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Environmental Consulting

Native Vegetation Clearance Data Report

Hart Lagoon Stormwater Retention Basin

Clearance under the *Native Vegetation Regulations 2017*

15/10/22

Prepared by Sheree Bowman

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Environmental Consulting

1. Application information

Application Details

Applicant:	Loxton Waikerie District Council		
Key contact:	[redacted]		
Landowner:	The Crown		
Site Address:	LOT 2 Peake Terrace, Waikerie & an adjoining road reserve area.		
Local Government Area:	Loxton Waikerie	Hundred:	Waikerie
Title ID:	D34467 A2	Parcel ID	CR/5442/504

Summary of proposed clearance

Purpose of clearance	Clearance required for the construction of stormwater retention basin.
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure
Description of the vegetation under application	A1 – 1.03 Ha *Open shrubland with emergent Eucalyptus largiflorens* B1 - 0.96 Ha *Duma florulenta* shrublands with emergent *Eucalyptus camaldulensis, Eucalyptus largiflorens* and *Acacia stenophylla* 2 x *Eucalyptus largiflorens* (scattered trees)
Total proposed clearance - area (ha) and number of trees	1.99 ha of native vegetation and 2 scattered trees are proposed to be cleared.
Level of clearance	Level 4
Overlay (Planning and Design Code)	Native Vegetation Overlay only

Map of proposed clearance area

Mitigation hierarchy	Avoidance: Native vegetation clearance could not be avoided as part of this development. Minimization: A preliminary native vegetation assessment was undertaken in November 2021, to discuss options for minimizing native vegetation clearance across the whole site. A preliminary report was provided to the applicant with recommendations. Below are the recommendations which were adopted by the council in full (refer to an excerpt from the report in the 4.4: Address the Mitigation Hierarchy section). Rehabilitation or restoration: The applicant will establish locally indigenous native vegetation species after clearance has occurred. This will be undertaken in the areas surrounding the ponds, as well as establishing riparian and submerged plant species as part of this development (filtration area). Refer to the plans for specific details – Appendix 2. Offset: The applicant plans to pay into the Native Vegetation Fund to address the SEB offset associated with this proposal.
SEB Offset proposal	Payment: $42,622.10 (no GST) plus admin fee $2,345.22 (incl GST) = $44,967.32

2. Purpose of clearance

2.1 Description

The proposed clearance is incidental to the construction of a stormwater retention basin (Hart Lagoon Basin).

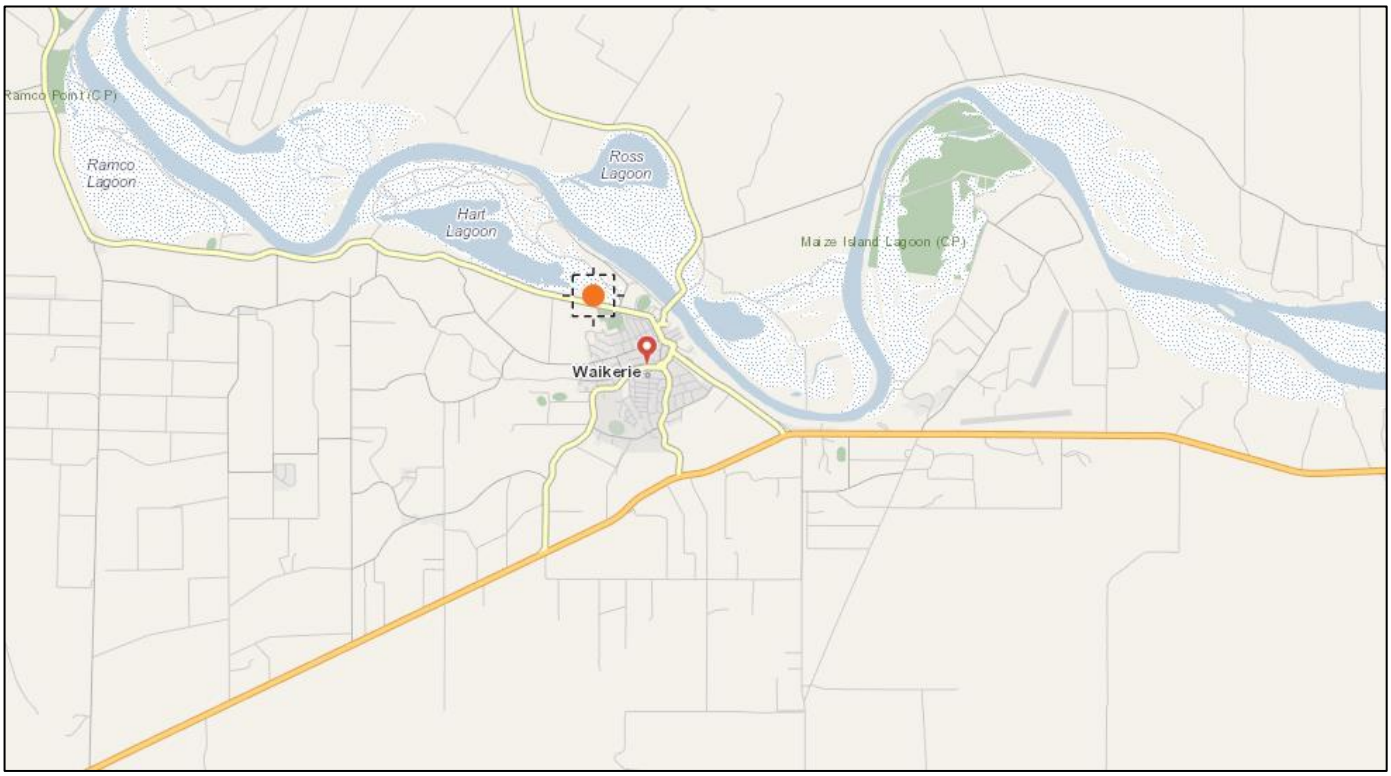
2.2 Background

The site is located within the township of Waikerie, in the Riverland South Australia. The site is currently unmanaged and includes an area of old sewage disposal ponds. It is neighbouring areas of degraded native vegetation; with patches of old revegetation. The site is adjoining the sports oval and other recreational areas, of which are being upgraded as part of the Waikerie Waterfront Complex.

The primary function of the Hart Lagoon basin is to capture stormwater in a growing township and treat and reuse the water to irrigate the football oval and riverfront area. Currently stormwater is running from outdated infrastructure into the area where native vegetation is present, with no form of filtration, or management. The stormwater is nutrient rich and contains pathogens and pollution, and therefore requires monitoring and appropriate treatment for the corresponding selected method of irrigation. The level of treatment required is typically dependent on the desired use of the recycled stormwater. For the captured stormwater to be reused for irrigation at these public spaces, the use falls under the requirements for 'Unrestricted Access.' Water quality criteria must be met before the water can be used in the irrigation network. Prior to distribution of harvested stormwater, a mechanical treatment station will be required. Water is to be pumped from the basin, through filtration and followed by UV disinfection before being stored in a tank ready for irrigation.

Secondary, the Hart Lagoon Basin will be utilised as a recreational area, with a walking trail weaved around the perimeter of the basin and planted with local indigenous plant species. Part of the water filtration process will involve natural sedimentation and filtration by an area in the basin planted to locally indigenous riparian and sub-merged plant species. Advice has been provided on appropriate plant species for the landscaping as well as the natural filtration area.

2.3 General location map



2.4 Details of the proposal – Design Plans in Appendix 2.

2.5 Approvals <u>required</u> *or* <u>obtained</u>

- Native Vegetation Act 1991 (application here-in)
- Planning, Development and Infrastructure Act 2016 (Possible Development Application)
- Landscapes SA Act 2019 (Potential Water Affecting Activity)
- Crown Lands Approvals (incl. Native Title)
- Crown Lands License amendment – application submitted

2.6 Native Vegetation Regulation

Regulation 12, Schedule 1; clause 34, Infrastructure

2.7 Development Application information

<u>Zones</u>
Conservation - Con
Rural - Ru

<u>Relevant Overlays</u>
Native Vegetation
- The Native Vegetation Overlay seeks to protect, retain and restore areas of native vegetation.

3. Method

3.1 Flora assessment

The preliminary native vegetation assessment was undertaken by Sheree Bowman (Native Vegetation Accredited Consultant) on the 4th of November 2021 and a final assessment on the 29th of June 2022, with approximately 5 hours spent on site in total. The Scattered Tree Assessment Methodology and Bushland Assessment Methodology was undertaken as detailed in the Native Vegetation Council Bushland Assessment Manual (Feb 2017) approved by the Native Vegetation Management Group of the Department for Environment and Water. 2 scattered trees were assessed as directed on site by the project manager and 1.99 ha of native vegetation. A Level 4 assessment was completed due to the size of the proposed native vegetation clearance footprint and nature of the application.

Calibrated field assessment techniques were used to undertake the assessment. Plant specimens were collected where required for further identification. A GPS with +/- 5m accuracy, field maps and ContextCam® were used to record photo point locations. A laser height clinometer and diameter tape were used to measure height and diameter accurately.

A pre-field desktop assessment was undertaken utilizing searches for the presence of flora species listed under the National Parks and Wildlife Act 1972 (SA) and the Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth). The following databases were queried for flora records in and around the surrounding area - EPBC Act Protected Matters Search Tool, Biological Database of South Australia, and Atlas of Living Australia.

3.2 Fauna assessment

A fauna assessment was conducted by Phil Barron from Barron Environmental, on the 23rd of February 2022. A 2-hour, one-off threatened fauna survey of the stormwater management project site (immediately NE of the intersection of Peake Rd and Leonard Norman Drive, east of Hart Lagoon) and immediate surrounding area, from approximately 7.30am. This was to detect any fauna species recorded in a database search of the area and assess the nature and condition of the habitat for relative suitability and risk to these species. The survey involved systematically walking around the site, depending on accessibility and vegetation density, conducting a stop-start/visual and auditory search, including listening for calls and using binoculars and telescope for supporting visual searching of the habitat. Conditions were good for surveying, being cool to mild, clear sky and calm to gentle winds

A pre-field desktop assessment was undertaken utilizing searches for the presence of fauna species listed under the National Parks and Wildlife Act 1972 (SA) and the Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth). The following databases were queried for fauna records since 1995 and within 5km's of the proposed clearance site - EPBC Act Protected Matters Search Tool, Biological Database of South Australia, and Atlas of Living Australia. Refer to Appendix 3 for detailed observations from the Fauna Assessment.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The area forms part of the Upper Murray Valley Land System. This land system is a complex landscape of wetlands and older terraces, with slopes and cliffs running up to the adjacent highlands. The soils are highly variable depending on the nature of the alluvium (on flats), or the older material exposed (on slopes) by the downcutting of the river. The wetlands and low terraces are little used for primary production but have high conservation and recreation value. The higher terraces dominated by medium to fine textured soils are commonly used for horticultural irrigation. The slopes with a range of sandy, to sandy loam soils over highly calcareous subsoils are also widely used for horticulture, except where they are too steep and / or eroded.

The site is located less than 500m to the River Murray and is situated within the River Murray Protection Area and the 1956 Flood Extent line. It adjoins recreational areas (sports oval and facilities and the riverfront complex and, also adjoins the Hart Lagoon site (230 hectares) which is a site of local biodiversity significance.

The site is degraded in nature, with all the vegetation disturbed by human interference for many years, with the western area used previously for sewages management. Vegetation has begun to establish in these areas; however, the soil structure and quality is very poor, which is impacting the regenerative ability of the area. There is some revegetation which has taken place across the site, some species which are not locally suitable.

There are two main areas which do not have native vegetation (protected under the Act) present, which are indicated on Map 2. Please refer to photographs below.


DIRECTION
SW (T)
405869 6217957
ACCURACY 5 m
DATUM GDA2020
2022-06-29
10:33:35+09:30


DIRECTION
E (T)
405841 6217949
ACCURACY 5 m
DATUM GDA2020
2022-06-29
10:35:18+09:30


DIRECTION
N (T)
406024 6217938
ACCURACY 5 m
DATUM GDA94
2021-11-04
11:49:42+10:30


DIRECTION
N (T)
406029 6217900
ACCURACY 5 m
DATUM GDA94
2021-11-04
12:30:29+10:30

Details of the vegetation associations and scattered trees proposed to be impacted

Vegetation Association	A1: Open shrubland with emergent *Eucalyptus largiflorens*

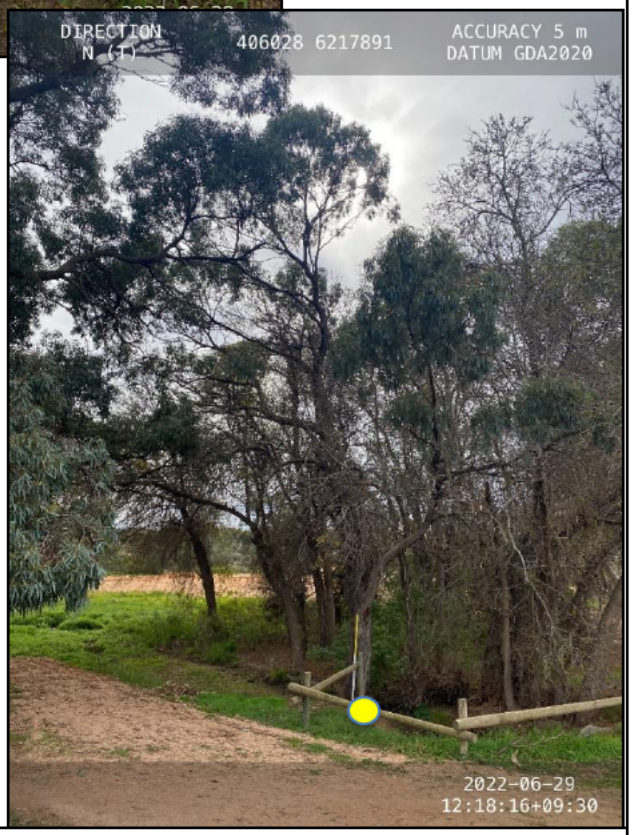
General description	The site is disturbed and dominated by colonizing plants. The site has been historically used as a sewage pond and the soil is in very poor condition. There are planted *Eucalyptus largiflorens* present on the site, as well as emergent *Eucalyptus largiflorens* trees.
Threatened species or community	No threatened flora or fauna under the NP&W Act or EPBC Act listed species or community observed.

Landscape context score	1.12	Vegetation Condition Score	39.73	Conservation significance score	1.00
Unit biodiversity Score	44.50	Area (ha)	1.03	Total biodiversity Score	45.83

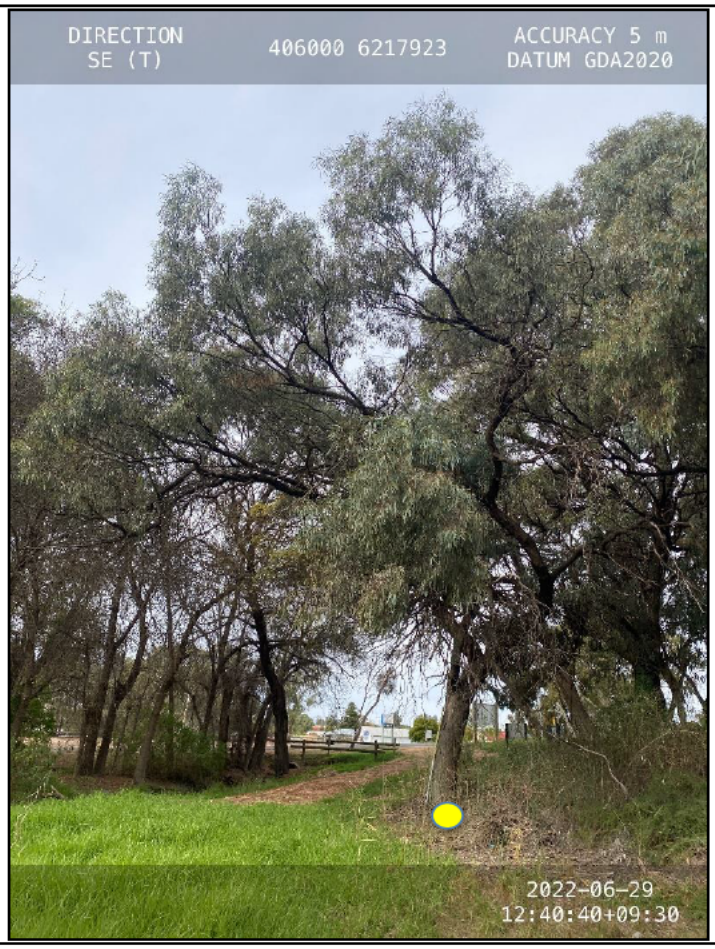
Vegetation Association	B1: *Duma florulenta* shrublands with emergent *Eucalyptus camaldulensis, Eucalyptus largiflorens* and *Acacia stenophylla*

General description	The vegetation is B1 is patchy across the site, dominated by *Duma florulenta*, with emergent *Eucalyptus camaldulensis* and *Eucalyptus largiflorens*. The understorey is degraded and interspersed with planted vegetation i.e., *Atriplex nummularia*.				
Threatened species or community	No threatened flora or fauna under the NP&W Act or EPBC Act listed species or community observed.				
Landscape context score	1.14	Vegetation Condition Score	62.38	Conservation significance score	1.10
Unit biodiversity Score	71.12	Area (ha)	0.96	Total biodiversity Score	68.27

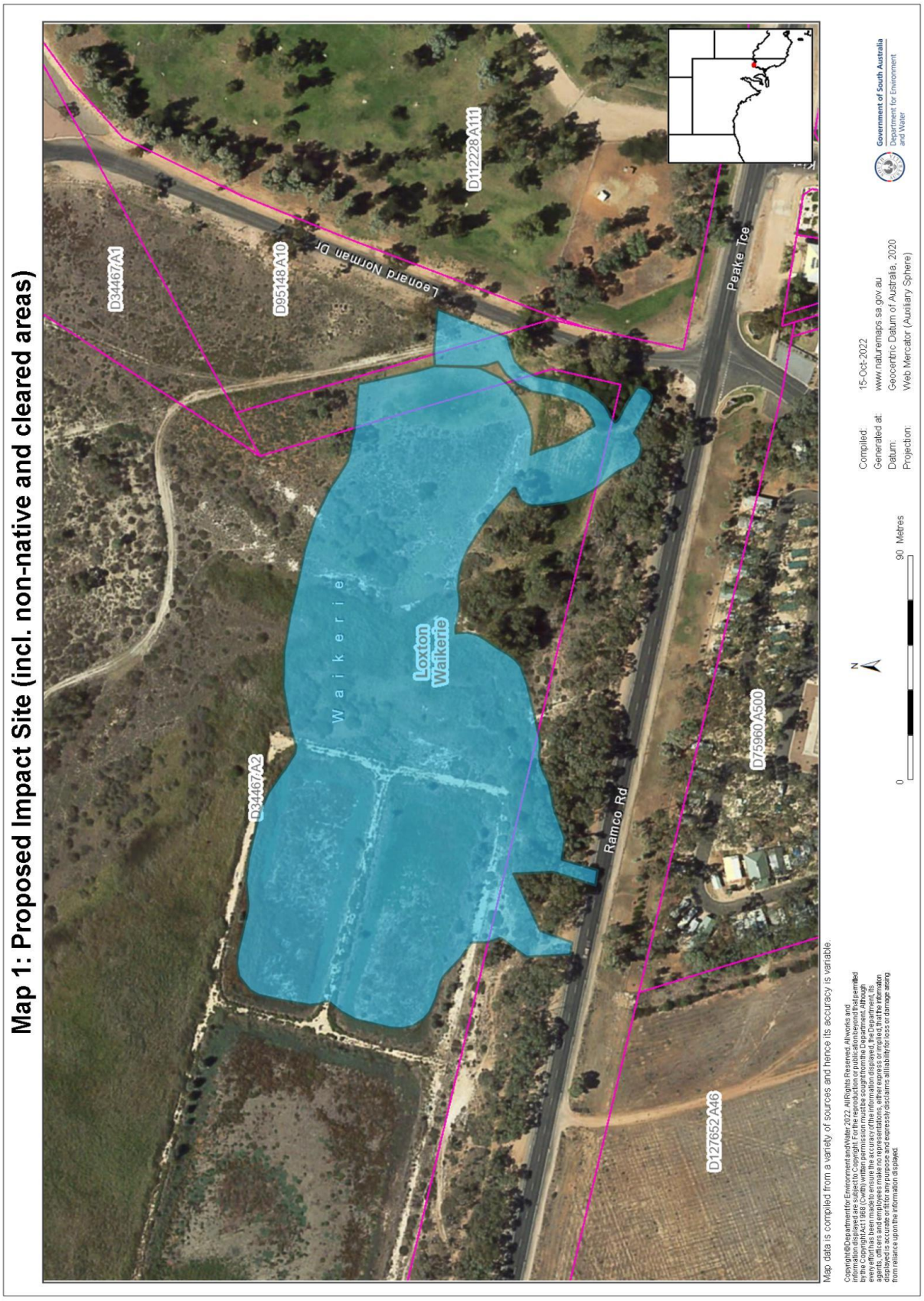
Tree ID – Tree 1
Tree spp. *Eucalyptus largiflorens*
Number of trees – 1
Height (m) – 12.2
Hollows – 0
Diameter (cm) – 55
Canopy dieback (%) – 5
Total Biodiversity Score – 2.19

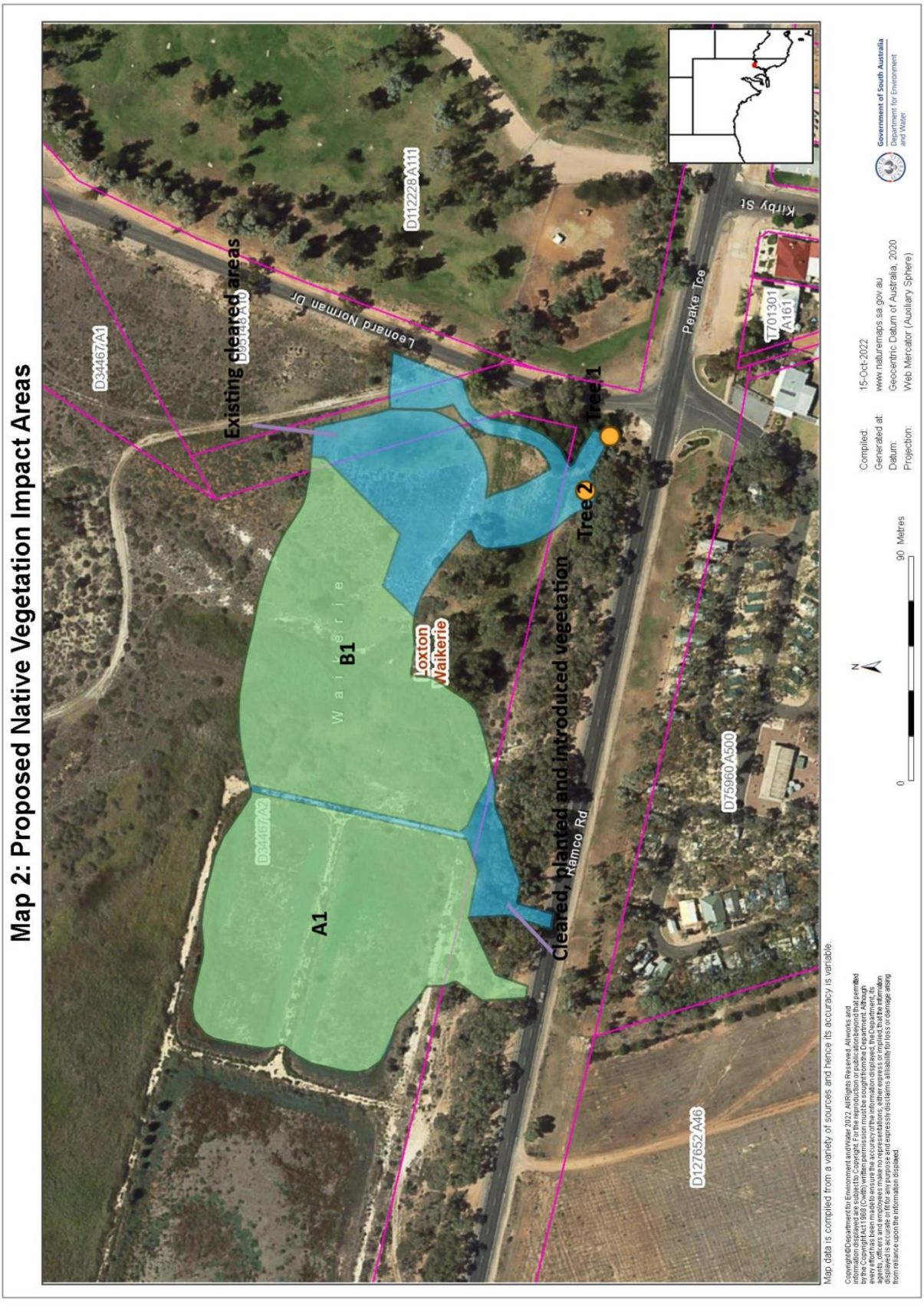


Tree 1 and 2 are in good condition with valuable habitat for common species in the area. Limited habitat for threatened species known to inhabit the local area i.e., Regent Parrots. Refer to the threatened species assessment for further information. Tree 1 is occurring in a stormwater outfall which is dominated by Ash trees.

Tree ID – Tree 2 Tree spp. *Eucalyptus largiflorens* Number of trees – 1 Height (m) – 13.1 Hollows – 0 Hollows observed Diameter (cm) – 52 Canopy dieback (%) – 5 Total Biodiversity Score – 2.26	
Trees 1 and 2 are in good condition with valuable habitat for common species in the area. Limited habitat for threatened species known to inhabit the local area i.e., Regent Parrots. Refer to the threatened species assessment for further information.	

<u>Site map</u> showing areas of proposed impact




Map 2: Proposed Native Vegetation Impact Areas
D3446?A1
D112228A111
Existing cleared areas
D85148A10
Leonard Norman Dr
Peake Tce
Kirby St
T701301
A161
Tree 1
Tree 2
Loxton
Waikerie
B1
A1
D3446?A2
Cleared, planted and introduced vegetation
Remco Rd
D75960A500
D127652A46
0
90 Metres
N
Compiled: 15-Oct-2022
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 2020
Projection: Web Mercator (Auxiliary Sphere)
Government of South Australia
Department for Environment and Water
Map data is compiled from a variety of sources and hence its accuracy is variable.
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4.2 Threatened Species assessment

Refer to Appendix C for detailed information regarding the fauna assessment.

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

Species (common name)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Litoria raniformis (Southern Bellfrog)	V	VU	3	30-Nov-2010	Adults are usually found close to or in water or very wet areas in woodlands, shrublands, and open and disturbed areas. Eggs and tadpoles can be found in permanent lakes, swamps, dams, and lagoons with still water.	Unlikely - Inappropriate habitat.
Actitis hypoleucos (Common Sandpiper)	R		3	21-Oct-2010	Found in coastal or inland wetlands, both saline and fresh. It is found mainly on muddy edges or rocky shores.	Unlikely - Inappropriate habitat.
Anhinga novaehollandiae (Australasian Darter)	R		3	11-May-2017	Habitat is wetlands and sheltered coastal waters. It prefers smooth, open waters, for feeding, with tree trunks, branches, stumps, or posts fringing the water, for resting and drying its wings. Most often seen inland, around permanent, and temporary water bodies at least half a metre deep. It requires waters with sparse vegetation that allow it to swim and dive easily. It builds its nests in trees standing in water and will move	Unlikely – the vegetation impacted is unlikely to provide valuable habitat for this species.

					to deeper waters if the waters begin to dry up.	
Ardea intermedia plumifera (Plumed Egret)	R		3	24-Nov-2014	Prefers freshwater swamps, billabongs, floodplains, and wet grasslands with dense aquatic vegetation, and is only occasionally seen in estuarine or intertidal habitats.	Unlikely - Inappropriate habitat.
Biziura lobata menziesi (Musk Duck)	R		3	18-Apr-2016	Musk Ducks tend to be found in deep freshwater lagoons, with dense reed beds.	Unlikely - Inappropriate habitat.
*Cereopsis novaehollandiae (*Cape Barren Goose)	R		3	11-May-2017	Found on offshore islands, usually granite, in areas of pasture, tussock grass or low heathy scrub. During the summer, the non-breeding geese generally leave the islands for the mainland where they feed on improved pasture. Also introduced populations locally.	Unlikely - Inappropriate habitat.
Cladorhynchus leucocephalus (Banded Stilt)	V		3	24-Aug-2017	Banded Stilts are found mainly in saline and hypersaline (very salty) waters of the inland and coast, typically large, open, and shallow.	Unlikely - Inappropriate habitat.
Falco peregrinus Macropus (Peregrine Falcon)	R		3	03-Jun-2006	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water	Unlikely - Inappropriate habitat.

					and may even be found nesting on high city buildings.	
Hieraaetus morphnoides (Little Eagle)	V		3	15-Dec-2011	The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone.	Possible- 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
Melanodryas cucullata (Hooded Robin)	R		3	13-Nov-2004	Hooded Robins are found in lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	Unlikely – Inappropriate habitat
Podiceps cristatus australis (Great Crested Grebe)	R		3	14-Mar-2016	Favouring large deep open bodies of freshwater, the Great Crested Grebe is most commonly found inhabiting rivers, lagoons, lakes, swamps, reservoirs, saltfields, estuaries and bays.	Unlikely – Inappropriate habitat.
Polytelis anthopeplus monarchoides (Regent Parrot)	V		3	20-Apr-2013	Habitat comprises River Red Gum and sometimes Black Box communities for nesting, and large diverse blocks of mallee woodland for feeding. Nest trees are usually located within proximity to water but variable up to 200 metres from water and within 20 km of mallee foraging habitat. Non-breeding adults and immature birds rely on	Negligible feeding value, otherwise, not suitable

					areas of mallee away from the Murray River floodplain throughout the year.	
Spatula rhynchotis (Australasian Shoveler)	R		3	24-Aug-2017	Found in all kinds of wetlands, preferring large undisturbed heavily vegetated freshwater swamps. It is also found on open waters and occasionally along the coast.	Unlikely - Inappropriate habitat.
Stictonetta naevosa (Freckled Duck)	V		3	11-May-2017	Prefers permanent freshwater swamps and creeks with heavy growth of bullrushes, lignum or tea-tree. During drier times, the Freckled Duck moves from ephemeral (not permanent) breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewerage ponds. They generally rest in dense cover.	Unlikely - Inappropriate habitat.
Zapornia tabuensis (Spotless Crake)	R		3	16-Oct-2007	Inhabit the margins of well vegetated saline, brackish freshwater or wetlands, swamps, estuaries, saltmarsh lagoons, billabongs, and sewage ponds, and where they can usually remain hidden among dense shrubs, grass, or thickets, though they are sometimes seen out in the open on areas of bare mud.	Unlikely - Negligible value – too small and better habitat to the west
Morelia spilota (Carpet Python)	R		3	01-Jan-2005	Often associated with River Red Gum habitat but can also be found in rocky areas and	Negligible feeding value, otherwise, not suitable

					other habitats. They are known to sometimes shelter in roof spaces and pump houses.	
Calidris ferruginea (Curlew Sandpiper)		CR	5	-	Found on intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams, and floodwaters.	Unlikely – Inappropriate habitat
Leipoa ocellata (Malleefowl)	V	VU	5	-	Mallee vegetation with a thick layer of leaf litter.	Unlikely – Inappropriate habitat
Manorina melanotis (Black-eared Miner)		E	5	-	The Black-eared Miner is restricted to patches of vegetation that have remained unburned for over 40 years, so fire is a key threat to the species. They mostly inhabit large patches of remnant mallee vegetation, but these habitats have been largely lost and fragmented since 1950.	Unlikely - Inappropriate habitat
Trichosurus vulpecula (Common Brushtail Possum)	R		3	15-Nov-2004	Occur in a wide variety of habitats such as woodland, dry eucalypt forest, pine plantations, savanna, cultivated areas, rural gardens, suburban and urban areas.	Negligible value – too small and better habitat nearby
Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others 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 provides 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 provides 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.

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.

The native vegetation impacts that have been included in this proposal, include all direct and indirect impacts. On the converse, the fauna species inhabiting this area and surrounds, will likely benefit from this development, in terms of habitat construction and rehabilitation of defunct sewage ponds.

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

Native vegetation clearance could not be avoided as part of this development.

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).

A preliminary native vegetation assessment was undertaken in November 2021, to assess the site and discuss options for minimizing native vegetation clearance incidental to this development. Following the site visit, a report was provided to the applicant with recommendations. Below is an excerpt of the report with a summary of the recommendations provided to the applicant. These recommendations were adopted in full by the applicant.

Recommendations/ Considerations:

Proposed carpark location: During the field assessment, the proposed carpark site was inspected (Photo 1). Much of this site is native vegetation protected under the Native Vegetation Act 1991. There is planted vegetation present – consisting of scattered plants and close to the existing track. To avoid and minimize native vegetation clearance, an alternative location could be considered with appropriate engineering considerations (refer photos below):

- Utilise the area immediately to the South which has been previously cleared and is likely to be a set down area for the construction of the project. Some minor clearance of exotic vegetation could be undertaken to increase the area available.
- Utilise parking areas on the adjoining roadside area on Leonard Norman Drive, which is devoid of native vegetation.

Figure 2: Reference photographs showing potential areas for the carpark location.

Proposed pathway: To minimize clearance of vegetation, and where possible align paths to existing trails. There is an existing trail which, with some maintenance could be improved to provide access from the proposed trail around the perimeter of the stormwater ponds to the existing trail to the north. An alternative alignment could be easily ground-truthed on site.

Habitat considerations: In addition to avoiding and minimizing native vegetation clearance where possible. It will also be important to further retain valuable habitat where possible. Measures including retaining medium and large trees, retaining fallen timber/ logs for habitat adjoining the site and carefully timed native vegetation clearance activities to minimize impacts to fauna.

Placement of 'Fill': An option being considered by council, is to place the fill in the areas that were previously utilized as effluent ponds. Native vegetation has since regenerated in these areas. Some areas are devoid of native vegetation and subsequently dominated by weeds in patches. (Particularly referring to the western pond). The vegetation in the effluent ponds is in poor condition with much growth of introduced plants, but with significant regeneration on the edges and in patches throughout, including *Eucalyptus largiflorens* and chenopod understorey.
It is possible that soil movement (from the other vegetated areas) into these areas may lead to an overall improvement of the site and could be rehabilitated as such. Native vegetation impacted by the fill and would be subsequently impacted would need to be included in the native vegetation clearance proposal. However, advice should be sought from the EPA about appropriate rehabilitation of this area, following its use as an effluent refuse area.

Figure: Photographs showing effluent ponds.

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.

The applicant will establish locally indigenous native vegetation species after clearance has occurred. This will be undertaken in the areas surrounding the ponds, as well as establishing riparian and submerged plant species as part of this development (filtration area). Refer to the plans for specific details – Appendix 2.

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 applicant plans to pay into the Native Vegetation Fund to address the SEB offset associated with this proposal.

The NVC will only consider an offset once avoidance, minimization and restoration have been documented and fulfilled. The SEB Policy explains the biodiversity offsetting principles that must be met.

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	Relevant information Patches A1 Number of Plant Species: 9 native and 3 introduced Bushland Plant Diversity Score – 16 Patch B1 Number of Plant Species: 15 native and 1 introduced Bushland Plant Diversity Score – 30
	Assessment against the principles Seriously at Variance – B1 At Variance – A1
	Moderating factors that may be considered by the NVC – N/A
Principle 1b - significance as a habitat for wildlife	Relevant information Refer to the Fauna Report – Appendix 3. The vegetation supports a high diversity of common fauna species, as part of the greater area in this broader area. Refer to Section 4.2: Threatened Species Assessment and the Fauna Report in Appendix 3 for a thorough assessment of individual species requirements. Patch A1 Threatened Fauna Score – 0 Unit Biodiversity Score – 44.50 Patch B1 Threatened Fauna Score – 0 Unit Biodiversity Score – 71.12 Trees 1 & 2. Fauna Habitat Score – 1.8 Combined Biodiversity Score – 4.45
	Assessment against the principles Seriously at Variance – A1 & B1, Trees 1 & 2

	Moderating factors that may be considered by the NVC – The Native Vegetation Council may choose to consider the 'Impact Significance' moderating factor when assessing this native vegetation application. The Native Vegetation Council may wish to decrease the risk from 'Seriously at variance' to 'At Variance' with impact significance considerations. This determination is at the assessment and discretion of the Native Vegetation Council. It is unlikely that this clearance impact will result in accelerated declines of the listed threatened species. Including a decrease in species occupancy and population size. Due to the location, it is unlikely to fragment existing local threatened species populations or adversely affect critical habitats of a species. It is noted that the cumulative impacts (from clearance, land degradation and other impacts) contribute to declines across the landscape and this can be seen in incremental and long-term degradation of habitats and species decline. However, much of the declines in species' have been observed from long term historical degradation across the landscape.
Principle 1c - plants of a rare, vulnerable or endangered species	Relevant information No threatened flora species were recorded at the site or likely to be present but undetectable at the time of assessment. Threatened Flora Score(s) – 0
	Assessment against the principles Not At Variance – A1-D1 and Tree 1 and Tree 2
	Moderating factors that may be considered by the NVC – N/A
***Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	Relevant information No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems present. Threatened Community Score – 1
	Assessment against the principles Not at Variance - A1-D1 and Tree 1 and Tree 2
	Moderating factors that may be considered by the NVC – N/A
Principle 1e - it is significant as a remnant of vegetation in an area which	Relevant information Remnancy figures for IBRA Association (Renmark): 58% Remnancy Figures for IBRA Subregion (Murray Scroll Belt): 56% Total Biodiversity Score – 118.55

has been extensively cleared.	
	Assessment against the principles At Variance - A1-D1 and Tree 1 and Tree 2
	Moderating factors that may be considered by the NVC - The Native Vegetation Council may choose to consider the '*Impact Significance*' moderating factor when assessing this native vegetation application. The Native Vegetation Council may wish to decrease the risk from 'At variance' to 'Not at Variance' with impact significance considerations. This determination is at the assessment and discretion of the Native Vegetation Council.
Principle 1f - it is growing in, or in association with, a wetland environment.	Relevant information The vegetation is NOT associated with a wetland.
	Assessment against the principles Not at Variance - A1-D1 and Tree 1 and Tree 2
	Moderating factors that may be considered by the NVC – N/A
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	Relevant information In my opinion, the clearance and proposed development is likely to improve the amenity of the area. Primarily due to the long-term visual impacts of the revegetation/ landscaping.
	N/A
	Moderating factors that may be considered by the NVC

Principles of Clearance (h-m) will be considered by comments provided by the local NRM Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	2
	Area (ha)	1.99
	Total biodiversity Score	118.55
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 4

5. Clearance summary

Clearance Area(s) Summary table

Block	Site	Species diversity	Threatened Ecological community	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	16	1	0	0	44.50	1.03	45.83	1			48.13	16,477.77	906.28
B	1	30	1	0	0	71.12	0.96	68.87	1			71.69	24,544.54	1,349.95
						Total	**1.99**	**114.7**				**119.82**	**$41,022.31**	**$2,256.23**

Scattered trees Summary table

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Biodiversity score	Loss factor	SEB Points required	SEB Payment	Admin Fee
1	1	1.8	0	2.19	1	2.30	787.31	43.30
2	1	1.8	0	2.26	1	2.37	812.48	44.69
Total	**2**			**4.45**		**4.67**	**$1,599.79**	**$88.99**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	119.15	124.49	$42,622.10	$2,345.22	$44,967.32

Economies of Scale Factor	0.5
Rainfall (mm)	256

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:

☒ 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: $42,622.10 (no GST) plus admin fee $2,345.22 (incl GST) = $44,967.32

7. Appendices

Appendix 1. Flora Species List

Appendix 2. Design Plans

Appendix 3. Fauna Report

Appendix 4. Scattered Tree and Bushland Assessment Spreadsheets

Appendix 1: Flora Species List

Site A1

Botanical Name	Common Name	Introduced
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Mesembryanthemum crystallinum	Common Iceplant	*
Schismus barbatus	Arabian Grass	*
Maireana aphylla	Cotton-bush	
Atriplex rhagodioides	River Saltbush	
Eucalyptus largiflorens	River Box	
Maireana brevifolia	Short-leaf Bluebush	
Psilocaulon granulicaule	Match-head Plant	*
Atriplex vesicaria	Bladder Saltbush	
Heliotropium europaeum	Common Heliotrope	
Threlkeldia diffusa	Coast Bonefruit	
Scleranthus pungens	Prickly Knawel	
Tecticornia pergranulata ssp.	Black-seed Samphire	
Aizoon pubescens	Coastal Galenia	

Site B1

Botanical Name	Common Name	Introduced
Eucalyptus largiflorens	River Box	
Eucalyptus camaldulensis ssp.	River Red Gum	
Acacia stenophylla	River Cooba	
Duma florulenta	Lignum	
Aizoon pubescens	Coastal Galenia	*
Carpobrotus rossii	Native Pigface	
Atriplex stipitata	Bitter Saltbush	
Scleranthus pungens	Prickly Knawel	
Enchylaena tomentosa var.	Ruby Saltbush	
Mesembryanthemum crystallinum	Common Iceplant	*
Dissocarpus paradoxus	Ball Bindyi	
Myoporum insulare	Common Boobialla	
Tecticornia pergranulata ssp.	Black-seed Samphire	
Atriplex nummularia ssp.	Old-man Saltbush	
Maireana brevifolia	Short-leaf Bluebush	
Eremophila divaricata ssp. divaricata	Spreading Emubush	
Cynodon dactylon var.	Couch	
Typha domingensis	Narrow-leaf Bulrush	
Melaleuca lanceolata	Dryland Tea-tree	