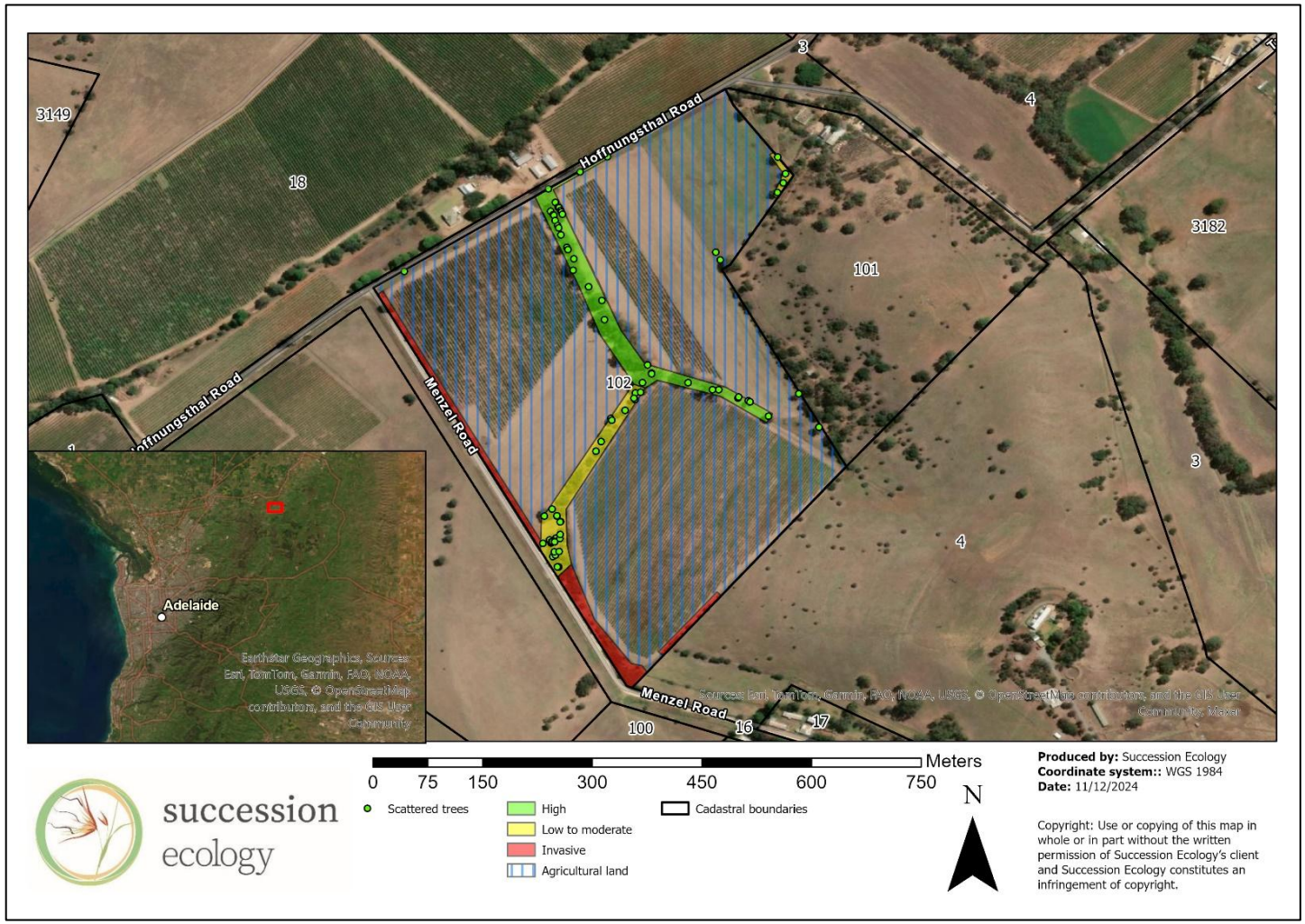

Figure 2: Environmental values and risks associated with Project area. Green and yellow shading represent areas of high and low-to-moderate environmental value, respectively. Red shading represents areas with a high density of Declared Plants. Blue hatched areas are maintained for agriculture and lack native vegetation except for a few native trees, which are marked with green points.

2.4 Legislative Requirements

The proposed action is subject to both state and federal environmental legislation, including the *Environmental Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Under Part 3, Division 1 of the *EPBC Act*, any proposed action that *will*, or is *likely* to have, a Significant Impact on a MNES requires approval from the Australian Government Environment Minister. To determine if the proposed action requires further assessment and subsequent approval, a self-assessment against the *EPBC Act* and Significant Impact Guidelines 1.1 is necessary. Based on the outcome of the EPBC Self-assessment, if the proposed action is *likely* to have a Significant Impact, a Referral to the minister is required. The Referral is a necessary step for the minister's decision on whether assessment and approval are required under the *EPBC Act.*

There are nine categories of MNES which are protected under the *EPBC* Act, of which three are relevant to the proposed action. All three of those considered relevant are assessed within this report (Table 2).

Table 2: MNES protected under the EPBC Act that are relevant to this project and assessed here.

MNES	Applicable (Yes/No)	Assessed in this report
World heritage areas	No	-
National heritage places	No	-
Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)	**Yes**	**Yes**
Listed threatened species and ecological communities	**Yes**	**Yes**
Listed migratory species	**Yes**	**Yes**
Commonwealth marine areas	No	-
Great Barrier Reef Marine Park	No	-
Nuclear actions (including uranium mining)	No	-
Water resources in relation to coal seam gas development and large coal mining development	No	-

2.4.1 Significant Impact Guidelines 1.1 (Matters of National Environmental Significance)

A Significant Impact on an MNES is one which is "important, notable or of consequence, having regard to its context or intensity" (DCCEEW 2013a). It will be dependent on the sensitivity, value, and quality of the environment as well as the extent, duration, and characteristics of the action, including mitigation activities. Where a proposed action is deemed to *have, will have* or *is likely to have* a Significant Impact on an MNES, a referral is required under the *EPBC Act*.

Significant Impact Guidelines 1.1 present assessment criteria which are to be applied to the various types of MNES to determine whether a proposed action will have a Significant Impact. Criteria vary depending on the type of MNES and threatened ranking. All criteria are presented within Appendix A.

3 METHODOLOGY

3.1 Desktop Assessment and Field Survey

3.1.1 Database searches

Environmental data was collected during a desktop assessment undertaken for the proposed action to inform this EPBC Self-assessment. Several database searches were undertaken to determine the range of threatened flora and fauna species and ecological communities protected under the *EPBC Act 1999* and *NPW Act 1972*, that are known or likely to occur within a 10 km search area from the proposed action area. Database searches include:

- The DCCEEW Protected Matters Search Tool (PMST) - used to identify any relevant MNES including threatened ecological communities, flora and fauna. Results of the PMST list MNES that 'may occur' (or have habitat that may occur), 'are likely to occur' or 'are known to occur' within the search area. For Self-assessment and referral purposes, the MNES which were identified as 'known' or 'likely to occur' within the search area are of foremost concern. Expert knowledge for relevant MNES was also applied.
- A NatureMaps search - undertaken for both threatened flora and fauna, to capture other nationally threatened species that may not be captured in the PMST. Records of species since 1995 were considered.
- Atlas of Living Australia (ALA) - used to identify any further threatened flora and fauna species not captured in the PMST. Records from 'citizen science' initiatives are excluded from search results.
- Biological Database of South Australia (BDBSA) – used to demarcate threatened flora and fauna listed under either the *NPW Act 1972* or *EPBC Act 1999*, recorded since 1995 within the search area that have restricted access to distribution data.

3.1.2 Field Survey

A field survey was undertaken on 19/11/2024 as part of the native vegetation assessment works carried out for the proposed action. During this survey, MNES that were considered known or likely to occur within the search area were either targeted for searches (flora species or relevant habitat) or subject to an opportunistic observation-based survey (fauna species or relevant habitat). The opportunistic observation-based survey was also undertaken to identify any other fauna species using the site.

As with any field survey, several factors can limit outcomes. In particular, the timing of a field survey (season) and the prevailing weather conditions (wind, rain, temperature) affect the opportunity for representative data collection (e.g., plant identification and animal activity). Overall, it is unlikely that a single survey event can generate a complete biological catalogue of an area. As such, the results of this field survey provide a baseline of species presence during this time. Many of the threatened flora species identified in the desktop assessment were orchids. The growing seasons for many of these species had already passed at the time of the field survey. As a result, the field survey cannot guarantee the absence of orchids or any other threatened species.

Generally, plant identification can be limited by the life-stage of the plant and as such plant diversity can be underestimated due to a lack of distinguishable features such as flowers or fruit. However, many perennial and annual species were in flower at the time of the survey, facilitating identification.

3.2 Application of DCCEEW Self-assessment Guidelines

The DCCEEW provides guidelines on conducting an EPBC Self-assessment. The assessment presented here refers to significant impact guidelines 1.1 (DCCEEW 2013a). In accordance with these guidelines, this EPBC Self-assessment considers the following:

- Any Strategic Assessments (developed under section 146 of the *EPBC Act*) that may apply to the project area.
- MNES potentially impacted by the development and the nature of those impacts.
- Mitigation actions that may be applied under a mitigation hierarchy.
- Assessing any potential impacts to MNES against the Significant Impact Guidelines.

Further, specific referral guidance in relation to the relevant species was also consulted (such as the published conservation advice for threatened species). Self-assessment results, discussion and recommendations in relation to an EPBC referral for the proposed action are presented in the following sections.

3.3 Application of Impact Assessments

3.3.1 Likelihood of Impacts assessment

Results from all database searches were reviewed to determine which MNES were relevant for the assessment of likelihood of impacts, and which should be excluded from assessment. MNES were excluded from assessment if:

- They ranked as 'May' occur within the search area;
- Habitat present within the proposed action area was completely unsuitable for the MNES; or
- The distribution of the threatened MNES did not occur within, nor adjacent to, the proposed action area.

Relevant MNES were then assessed within a likelihood of impacts table, in order to establish which of the relevant MNES should then be subject to a Significant Impact Assessment (presented in section 5). The likelihood of impacts table establishes which MNES are potentially subject to impacts from the proposed action. In preparing the impact likelihood table several factors are taken into consideration, such as the nature of the proposed action, the suitability of habitat, the nearest known records of the MNES, species habits, distribution of the MNES and the overall likelihood of occurrence of the MNES within the proposed action area. For example, if a species has been considered possible to occur within the boundaries of the proposed action area, then it logically follows that impacts to that species are also possible. For all relevant MNES, a likelihood of impacts assessment was undertaken following the metric within Table 3.

Table 3: Descriptions of likelihood of impacts on MNES.

Likelihood of Impact	Description
None	The MNES, or relevant habitat, does not occur within the defined project area, nor within adjacent properties.
Unlikely	The MNES, or relevant habitat, does not occur within the defined project area nor within adjacent properties, however there is some possibility that offsite impacts could occur.
Possible	The MNES, or relevant habitat, may occur within the defined project area, or it is known to occur in adjacent properties.
Likely	The MNES, or relevant habitat, is known to occur within the defined project area and may overlap with the infrastructure footprint.

Certain	The MNES, or relevant habitat, is known to occur within the defined project area and is known to overlap with infrastructure footprint.

3.3.2 Significant Impact Assessment

A significant impact on an MNES is one which is important, notable or of consequence, having regard to its context or intensity (Department of Environment, 2013). It will be dependent on the sensitivity, value, and quality of the environment as well as the extent, duration, and characteristics of the proposed action, including mitigation measures. The Significant Impact Guidelines 1.1 (DCCEEW 2013a) provide assessment criteria for each category of MNES (i.e. Critically Endangered, Endangered etc) upon which to assess the significance of any potential impacts. A full list of criteria is presented in Appendix A. A significant impact assessment was conducted on those MNES for which impacts are considered 'possible', 'likely' or 'certain'.

4 RESULTS

4.1 Strategic Assessments

Strategic assessments carried out by the DCCEEW adopt a 'big-picture' approach to managing and protecting MNES, in which impacts to MNES are considered over time. The DCCEEW is currently undertaking a number of Strategic Assessments across Australia. Those within South Australia include:

- Fire Management Policy – for lands under the care and control of the SA Minister for Sustainability Environment and Conservation (i.e. SA Government lands)
- Offshore petroleum activities in SA coastal waters
- Osborne Submarine Construction Yard

No strategic assessments are applicable to the proposed action.

4.2 Matters of National Environmental Significance Identified

The desktop assessment results are presented in Tables 4 - 8 below along with an indication of likelihood of impacts, as defined in Table 3. The full results of the Protected Matters search are presented in Appendix C.

4.2.1 Wetlands of International Importance (Ramsar Wetlands)

One Wetland of International Importance, The Coorong (Ramsar Site No. 25) was identified to potentially occur within the site of the proposed action or sustain offsite impacts. The Coorong was assessed as not being impacted by the proposed action (Table 4).

Table 4: Likelihood of impacts to wetlands of international importance.

MNES	Details	Likelihood of impacts
The Coorong	RAMSAR Site No.25 50-100 km upstream	**None.** Proposed action area occurs more than 50km from the Coorong RAMSAR site, in the upper areas of the catchment. Impacts from the proposed action, including any (limited) off-site impacts will not impact this wetland site.

4.2.2 Commonwealth and National Heritage Listed places

No Commonwealth and National Heritage listed places will be impacted by the proposed action.

4.2.3 Threatened Ecological Communities

One Threatened Ecological Community (TEC) was detected as potentially occurring within the proposed action area. It was assessed as not being impacted by the proposed action (Table 5).

Table 5: Likelihood of impacts to threatened ecological communities (TEC) identified in the desktop assessment that are 'known' or 'likely' to occur within the proposed action area.

MNES	Details	Likelihood of impacts
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia	Critically Endangered Likely to occur	**None.** This TEC occurs inland on the Eyre Peninsula, between Port Lincoln and Tumby Bay and inland on the Fleurieu Peninsula. Beginning south near Victor Harbour running between the Murray lands and Adelaide Hills, carrying on inland through the Clare Valley, stopping just north of Quorn in the southern Flinders Ranges. The TEC was not observed during the baseline survey. It is not expected to be impacted by the proposed action.

4.2.4 Threatened Flora

A desktop assessment identified 15 listed flora species as potentially occurring within the proposed action area (Table 6). No threatened flora species were identified onsite, and no threatened flora species are assessed to be potentially impacted by the proposed action according to the current development footprint (likelihood of impacts possible or above).

Table 6: Likelihood of impacts to threatened flora identified in the desktop assessment that are 'known' or 'likely to occur' within the project area.

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
Caladenia argocalla (White-beauty Spider-orchid)	Endangered Species or species habitat **Known** to occur within area.	Open grassy woodland with herb understorey and fertile soils. Found with *Eucalyptus macrorhyncha* and *E. leucoxylon* (DEH 2008a).	**None.** The proposed action area has been extensively modified, with limited to no remnant understory at the base of preferred trees. All recent records are 10 km south and west of the site in Conservation Parks. Species was not observed during the field survey.
Caladenia behrii (Pink-lipped Spider-orchid)	Endangered Species or species habitat **Known** to occur within area.	Occurs on loamy soils in association with *Eucalyptus goniocalyx, E. obliqua, E. fasciculosa* or *E. microcarpa* woodland, usually on moderate slopes. Very sensitive to grazing by native and introduced herbivores, and does not persist in weed infested areas (DEH 2008b).	**None.** The proposed action area has been extensively modified by agriculture and invasive plant species. All recent records are 6.5 – 10 km away in the surrounding Conservation Parks. Species was not observed during the field survey.
Caladenia rigida (Stiff White Spider-orchid)	Endangered Species or species habitat **Known** to occur within area.	Occurs in *Eucalyptus obliqua, E. fasciculosa, E. leucoxylon, E. goniocalyx, E. microcarpa* open forests with a relatively open shrub layer. This habitat type has been extensively cleared or degraded in the Southern MLR since European settlement, but intact tracts exist in native forest reserves, water reserves, and reserves in the Kersbrook area (DEH 2008c).	**None.** The proposed action area has been extensively cleared for agricultural purposes. There is limited to no required habitat on site. All records of this species are 6 – 10 km south and west of the proposed action area in conservation parks. Species was not observed during the field survey.
Caladenia tensa (Greencomb Spider-orchid)	Endangered Species or species habitat Likely to occur within area.	Grows on red-brown sandy loams, on rises in open woodland, mallee woodland and mallee/heath sites (DAWE 2022).	**None.** The species requires specific soil and vegetation communities that are absent from the proposed action area. There have been no observations within 10 km for this species since 1995. Species was not observed during the field survey.
Corybas dentatus (Toothed Helmet-orchid)	Vulnerable Species or species habitat **Known** to occur within area.	Occurs on damp, grey sandy loam soils in areas with elevation between 250-450 m above sea level. Usually associated with *Eucalyptus fasciculosa E. baxteri* or *Callitris gracilis* woodland (DCCEEW 2014).	**None.** The proposed action area has been extensively modified by agriculture and invasive plant species. Preferred vegetation communities and soil types are absent from the proposed action area. All observations are 4 km west on private property and 4.5 km north in the Sandy Creek Conservation Park. Species was not observed during the field survey.
Dodonaea procumbens	Vulnerable	It grows in low lying, often winter wet areas in woodlands, open forests and	**None.** The proposed action area has been extensively cleared by agriculture and

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
(Trailing Hop-bush)	Species or species habitat Likely to occur within area.	grasslands. Preferred soils are sands and clays. South Australian populations have been recorded in *Eucalyptus camaldulensis, E. fasciculosa* and *E. leucoxylon* open woodlands. In grass lands it grows with *Lepidosperma viscida, Themeda triandra, Austrodanthonia* spp., *Austrostipa* spp., *Acacia acinacea, Dodonaea viscosa* and *Bursaria spinosa* (Carter 2010).	invasive plant species. There is limited required growing conditions on site. There have been no records of the species within 10 km since 1995. Species was not observed during the field survey.
Euphrasia collina subsp. *osbornii* (Osborn's Eyebright)	Endangered Species or species habitat **Known** to occur within area.	Generally found in moist open habitat, in mallee scrub but also in woodlands and coastal heath (DEH 2010).	**None.** The proposed action area has been extensively modified by agriculture and invasive plants. Required vegetation communities are absent from the proposed action area. All records are 6 km west in the Para Wirra Conservation Park. Species was not observed during the field survey.
Glycine latrobeana (Clover Glycine)	Vulnerable Species or species habitat **Known** to occur within area.	*Eucalyptus viminalis* woodland and open woodland with *E. leucoxylon*, and understoreys ranging from mid-dense to very sparse and dominated by either *Leptocarpus brownii*, or *Acacia pycnantha, Leptospermum myrsinoides, Gonocarpus elatus*, and *Themeda triandra* (DEH 2008d).	**None.** The proposed action area has been extensively modified by agriculture and invasive plants. Required vegetation communities are absent from the site. There are two records, 5.5 km to the east and 10 km south located in native vegetation. Species was not observed during the field survey.
Olearia pannosa subsp. *pannosa* (Silver Daisy-bush)	Vulnerable Species or species habitat **Known** to occur within area.	Occurs in sandy, flat areas and in hilly, rocky areas in woodland or mallee. This species also often occurs in narrow roadside remnants (DCCEEW 2013b).	**None.** The proposed action area has been extensively modified. Species requires specific habitat features and vegetation communities which are absent from the site. The roadside vegetation appears to be regularly mown and almost entirely of invasive species. All species records since 1995 are north along roadside and west in Para Wirra Conservation Park 6.5-8.5 km away. Species was not observed during the field survey.
Prasophyllum pallidum (Pale Leek-orchid)	Vulnerable Species or species habitat **Known** to occur within area.	Fertile soils of woodland and well-grassed open forests (Seeds of SA 2019).	**Unlikely.** The proposed action area has been extensively modified by agriculture, there is very limited preferred soil and vegetation communities. All records of this species are north and west 4.5 – 10 km in conservation parks. Species was not observed during the field survey.
Prasophyllum pruinosum (Plum Leek-orchid)	Endangered Species or species habitat **Known** to occur within area.	Found in the Adelaide and Mount Lofty Ranges Region, recorded in a range of open woodland habitats, usually with an overstorey of *Eucalyptus fasciculosa* and/or *E. leucoxylon* (DCCEEW 2010).	**Unlikely.** The proposed action area has been extensively modified and there is limited to no required vegetation communities for this species. All records of this species are 4 – 4.5 km north and west in Conservation Parks. Species was not observed during the field survey.

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
Pterostylis psammophila (Two-bristle Greenhood)	Critically Endangered Species or species habitat **Known** to occur within area.	Usually found in deep white sands in open woodland of *Callitris gracilis* (native pine) and *Melaleuca uncinata* (Broombush) shrub-land amid annual herbs, usually with other *Oligochaetochilus/Pterostylis* species (Threatened Species Scientific Committee 2016).	**None.** The proposed action area has been extensively modified and there is no required soil or vegetation communities on site. All observations of this species are on private property 4 km west and in Sandy Creek Conservation Park 4.5 km away. Species was not observed during field survey.
Pterostylis sp. Hale (R. Bates 21725) (Hale Dwarf Greenhood)	Endangered Species or species habitat **Known** to occur within area.	This species occurs in mallee and Broombush communities, in sandy soils. Plants tend to exist as small, discrete, clonal colonies or in small colonies with very little genetic variation (DCCEEW 2008).	**None.** This plant requires specific habitat features and vegetation communities which are absent from the proposed action area. A single observation has been made in the Warren Conservation Park 6.5 km south. Species was not observed during field survey.
Thelymitra matthewsii (Spiral Sun-orchid)	Endangered Species or species habitat Likely to occur within area.	Open forests and woodlands with heathy understorey, and open ground layer. Soils consist of well-drained sand, gravel, and clay loams, particularly areas with soil disturbance (DAWE 2021a).	**None.** The species is not known to the area, closest observations are on Kangaroo Island and South of Adelaide. The proposed action area has been extensively modified with no required soil or vegetation communities present. Species was not observed during field survey.
Veronica derwentiana subsp. *homalodonta* (Mount Lofty Speedwell)	Critically Endangered Species or species habitat Likely to occur within area.	Open grassy woodland with herb understorey and fertile soils. Found with *Eucalyptus macrorhyncha* and *E. leucoxylon* (DEH 2008e).	**None.** The proposed action area has been extensively modified and impacted by invasive weeds. The required vegetation communities and soil types are absent from site. There have been no observations within 10 km of the proposed action area since 1995. Species was not observed during the field survey.

4.2.5 Threatened Fauna

A desktop assessment identified 18 listed fauna species as potentially occurring within the proposed action area. These are presented in Table 7. No threatened fauna species were identified onsite, and one threatened fauna species is assessed to be potentially impacted by the proposed action according to the current development footprint (likelihood of impacts possible or above). The species *Pteropus poliocephalus* (Grey-headed Flying-fox) has been included in the significant impact assessment in section 6.

Table 7: Likelihood of impacts to threatened fauna identified in the desktop assessment that are 'known' or 'likely to occur' within the project area.

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
AVES			
Aphelocephala leucopsis (Southern Whiteface)	Vulnerable Species or species habitat **Known** to occur within area	Occur in wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills	**Unlikely.** The species has not been seen within 10 km of the proposed action area since 1995. There is limited preferred habitat on the proposed action area and adjacent properties. The species was not recorded during the field survey.

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
		and lowlands, and plains (DCCEEW 2023a).	
Botaurus poiciloptilus (Australasian Bittern)	Endangered Species or species habitat **Known** to occur within area	Occupies swamps and wetlands usually associated with *Baumea* sp., *Gahnia* sp. and *Typha* sp., and low shrubs such as *Melaleuca* sp. (DBCA 2018).	**None.** The proposed action area and adjacent properties do not contain swamps or wetlands. There is no habitat on the property for the species to utilise. The species has not been seen within 10 km of the proposed action area since 1995. The species or its habitat was not observed during the field survey.
Calidris acuminata (Sharp-tailed Sandpiper)	Vulnerable Species or species habitat Likely to occur within area	Muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. (DCCEEW 2016).	**None.** The species requires wetland and saline habitats, which are not present on proposed action area or within the adjacent properties. The species or its required habitat was not observed during the field survey.
Calidris ferruginea (Curlew Sandpiper)	Critically Endangered Species or species habitat Likely to occur within area	Mainly occur on intertidal mudflats in sheltered coastal areas and non-tidal swamps. Also recorded inland around lakes and dams, but less often (DAWE 2021b).	**None.** There is no habitat on the proposed action area of in the surrounding properties for this species. The nearest observation is 8.5 km to the west near the Barossa reserve in the Para Wirra Recreation Park. This species and its habitat were not observed during the field survey.
Falco hypoleucos (Grey Falcon)	Vulnerable Species or species habitat Likely to occur within area	Arid-zone open woodlands and open Acacia shrublands. Especially stony and sandy plains, hummock and tussock grasslands, low shrublands and wooded watercourses (DEWNR 2021).	**None.** This species has not been seen within 10 km of the proposed action area since 1995. There is limited to no habitat on proposed action area or the surrounding area for the species. The species and its preferred habitat were not observed during the field survey.
Gallinago hardwickii (Latham's Snipe, Japanese Snipe)	Vulnerable Species or species habitat Likely to occur within area	They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies) (DCCEEW 2022a).	**None.** There is no required habitat present on the proposed action area or within the immediate surrounding area. The species has not been seen within 10 km of the proposed action area since 1995. The species or its required habitat was not observed during the field survey.
Grantiella picta (Painted Honeyeater)	Vulnerable Species or species habitat Likely to occur within area	*Acacia pendula* and *A. harpophylla* woodlands, box-gum woodlands and box-ironbark forests. The species is a specialist feeder on the fruits of mistletoes growing on eucalypts and acacias. Painted Honeyeaters prefer to feed on mistletoes of the genus *Amyema* (Department of the Environment 2015).	**None.** The species has not been observed within 10 km of the proposed action area since 1995. There is limited to no preferred habitat on the project site or the surrounding area. The species was not observed during the field survey the species.
Hylacola pyrrhopygia parkeri	Endangered (listed as	Inhabits heathlands and woodlands with dense shrub and	**None.** The species has been recorded recently approximately 7.5 km west from the proposed

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
(Chestnut-rumped Heathwren (Mt Lofty Ranges))	Calamanthus pyrrhopygius parkeri) Species or species habitat Likely to occur within area	ground-layer vegetation, most commonly found in rocky areas. (DEH 2014).	action area in the Para Wirra Conservation Park. However, there Is limited to no preferred habitat on or surrounding the proposed action area. The species was not observed during the field survey and there was no dense shrub or ground cover present on the proposed action area.
Leipoa ocellata (Malleefowl)	Vulnerable Species or species habitat Likely to occur within area	Semi-arid to arid shrublands and woodlands but are found mainly in mallee woodland habitat that has not recently been burnt. (DEH 2021).	**None.** The species has not been observed since 1995 within the 10 km of the proposed action area. The species requires specific habitat requirements which are absent from the property. The species or its required habitat was not observed on site.
Melanodryas cucullata cucullata (South-eastern Hooded Robin)	Endangered Species or species habitat **Known** to occur within area	*Eucalyptus* woodland and mallee and *Acacia* shrubland. Nomadic, inhabits a wide range of habitats from dry sclerophyll forests, to forested wetlands, grassy woodlands and heathlands (DCCEEW 2023b).	**Unlikely.** There are numerous recent records of this species between 3.5 and 7 km away. All sightings are restricted to the surrounding conservation parks. The proposed action area and immediate adjacent properties contain limited habitat for the species and is unlikely to cause significant impacts for the species. The species or its preferred habitat was no observed during the field survey.
Neophema chrysostoma (Blue-winged Parrot)	Vulnerable Species or species habitat **Known** to occur within area	Range of habitats; coastal, sub-coastal and inland areas, right through to semi-arid zones. Favours grasslands and grassy woodlands (DCCEEW 2023c).	**Unlikely.** The species has not been observed within 10 km of the proposed action area since 1995. There is limited to no preferred habitat on or surrounding the proposed action area. The species and its preferred habitat were not observed on site during the field survey.
Rostratula australis (Australian Painted Snipe)	Endangered Species or species habitat Likely to occur within area	Inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including lakes, swamps and claypans. Use waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains (DAWE 2021c).	**None.** The species or its preferred habitat is absent from the proposed action area and immediate surrounding properties. It has not been observed since 1995 within 10 km of the proposed action area. The species and its habitat were not observed during the field survey.
Stagonopleura guttata (Diamond Firetail)	Vulnerable Species or species habitat **Known** to occur within area	Occurs in a wide range of *Eucalyptus*-dominated habitat with a grassy understorey (DCCEEW 2023d).	**Unlikely.** There are numerous sightings of the species ranging from 3.5 km to 10 km from the site in the surrounding conservation parks. The species has relatively broad habitat preferences, however, relies heavily on native species seed production for foraging habitat. The species typically cannot rely on invasive grasslands due to the instability and short availability of seed. The lack of observations of this species in the surrounding farmland could be due to observation bias resulting from naturalists preferring to survey better habitat in the surrounding area. The species was not observed on site during the field survey.
Tringa nebularia (Common Greenshank)	Endangered Species or species habitat Likely to occur within area	Inhabits wetlands, mudflats, channels. Occurs in areas situated near or among mangroves or other sparse, emergent or fringing vegetation	**None.** The species has not been recorded within 10 km of the proposed action area since 1995. The proposed action area and immediate surrounds do not contain any preferred habitat.

MNES	MNES Record Details	Species habitat preferences	Likelihood of impacts
		such as sedges or saltmarsh. Occasionally feeds amongst seagrass beds (DCCEEW 2024).	The species and its habitat were not observed during the field survey.
Zoothera lunulata halmaturina (South Australian Bassian Thrush, Western Bassian Thrush)	Endangered Species or species habitat **Known** to occur within area	Found on Kangaroo Island, the adjacent mainland, Mt Lofty Ranges, and southern Flinders Ranges. There are around 300 to 500 birds throughout the Fleurieu Peninsula and Mt Lofty Ranges, with a north to south decline in density. Throughout its range, suitable habitat is mostly confined to creeklines or dune swales (DEH 2008f).	**Unlikely.** The proposed action area does not contain the required preferred habitat for the species. There are several records in the surrounding conservation parks. The closest record to the proposed action area is 4.5 km away. The species or its habitat was not observed during the field survey. The species likely would not utilise the proposed action area as habitat, and it is unlikely the proposed action area forms an essential corridor between populations.
MAMMALIA			
Isoodon obesulus obesulus (Southern Brown Bandicoot)	Endangered Species or species habitat **Known** to occur within area	The southern brown bandicoot prefers dense vegetation, including wetland fringes and heathland (DCCEEW 2022b).	**None.** The closest known record for this species is 8.5 km away in the Para Wirra Conservation Park. This species requires dense complex vegetation to avoid predation for introduced mesopredators. There was little to no preferred habitat on the proposed action area or in the surrounding farmland. The species or its preferred habitat was not observed during the field survey.
Pteropus poliocephalus (Grey-headed Flying-fox)	Vulnerable Foraging, feeding or related behaviour Likely to occur within area	Typically roost in tall dense trees next to a water source. They will move up to 40 km from their roost site to forage (Boardman 2021).	**Possible.** The closest observation of the species is 3.5 km away. Since their arrival to Botanic Park in Adelaide, the species has been exploring and expanding their distribution throughout the Adelaide Hills and much of the Fleurieu peninsula. The proposed action area is unlikely to become the next location for a nationally important flying fox camp as they require a permanent body of water. However, the large mature gums within the proposed action area would provide valuable foraging resources for the species. The conservation advice and protections for this species revolve around the protection of nationally important camps and foraging areas. Since no vegetation is proposed to be cleared there likely is to be no impact upon this species. The species was not observed on site during the field survey.
REPTILIA			
Aprasia pseudopulchella (Flinders Ranges Worm-lizard)	Vulnerable Species or species habitat **Known** to occur within area	Open woodland, native tussock grassland, riparian habitats and rocky isolates (DEWNR 2019).	**None.** The proposed action area and neighbouring properties have been extensively modified by agriculture. There is limited to no preferred habitat for the species. The recent observations of the species have been recorded in surrounding conservation parks 7.5 km away. During the field survey no preferred habitat was recorded with the proposed action area being free of rocky escarpments.

4.2.6 Migratory Species

A desktop assessment identified four species listed as migratory fauna potentially occurring within the proposed action area. These are presented in Table 8. No migratory species were identified on site, and no migratory species are assessed to be potentially impacted by the proposed action according to the current development footprint (likelihood of impacts possible or above).

Table 8: Likelihood of impacts to migratory fauna identified in the desktop assessment that are 'known' or 'likely to occur' within the project area. For the likelihood of impacts, see the species entries in Table 7, above.

MNES	MNES Record Details	Species habitat preferences
Calidris acuminata (Sharp-tailed Sandpiper)	Vulnerable Species or species habitat likely to occur within area	Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry (DCCEEW 2016).
Calidris ferruginea (Curlew Sandpiper)	Critically Endangered Species or species habitat likely to occur within area	Mainly occur on intertidal mudflats in sheltered coastal areas and non-tidal swamps. Also recorded inland around lakes and dams, but less often (DAWE 2021b).
Gallinago hardwickii (Latham's Snipe, Japanese Snipe)	Vulnerable Species or species habitat likely to occur within area	They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies) (DCCEEW 2022a).
Tringa nebularia (Common Greenshank)	Endangered Species or species habitat likely to occur within area	Inhabits wetlands, mudflats, and channels. Occurs in areas situated near or among mangroves or other sparse, emergent or fringing vegetation such as sedges or saltmarsh. Occasionally feeds amongst seagrass beds (DCCEEW 2024).

4.3 MNES species profile

The MNES for which the likelihood of impacts is assessed as 'possible' are considered at low risk of incurring major impacts, with any impacts isolated to individuals rather than populations. As such, they are discussed here as a general overview of ecology, threats, local populations and general direct, indirect and facilitated impacts. Risks associated with the proposed action are presented in the Significant Impact Assessment (section 6).

Some vegetation on site has been assessed as potentially utilised by Grey-headed Flying-Fox for foraging (*Pteropus poliocephalus*; "GHFF"). All foraging habitat is considered essential to GHFF as addressed by *'Recovery Objective 1'* in the *'National Recovery Plan for the Grey-headed Flying-fox'* (DAWE 2021d).

Grey-headed Flying-foxes are only likely to visit the site occasionally throughout the year, during the night, for a short time between dusk and dawn. Individual GHFF can become well-habituated to human activity and would be likely to continue utilising the property during the construction and operation phases. Only the most human-avoidant and neophobic individuals in the local population would be expected to avoid the proposed action area.

***Pteropus poliocephalus* (Grey-headed Flying fox); *EPBC Act* (VU) – Possible impacts**

Ecology

Grey-headed Flying-foxes are Australia's largest endemic *Pteropus* bat species (DEWNR 2020). They are easily recognisable by their size and colouration, weighing 600 – 1000 grams with wingspans up to a metre and a distinctive orange to brown fur around the neck (DEWNR 2020). The species is a nocturnal frugivore and

nectivore, and feeds in rainforests, open forests, and woodlands (DCCEEW 2001). It is highly social and can be found during the day roosting on branches in common areas (DEWNR 2020). These roosts are referred to as camps and can contain tens of thousands of bats; a single large tree can contain 100 to 1000 roosting bats. In recent years, due to anthropogenic impacts and climate change, the species has been migrating into urban environments setting up new permanent camps. In March – April mating occurs with males forming harems attracting multiple females (DEWNR 2020). After a six-month gestation period females give birth. Young are mother-dependent for four to five weeks, after which they are left in maternal camps with the females returning each morning to feed and care for the young. After 12 weeks the young have generally matured enough to become independent (DEWNR 2020).

Grey-headed Flying-foxes can be found as far north as Mackay and Bundaberg in Queensland heading south along the east coast, through Victoria to their most-southwestern population in South Australia. In South Australia there is one nationally important camp in Botanic Park, Adelaide, with some smaller camps establishing in the surrounding Adelaide Hills and as far as Port Augusta. The species is highly mobile, and its population is continuous throughout its range, with individuals frequently moving between camps.

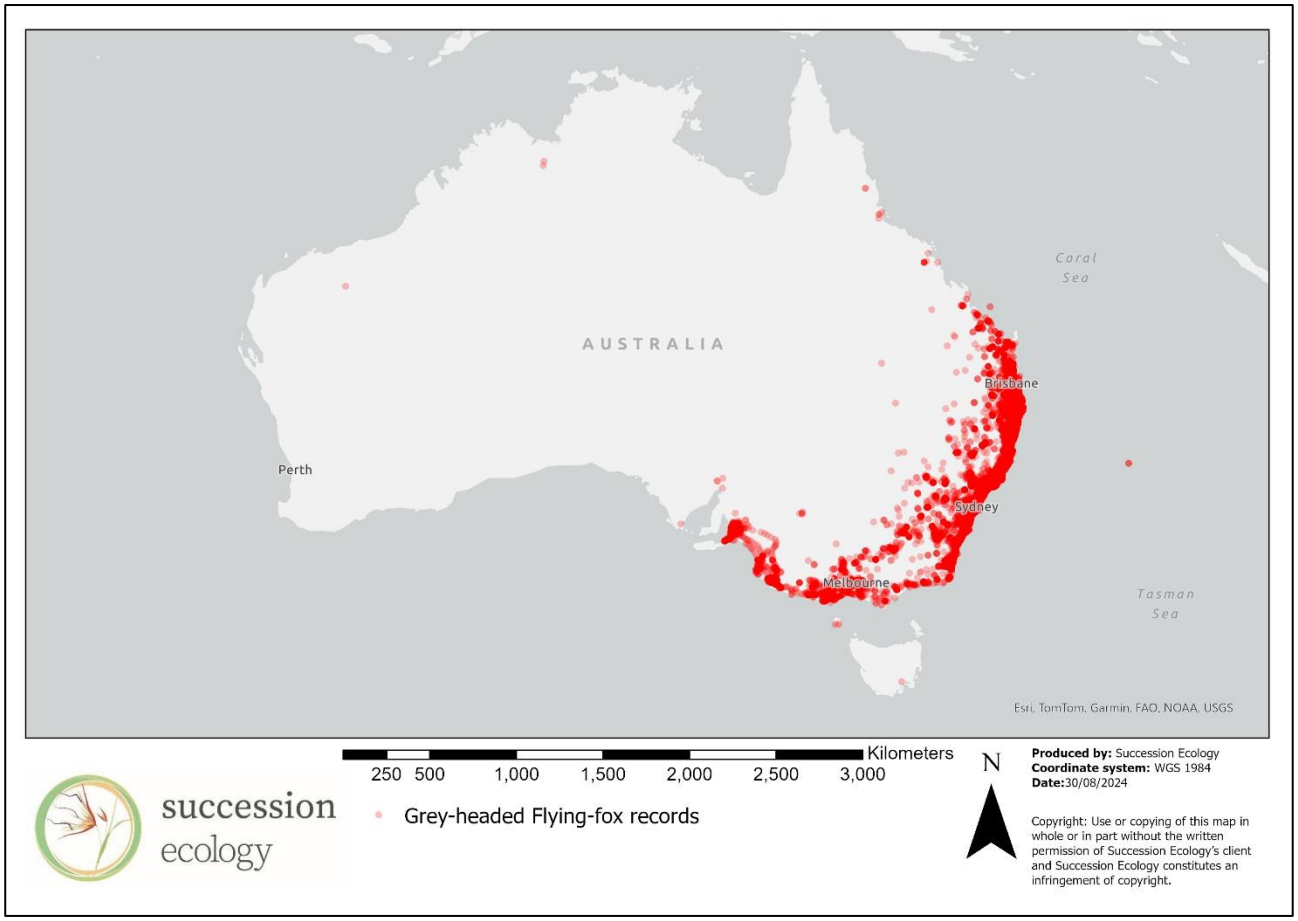

Figure 3: Grey-headed Flying-fox distribution. The red dots indicate an independent observation, the varying opacity is where dots overlap indicating higher density (source: Atlas of Living Australia, accessed on 30 August 2024.).

Threats

The species is threatened by habitat loss and fragmentation. Since European settlement, clearance of native vegetation has been significant across Australia, with much of it continuing (Boardman 2021). For this species the loss of camp locations and reliable winter and spring time foraging areas are of most concern, since much

of their preferred high output nectar species and potential camp locations have been cleared (Boardman 2021). Grey-headed Flying-fox are sensitive to environmental extremes, during times of stress the animal can abort and abandon juveniles (Boardman 2021). When temperatures exceed 38 °C GHFF can succumb to heat (Boardman 2021). Climate change threatens to increase the severity and duration of heat impacts, both in terms of the species reliable foraging habitat, but also directly causing mortality (Boardman 2021). The species also suffers from interactions with anthropogenic infrastructure, fruit netting, fencing, barbed wire, and electrical powerlines entangling the animal resulting in injuries, mortality and electrocution (Boardman 2021). Being a frugivore, the species is also at persecution from farmers who illegally shoot the animals to stop them from feeding on crops. The death of a mother can also cause dependent young to die from starvation.

Local populations

The species is not known to roost in the area. The closest large camp is located in Botanic Park, Adelaide and smaller sub-camps are found in the Adelaide Hills. However, the species can fly up to 40 km out from a camp each night in search of food. It is therefore possible, that individual GHFF would utilise the River Red Gums and South Australian Blue Gums on site as food resources. It is not likely, however, that GHFF use the site for roosting. Thus, any impacts to this species would only affect individual bats, rather than an important population.

4.4 Direct Impacts

The Principal has engaged consultants from multiple areas of expertise to identify risks to the project, and to implement mitigation measures to avoid impacts. The cellar door/winery production facility will be built adjacent to existing native vegetation, whereas the hotel will be built 100 – 150 m away from native vegetation. The Principal does not plan to remove any vegetation that has been identified as valuable habitat (Figure 2). The creekline where the majority of the native vegetation is located will have the invasive woody weeds removed, and will be rehabilitated to support native flora and fauna.

Direct impacts which have the potential to affect MNES from the proposed action include:

- Foraging habitat avoidance due to new infrastructure and human activity.
- Impacts from noise and light pollution during construction and operation.
- Impacts of dust to foraging vegetation during construction.
- Impacts from fruit netting covering the vines.

These listed impacts can be effectively avoided or mitigated and will have minimal to no impacts upon GHFF. Section 5 addresses the listed direct impacts against the mitigation hierarchy, providing management strategies and plans for implementation.

4.5 Indirect Impacts

Potential offsite and indirect impacts stemming from the proposed action are considered limited. The Principal is an experienced developer that has done their due diligence contacting consultants from all areas of expertise to identify all risks to avoid and mitigate them. The Principal has made it clear that no native vegetation is to be cleared on site and that the site is to be enhanced through rehabilitation works and pest species removal. Nevertheless, MNES could be indirectly impacted by the proposed action in the following ways:

- Invasion and spread of weeds and pest fauna species. During construction, disturbance to native vegetation, soil stockpiling, and exposing bare soil can allow for the introduction of invasive plant

species. Invasive plants have the potential to compete with mature plants and hinder recruitment of juvenile native vegetation. This would reduce flowering intensity, reducing food for GHFF. Environmental disturbance can encourage ecologically out of control native species such as *Manorina melanocephala* (Noisy Miner) and introduced invasives such as *Acridotheres tristis* (Common Myna) and *Sturnus vulgaris* (Common Starling) to nest and occupy previously unoccupied areas.

- Hydrological impacts – Reducing water flows along the ephemeral creek, which the Principal plans to rehabilitate, would reduce water availability for native species. Reducing water availability for native trees would place them under stress. Stressed trees will conserve their resources reducing flowering intensity, affecting food availability for GHFF and other nectarivores.
- Erosion – The ephemeral creekline cuts through erosional soils, from which the Principal plans to remove woody weeds. This must be done carefully to avoid accelerating erosion. The movement of soil can introduce weed species, increase sedimentation, and reduce the health of native vegetation downstream.
- Generation of noise and light – GHFF are sensitive to environmental stresses especially high-pitched short-duration loud noises. Bright light can cause significant stress. Stressors occurring during breeding, late pregnancy and on mother dependent young can compound with other stressors resulting in foetal abortion, juvenile abandonment, and reduce GHFF health.

The listed indirect impacts are general and will have no or insignificant impacts upon GHFF activity in the area. GHFF have habituated and are quite tolerant of anthropogenic activity. There are records of GHFF in the surrounding towns and nearby properties, which produce similar indirect impacts. These listed indirect impacts have been addressed in section 5 through the use of a mitigation hierarchy which lists mitigation and plans for implementation.

4.6 Negative facilitated impacts

No negative facilitate impacts are expected to derive from the proposed action. The Barossa Valley already receives high tourist visitation, within the local area there is a helicopter tour operator, homestays and other tourist accommodation, winery operations, cellar doors and a lavender farm. The Principal will rehabilitate the creekline which will reduce offsite sedimentation and dust impacts. Of the roads that provide access to the property, Menzel Rd is the only dirt road. The Principal has engaged with a traffic engineer to address traffic flow issues to avoid dust production. Additionally, as part of an Impact Assessed Development Process, the Principal will demonstrate in design through engagement with experts how impacts to air quality, noise/vibration, transport/traffic and visual impact will be avoided and mitigated to preserve amenity and environmental quality. The impacts from an increase in tourists, construction and operation of the cellar door, winery and hotel are not likely to have an impact on an important GHFF population. Section 5 addresses the mitigation hierarchy, which considers all potential impacts and provides a planning structure for mitigation implementation.

5 MITIGATION MEASURES

Actions to manage and mitigate environmental impacts are presented in this section, which incorporates current approved management actions and additional mitigation actions for the proposed action. These actions will be applied pre-construction and during the construction and operation phases of this development to reduce adverse impacts as much as practicable. It is acknowledged that the project design, and therefore mitigation actions, are currently at an early stage of design. They are therefore preliminary and will be further refined as the design is developed.

5.1 Management and Mitigation Measures to Avoid or Reduce Impacts

The mitigation hierarchy refers to a set of tiered management and mitigation measures implemented to avoid or reduce impacts from the proposed action to acceptable levels. They include, in order of importance: avoid, minimise, restore, and offset. A number of these measures can be implemented for the proposed action that fit within this hierarchy to assist with reducing on-ground impacts to any MNES to within acceptable levels, as far as practicable. As part of the approvals process for the proposed action, a suite of environmental management plans have been or will be developed outlining environmental management actions that will be applied to assist in impact avoidance or mitigation. These are likely to include:

- Construction Environmental Management Plan (CEMP)
- Operation Environmental Management Plan (OEMP)
- Sediment Erosion and Deposition Management Plan (SEDMP)
- Weed Management Plan (WMP)
- Restoration Management Plan (RMP)

Table 9: Management and mitigation measures to be enacted to avoid and reduce impacts on MNES.

Mitigation Hierarchy	Management and Mitigation Measures	Instrument
Avoid	Avoid impacts to native vegetation through restricting development and maintenance to areas of already cleared farmland. This will retain as much foraging resources as possible.	CEMP, OEMP
	Avoid any significant clearing of tree crowns beyond that which is assessed as required for safety by a qualified arborist. This will maintain guest and staff safety, while ensuring the health of the trees.	CEMP, OEMP
	Avoid directing bright lights into trees that are considered valuable foraging habitat. This will avoid imposing unnecessary stress on foraging GHFF.	CEMP, OEMP
	Avoid construction works which produce bright light or high-pitched noise and vibration between dusk and dawn to avoid impacts on foraging GHFF.	CEMP
Minimise	Dust production will be minimised in line with standard management protocols, to be outlined in the in the CEMP. Dust and airborne particulate accumulation on vegetation can adversely affect GHFF health and affect their foraging success. If dust production is expected to be high, dust suppression measures (wetting soil, covering soil piles, covering truck loads) can be implemented to reduce dust deposition.	CEMP
	Implement operational noise limits outside between dusk and dawn to minimise the effects of noise on foraging GHFF.	OEMP

Mitigation Hierarchy	Management and Mitigation Measures	Instrument
Restore	The Principal aims to remove all woody weeds from the creekline and rehabilitate with native vegetation, which will ameliorate and improve the amenity and ecological value of the site.	OEMP, RMP, WMP, SEDMP
Offset	No vegetation will be impacted on site and will instead be rehabilitated to restore amenity and ecological value. Impacts to GHFF are expected to be minimal and will not require an offset.	N/A

6 SIGNIFICANT IMPACT ASSESSMENT

6.1 Impacts to Threatened Species (under *Significant Impact Guidelines 1.1*)

Only one MNES, Grey-headed Flying-fox (*Pteropus poliocephalus*; GHFF) qualified for the Significant Impact Assessment (SIA) based on being assessed as 'possible' in the likelihood of impacts assessment. All other MNES were assessed as 'unlikely' to sustain impacts from the proposed action and are therefore excluded from the Significant Impact Assessment.

6.1.1 Significant Impact Assessment

To assist in the assessment of a significant impact, the Significant Impact Guidelines 1.1 (DCCEEW 2013a) provide assessment criteria against which to assess impacts for each MNES. The SIA is conducted in consideration of all mitigation actions. The SIA considers impacts as provided within the Significant Impact Guidelines 1.1 (DCCEEW 2013a), including:

- the sensitivity of the environment that will be impacted
- the timing, duration and frequency of the action and its impacts
- all on-site and off-site impacts
- all direct and indirect impacts
- the total impact which can be attributed to the action over the entire geographic area affected, and over time
- existing levels of impact from other sources, and
- the degree of confidence with which the impacts of the action are known and understood

The SIA criteria refer to "important populations" and "Habitat critical for the survival of the species". These terms are defined in the Significant Impact Guidelines as:

An "important population" is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or are:

- Key source populations either for breeding or dispersal
- Populations that are necessary for maintaining genetic diversity
- Populations that are near the limit of the species range

"Habitat critical to the survival of a species" refers to areas that are necessary:

- For activities such as foraging, breeding, roosting or dispersal
- For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- To maintain genetic diversity and long-term evolutionary development
- For the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to, identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community, or listed on the Register of Critical Habitat maintained by the minister under the *EPBC Act*.

Table 10: Significant Impact Assessment for Vulnerable Species in the proposed action.

Criterion	*Pteropus poliocephalus* (Grey-headed Flying-fox; GHFF)
Lead to a long-term decrease in the size of an important population of a species	**No.** Although it is likely that GHFF is present in the general area, any population that does occur would not be considered an important population for this species. Known occurrences are not at the edge of its range, and given the scarcity of records in the region, the local population is unlikely to form a key source population. Furthermore, there will be no direct impacts to suitable habitat. The proposed action is therefore unlikely to lead to a decrease in an important population.
Reduce the area of occupancy of an important population	**No.** The proposed action will not clear any vegetation on site and will rehabilitate areas currently infested by Weeds of National Significance, Declared Plants and environmental weeds. The closest important population is in the Adelaide CBD. The site of the proposed action is at the limit of Adelaide-based GHFF's foraging range. Therefore, the proposed action is therefore unlikely to reduce the area of occupancy of an important population.
Fragment an existing important population into two or more populations	**No.** GHFF are considered one continuous nationwide population from Queensland to South Australia. The species is tolerant and known to habituate to anthropogenic activity. The proposed action will not fragment an important population.
Adversely affect habitat critical to the survival of a species	**No.** Limited habitat for GHFF is present in the form of large remnant trees, which may be used for foraging. The trees on site are very unlikely to form critical habitat for the species. There will be no direct impacts to the trees, and therefore no direct impact on the species.
Disrupt the breeding cycle of an important population	**No.** Construction and operation of proposed action will not inflict serious stress on breeding GHFF. GHFF would only use the site for foraging, not for breeding. As such, there is no risk of disrupting the breeding cycle of an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No.** No native vegetation is to be cleared or modified in a way that would reduce available habitat for the species. The Principal will rehabilitate weed-infested areas on site, resulting in an improvement in available habitat.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No.** It is considered unlikely that proposed action will cause invasive species to become established in the habitat. Weed and pest hygiene measures and weed management and native vegetation rehabilitation works will be employed to avoid infestation and the Principal will control invasive species already present on site.
Introduce disease that may cause the species to decline, or	**No.** It is considered unlikely that proposed works will introduce disease in this species. Hygiene measures will be implemented to prevent the introduction of any foreign soil or other disease-causing agents.
Interfere substantially with the recovery of the species	**No.** There are very limited to no impacts that will stem from the proposed action. Therefore, the proposed action will not interfere substantially with the recovery of the species.

6.1.2 Significant Impact Results

The identified potential impacts will not impact an important population of Grey-headed Flying-fox as defined in the *'Significant Impact Guidelines 1.1',* and are unlikely to have an impact upon individual GHFF. Grey-headed Flying-fox can be tolerant of humans and habituated to their presence. The likelihood that the proposed action will affect GHFF is low, especially during the operation phase.

In consideration of all assessment results and the mitigation actions recommended to be implemented, it is **unlikely** that there is a "real chance or possibility" for a Significant Impact (as defined by Department of Environment, 2013) to the MNES listed.

7 DISCUSSION & RECOMMENDATIONS

As discussed above, if a proposed action is deemed to have a Significant Impact on a MNES, a referral is required under the *EPBC Act*. In consideration of all mitigation actions and the Significant Impact Assessment, it is **unlikely** that significant impacts will be caused during the construction or operation phases of the Southern Barossa Winery and Tourist Accommodation Project. This assessment assumes that the mitigation actions will be outlined in one or more environmental management plans, which have been or will be developed. They include:

- Construction Environmental Management Plan (CEMP)
- Operation Environmental Management Plan (OEMP)
- Sediment Erosion and Deposition Management Plan (SEDMP)
- Weed Management Plan (WMP)
- Restoration Management Plan (RMP)

It is acknowledged that the design for the development is at an early stage. This self-assessment should be revised as the design approaches finalisation to reflect any changes to footprint, activities, operations, or mitigation actions.

7.1 Referral Requirement for the Southern Barossa Winery and Tourist Accommodation project

Results from this assessment indicate that the current proposed action for the Southern Barossa Winery and Tourist Accommodation Project **will not require** a Referral under the *EPBC Act 1999*. This is in light of the assessment that there will be no impacts to an important Grey-headed Flying-fox population. When considering potential impacts to individual GHFF, these would be minimal, easily avoided, and mitigated by approved and recommended actions. These mitigation actions will be incorporated into a CEMP, OEMP, RMP, WMP and SEDMP. This self-assessment has been done as part of the Principal's due diligence to ensure that there will be no impact on MNES during the construction and operation stages of the Proposed Action.

7.2 Further Investigations Recommended

At this stage no further on-ground or desktop investigations are required.

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APPENDIX A – SIGNIFICANT IMPACT CRITERIA

Significant Impact Criteria – Critically Endangered or Endangered Species

Significant Impact Guidelines 1.1 (DCCEEW 2013a)*, page 9*

With regards to criteria for threatened species, a proposed action is likely to have a Significant Impact on a Critically Endangered or Endangered species if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of a population
- Reduce the area of occupancy of the species
- Fragment an existing population into two or more populations
- Adversely affect habitat critical to the survival of a species
- Disrupt the breeding cycle of a population
- Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- Introduce disease that may cause the species to decline, or
- Interfere with the recovery of the species.

Significant Impact Criteria – Vulnerable Species

Significant Impact Guidelines 1.1 (DCCEEW 2013a)*, page 10*

With regards to criteria for a Vulnerable species, an action is likely to have a Significant Impact if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population of a species
- reduce the area of occupancy of an important population
- fragment an existing important population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of an important population
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

Significant Impact Criteria – Critically Endangered or Endangered Ecological Community

Significant Impact Guidelines 1.1 (DCCEEW 2013a)*, page 11*

With regards to criteria for Critically Endangered or Endangered ecological communities, an action is likely to have a Significant Impact if there is a real chance or possibility that it will:

- Reduce the extent of an ecological community
- Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines
- Adversely affect habitat critical to the survival of an ecological community

- Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns
- Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting
- Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
    - assisting invasive species, that are harmful to the listed ecological community, to become established, or
    - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
- interfere with the recovery of an ecological community.

Significant Impact Criteria – Listed Migratory Species

Significant Impact Guidelines 1.1 (DCCEEW 2013a)*, page 12*

With regards to criteria for migratory species, an action is likely to have a Significant Impact on a listed migratory species if there is a real chance or possibility that it will:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Significant Impact Criteria – Wetlands of International Importance

Significant Impact Guidelines 1.1 (DCCEEW 2013a)*, page 13*

With regards to criteria for wetlands of international importance, an action is likely to have a Significant Impact on a listed migratory species if there is a real chance or possibility that it will result in:

- areas of the wetland being destroyed or substantially modified
- a substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependant upon the wetland being seriously affected
- a substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.

Similar criteria are provided for Commonwealth Marine Areas, National Heritage Places, World Heritage Places, Nuclear Actions, Great Barrier Reef Marine Park and Protection of Water Resources from Coal Seam Gas and Large Coal Mining Development (DCCEEW 2013a).

APPENDIX B - HISTORICAL AERIAL IMAGERY

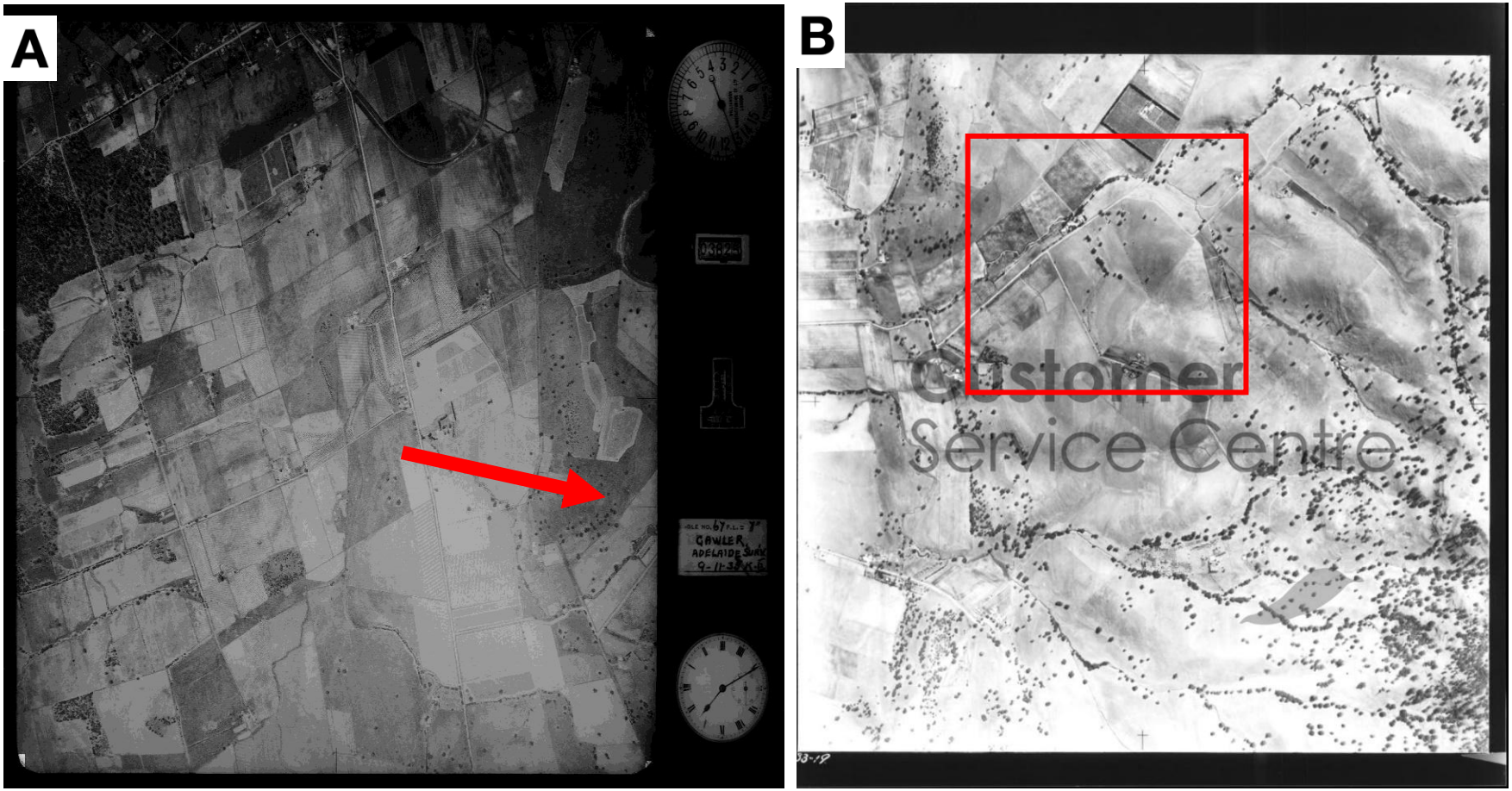

Figure 4: Historical aerial imagery of the project area. A) Image from 1935, in which the project area is a few hundred meters out of view, in the direction of the arrow. Nevertheless, the extent of clearance that had already occurred is evident. B) Image from 1949, showing the cleared site, with only the remnant River Red Gums remaining. It can be inferred that the site was cleared by 1949. Images sourced in 2024 from: https://apps.environment.sa.gov.au/MapFinder/

APPENDIX C – MNES SEARCH RESULTS

succession
ecology

Succession Ecology Pty. Ltd.

ABN: 56 605 880 028

1/938 South Road
Edwardstown, SA 5039

Ph: 08 8166 2648

admin@successionecology.com.au

www.successionecology.com.au