

Native Vegetation Clearance

Jock Barrett Road Pipeline River Murray to 3km south Cadell/Sunlands Data Report

Clearance under the *Native Vegetation Regulations 2017*

11 August 2020

Prepared by Jackie Ayre, NVC Accredited Consultant



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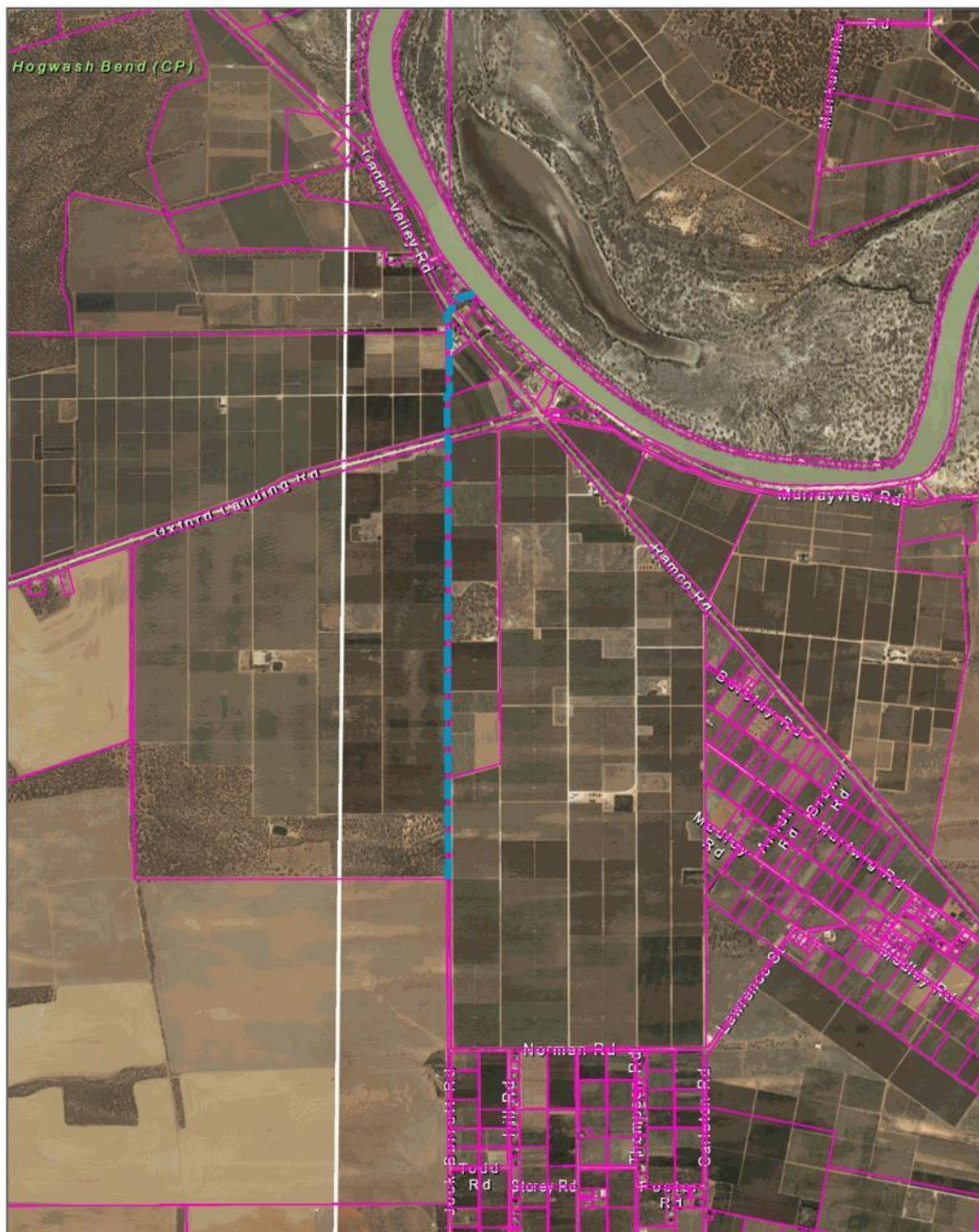
1. Application information

Application Details

Applicant:	Benparts Pty Ltd on behalf of Enbolle Pty Ltd (R & R Trimbole)		
Key contact:	John Bennett Benparts Pty Ltd 10 Benjamin St, Newton SA 5074 T: 8365 3855 M: 0427 619 331 E: john@benparts.com.au		
Landowner:	DC Loxton Waikerie Mid Murray Council		
Site Address:	Jock Barrett Road		
Local Government Area:	DC Loxton Waikerie and Mid Murray Council	Hundred:	Cadell
Title ID:	CR/5508/531 (Adj Murray River) Jock Barrett Road – Public Road Cadell Valley Road – Public Road	Parcel ID	D48158 A57

Summary of proposed clearance

Purpose of clearance	Clearance required for access to install an irrigation mains pipeline and pump shed, on Council land and an unmade public road reserve (Jock Barrett Road)
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure
Description of the vegetation under application	0.018ha of River Red Gum (<i>Eucalyptus camaldulensis</i>) Woodland in poor condition 0.2812ha (comprising two sites of 0.0112ha and 0.27 ha) Red Mallee (<i>Eucalyptus socialis</i>) Mallee in fair condition 0.0804ha Chenopod (<i>Maireana brevifolia</i>) Shrubland in poor condition 0.33ha Mallee (<i>Eucalyptus socialis</i> / <i>E. gracilis</i>) +/- False Sandalwood (<i>Myoporum platycarpum</i>) Woodland in fair to good condition
Total proposed clearance - area (ha) and number of trees	A total of 0.7096 ha is proposed to be cleared.
Level of clearance	Level 4
Overlay (Planning and Design Code)	Native Vegetation Overlay



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

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Compiled: 27-Jul-2020
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Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)



Mitigation hierarchy

- Route changes adopted during the site assessment to avoid remnant vegetation, regardless of additional installation cost
- Utilization of cleared or highly degraded sections of the remnants to avoid healthy parts, for most of the route.

SEB Offset proposal

Payment **\$8136.30**

2. Purpose of clearance

2.1 Description

The clearance is required to facilitate installation of a subsurface pipeline, from the River Murray to private property on Jock Barrett Road, Cadell, which will provide water to irrigate crops on the property. An associated pump shed will be built on the bank of the River.

2.2 Background

The site proposed for the pipeline location begins at the south western bank of the River Murray, and travels along a service track towards the Cadell Valley Road. At this point it crosses the bitumen road and follows an access track to Oxford Landing and Yalumba Estates, heading south to Oxford Landing Road. Current land use in this section is native vegetation/private gardens (near the River); horticulture and viticulture (south of Cadell Valley Road to Oxford Landing Road). The site near the River where the pump shed will be built provides access to existing infrastructure used by properties in the vicinity.

From Oxford Landing Road the pipeline will travel south along the unmade road reserve of Jock Barrett Road. Wherever possible the works will avoid native vegetation by keeping to a formed track within the road reserve, used by adjacent properties for access to orchards and vineyards. Except where this track exists, the road reserve is vegetated and links two patches of bushland, one to the east of the road reserve, and of about 120ha, and one much larger to the west, at the southern end of the work site.

Surrounding land use is horticulture (orange orchards) and viticulture. It is unclear whether the road reserve will ever be developed into a made road. It is accessible in part through private property, and most sections are 4WD only. The property to be serviced by the pipeline is located approximately 3km from Cadell Valley Road, to the west of Jock Barrett Road (D122336 A102). Once the pipeline is installed it is not anticipated that any other clearance associated with this project will be required. Access for maintenance is available via existing tracks, mostly on private property.

2.3 General location maps



Figure 1. Location plan

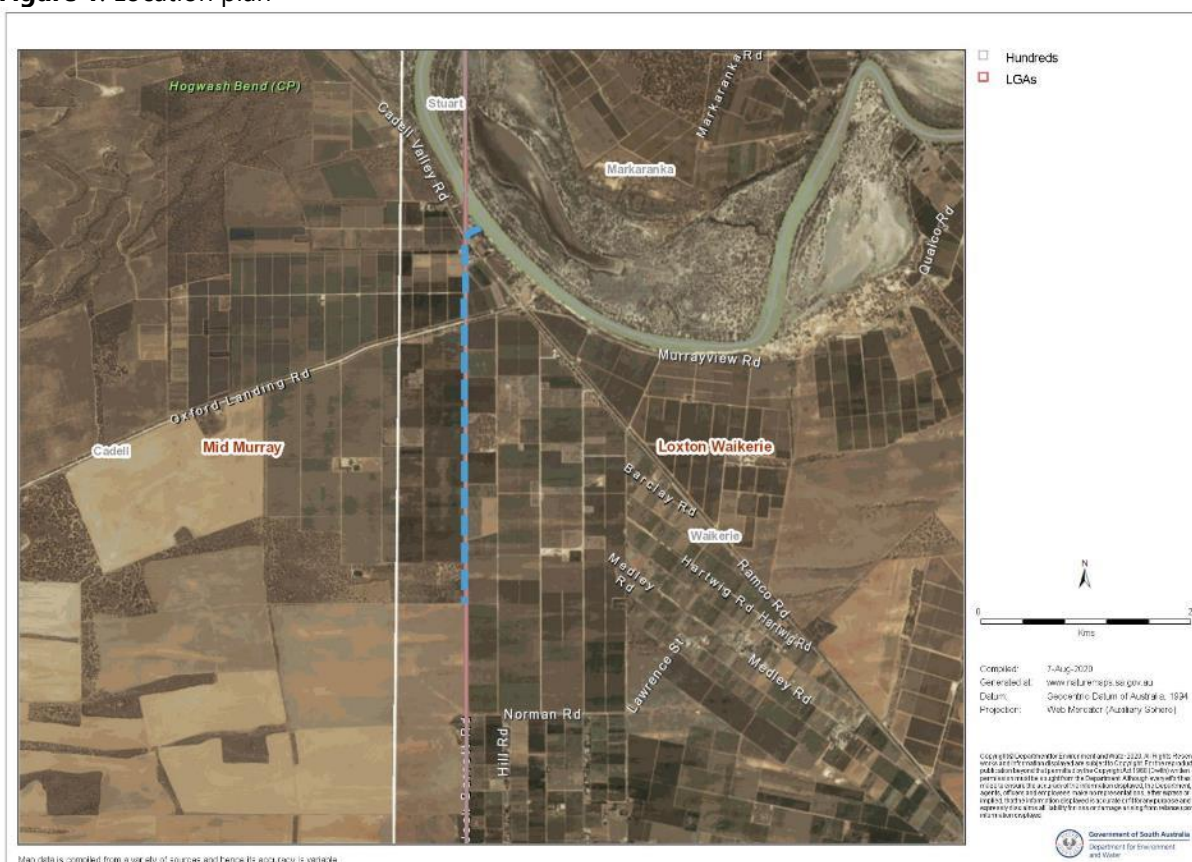


Figure 2. Local Government, Hundreds relevant to the site

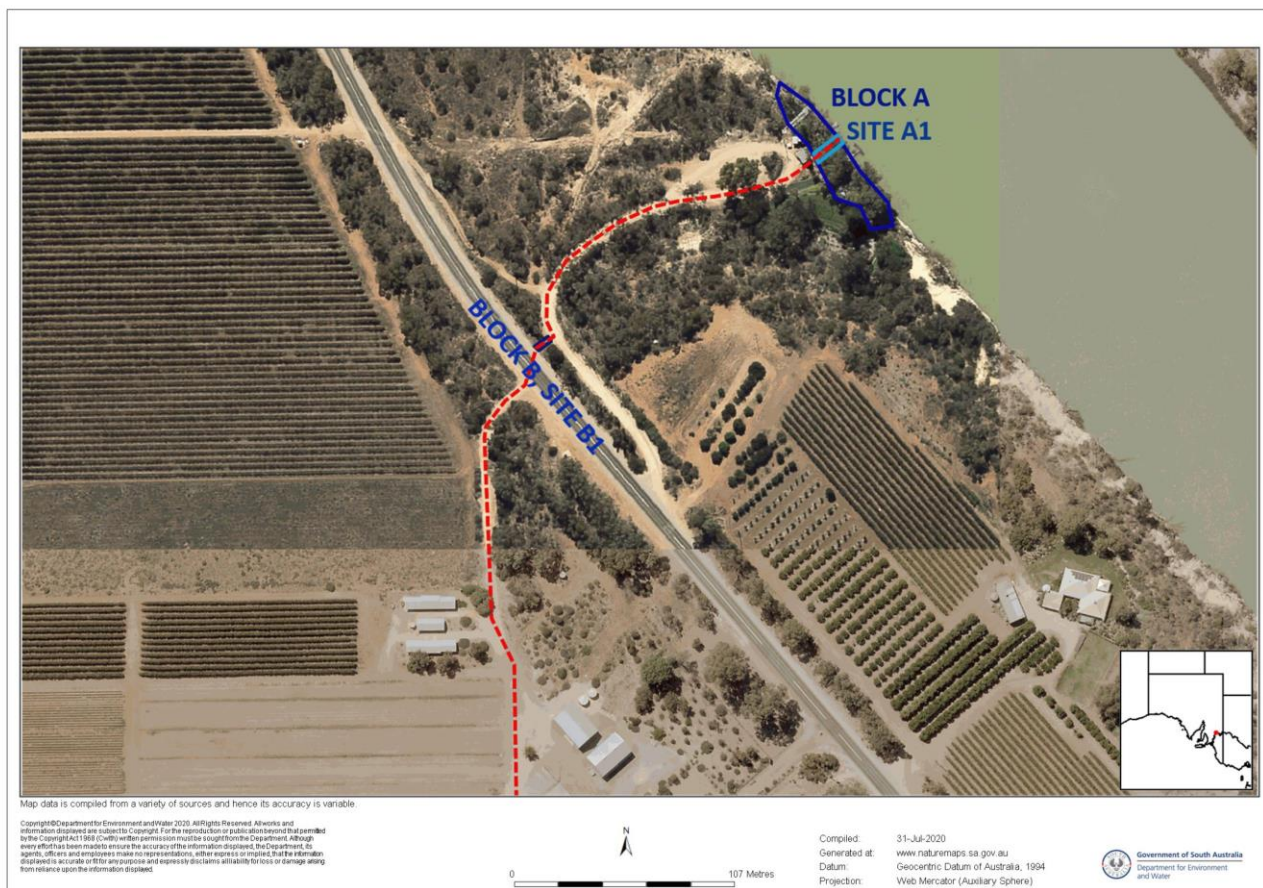


Figure 3. Route map showing attempts to avoid native vegetation, River to Yalumba Estates



Figure 4. Route map showing attempts to avoid native vegetation, Yalumba Estates to Oxford Landing Road



Figure 5. Route map showing attempts to avoid native vegetation, Oxford Landing Road to orange orchard. Maireana shrubland to west of route.

2.4 Details of the proposal

The simplest route for the pipeline involves avoiding direction changes and maintaining a relatively straight line for the length of the road reserve. However, this would increase impact on native vegetation, and the actual route has been revised in sections to reduce impact as far as possible.

Please refer to documents provided as attachments to this report, including design details and location plans.

2.5 Approvals required or obtained

Please refer to approval documents obtained from relevant authorities (provided separately).

- *Native Vegetation Act 1991*
This report is in part fulfilment of the requirements of this Act. There are no associated tree or area clearance applications relevant to this application.
- *Environment Protection and Biodiversity Conservation Act 1999*
There are no MNES impacts and approval under this Act is not required.

The proponent has obtained the following permits/licenses (see attachments):

- DC Loxton Waikerie Permit to undertake work on council land
- DC Loxton Waikerie Approval to install pipe on Jock Barrett Road
- Loxton Waikerie, Development Application for the pumping infrastructure
- Crown Land License to install pumping infrastructure and pipe on Crown Land
- Mid Murray Council Development Approval for Change of Land Use – Trimbole property Dev No. 711/117/19
- DEW Water Resources Works Approval, and Site use approval for Trimbole land, Approval No. 341020
- Aboriginal Cultural Heritage Assessment Report

2.6 Native Vegetation Regulation

This application is submitted under Regulation 12, Schedule 1; clause 34, Infrastructure.

2.7 Development Application information (if applicable)

The site is zoned 'River Murray Fringe' (River Murray to Cadell Valley Road) and 'Primary Production' (from Cadell Valley Road to the southern end of the site). It occurs within the Native Vegetation Overlay.

3. Method

3.1 Flora assessment

A review of background information and literature preceded a 5.5 hour field survey of the site, undertaken on 28 July 2020, by Jackie Ayre of *JS Ayre & Associates*. This survey involved a general assessment of the site(s) and identification of habitat for species of conservation significance.

An online search was undertaken for Environment Protection and Biodiversity Conservation (EPBC) Act "Matters of Environmental Significance" and an interrogation of Department for Environment and Water (DEW) databases was completed as background to the field assessment. Four State Rare species - *Corynotheca licrota*, *Picris squarrosa*, *Lythrum salicaria* and *Myoporum parvifolium* were listed as potentially occurring on site, but were not noted.

The proposed development area was surveyed via a transect walked along almost the entire length of the route for:

- remnant and regrowth native vegetation
- habitat for all vertebrate faunal groups, especially native threatened species.

Photographs of the site subject to the proposal are presented in 4.1.

A significant amount of information was provided by the proponent prior to and after the site visit, and this was used to inform the assessment and report. Details of the proposal were discussed prior to and during the site visit, and during report development.

3.2 Fauna assessment

A review of databases including the EPBC, AoLA and BDBSA was undertaken prior to the site visit to establish fauna species known, or considered likely, to occur at the site. All observations, calls and evidence of presence were recorded as field notes. Bird species were recorded when heard calling, or when observed within, adjacent to, or flying over the site, with the aid of binoculars. Evidence of bird species presence such as nests was also recorded when observed.

A list of historic records of threatened fauna species is at Appendix 1. Nineteen records of listed species were returned from the database searches; Wetland, Listed Marine or Migratory Wetland species were excluded from Sites B1-5 as these do not meet the habitat requirements for wetland or marine species. Wetland species were included in Site A1. See Section 4.2 for further details.

Conditions at the time of assessment were cool and sunny with a light breeze. The assessment included opportunistic and dedicated time (approximately 1.5 hours) using binoculars to observe and identify birds; limited turning of rocks or logs; and observation of nesting sites and hollows. Several bird, and one reptile species were observed, and are listed in the scoresheets. Faecal pellets and scrapes of *Macropus* sp. were also observed, as were rabbit faeces and scratchings.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

- *Landform, geography and soils*
Plains and rises with mainly loamy calcareous soils formed on soft rubbly calcareous sediments. Sand deposits in parallel east west ridges
- *Landform feature of significance*
Sandy east – west ridges
- *General overview of the vegetation under application as a whole*
Two Blocks consisting of four vegetation associations, divided into 5 sites (two aggregated)
- *General description of the vegetation relating to type and condition*
Four distinct associations include Riverine Woodland on the bank of the River Murray in poor condition; a small patch of degraded Chenopod shrubland 500m south of Oxford landing Road, and a Mallee and Woodland association in fair condition at the mid and southern end of the project site
- *Description of the landscape context for the vegetation*
Situated approximately 2km SE of Hogwash Bend Conservation Park; the southern part of the site (Block B) provides a tenuous link with an almost continuous patch of remnant vegetation (via Oxford Landing Road) between Oxford Landing and Murbko Flat Lagoon. The segment on Jock Barrett Road Reserve is nestled almost centrally between large areas of cleared productive land. Its continuity is weak and long stretches offering limited protection occur between more dense vegetation. Edge effects are evident across the site, though reduced where patches of remnant vegetation adjoin the site.

Details of the vegetation associates/scattered trees proposed to be impacted

Vegetation Association	Vegetation Association 1; <i>Eucalyptus camaldulensis</i> / <i>Acacia stenophylla</i> Woodland. (Block A, Site A1)
	
<p>Photo 1. Looking north east across the site, from the end of the access track, where a raised pipe to the river will be installed on support structures, and a pump shed will be built adjacent the existing shed on the left of the image. Not all the vegetation visible in the photo will require removal.</p>	



Photo 2. Looking south west from the riverbank, up toward the site of the pump shed and pipeline. Some of the vegetation on the bank is dead (no hollows)

General description	<i>Eucalyptus camaldulensis</i> is the dominant species in this Block, however none are impacted by the works. One <i>Acacia stenophylla</i> and one young <i>Melaleuca lanceolata</i> may require removal or pruning. The bank is very weedy and <i>Asparagus</i> spp. is present on the site. <i>Agapanthus</i> have been planted a few metres away. The site is very disturbed with few individual native plants. A pontoon sits a few metres to the south, on the water, with a boat ramp leading to the pontoon. Impact is considered minimal given the design of the structure and pipeline, which are above ground on piers. The area of impact includes the unlikely potential for 10m clearance around the structure.				
Threatened species or community	Not applicable.				
Landscape context score	1.16	Vegetation Condition Score	26.72	Conservation significance score	1.10
Unit biodiversity Score	34.09	Area (ha)	0.018	Total biodiversity Score	0.61



Photo 3. Site B1 - Looking south west, from the access track toward Cadell Valley Road (at the top of the bank). Excavation through the centre of this degraded area is required to install the pipeline. Much of the impact is confined to weed species and a few low chenopod shrubs. There is unlikely to be any root impact to the trees visible in the photo.



Photo 4. Site B2 - Looking south toward Oxford Landing Road from farmland/Jock Barrett road reserve. The pipeline will require 3m width for machinery access. Dashed line shows indicative route width.



Photo 5. Site B2 - Looking north from Oxford Landing Road. The pipeline will require 3m width for machinery access. Dashed line shows indicative route width.

General description	<i>Eucalyptus socialis</i> dominates the overstorey, one of which may be subject to removal, along with a <i>Dodonaea viscosa angustissima</i> and a few chenopod shrubs. Bridal Creeper is present on the site. Weed proliferation (environmental, grassy herbs and forbs) is evident and more dense closer to the road shoulder.				
Threatened species or community	Not applicable.				
Landscape context score	1.15	Vegetation Condition Score	20.11	Conservation significance score	1.10
Unit biodiversity Score	25.44	Area (ha)	0.0112	Total biodiversity Score	0.28


Vegetation Association	Vegetation Association 3; <i>Maireana brevifolia</i> / <i>Enchylaena tomentosa</i> Chenopod shrubland. Block B, Site B3				
					
<p>Photo 6. Looking north, from the southern end of the association impacted. The impact zone is between 2m and 5m west of the (planted) <i>Casuarina</i> trees (approximate pipeline location indicated by dashed line). Very little impact to the remnant vegetation, which is in very poor condition with a significant weed burden, is anticipated.</p>					
General description	<i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> are co-dominant. Horehound is present on the site, and rabbit scratchings evident. This patch is highly disturbed and of limited habitat value. The route has been selected to avoid impact and the area chosen contains less than 25% native vegetation. In order to minimise root disturbance and potential structural instability, the route will keep 2m away from the trees (planted <i>Casuarina</i> sp.)				
Threatened species or community	Not applicable.				
Landscape context score	1.14	Vegetation Condition Score	8.46	Conservation significance score	1.10
Unit biodiversity Score	10.61	Area (ha)	0.0804	Total biodiversity Score	0.85



Photo 7. Looking south, from the start of the Site. Impacts are restricted to the western side of the remnant patch, and removal of up to 3m from the western fence is required. The road reserve is approximately 20m wide, and remnant vegetation extends to that width for the northern part of this Site, reducing to around 12m wide on parts of the southern section.



Photo 8. Looking north, from midway through the Site. Impact is restricted to the western side of the patch; removal of 3m from the western fence is anticipated. The road reserve is approximately 20m wide. The vegetation extends to that width for the northern part of this Site, reducing to c.12m wide on parts of the southern section.



Photo 9. Looking south from midway through the Site. The impacts are restricted to the western side of the remnant patch, covering 3m from the western fence. Ground layer is predominantly *Carpobrotus* and *Roepera* sp. Limited weed invasion is evident.



Photo 10. Looking north from the southern section of the Site. The vegetation patch reduces in width to approximately 12m and is more degraded as a result of edge effects. The first 3m from the western fenceline will be impacted.



Photo 11. Looking south toward the southern section of the Site. The vegetation patch is more degraded as a result of edge effects, with weed infiltration evident. The first 3m from the western fenceline will be impacted.

General description	<i>Eucalyptus socialis</i> dominates the Site but other <i>Eucalyptus</i> species share sub-dominance. Condition varies from relatively good with a dense understorey and limited weed invasion, to more open patches with obvious ground disturbance (rabbits, kangaroos) and weed invasion.				
Threatened species or community	Not applicable.				
Landscape context score	1.14	Vegetation Condition Score	34.92	Conservation significance score	1.10
Unit biodiversity Score	43.79	Area (ha)	0.27	Total biodiversity Score	11.82

Vegetation Association	Vegetation Association 4; <i>Eucalyptus socialis</i> / <i>E. gracilis</i> +/- <i>Myoporum platycarpum</i> Woodland. Block B, Site B5
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Photo 12. Looking south from the northern end of the Site. Significant weed disturbance and rabbit scratchings were evident. The impact is confined to 3m from the western fenceline. The patch is subject to edge effects at the northern portion, with several open areas as shown in the image. A row of planted *Casuarina* sp. occurs along the eastern flank for about half the length of the Site.



Photo 13. Looking south from the centre of the Site. A patch of remnant bushland can be seen to the right of the photo. The impact is confined to 3m to the east of the fenceline. The patch is subject to edge effects and weed invasion at the northern end but this reduces further south as a result of buffering from the larger remnant.



Photo 14. Looking north from the southern end of the patch where works finish. 3m from the western fenceline is impacted by excavation and pipe installation. Immediately south of where this photo was taken, the works divert in a south westerly direction into a bare paddock.

General description	<i>Eucalyptus socialis</i> dominates, with <i>Myoporum platycarpum</i> occurring mostly toward the central part of the site. <i>Senna</i> sp. and <i>Acacia</i> sp. dominate the mid storey. Weed invasion is low through the southern part, but dense in patches in the northern section.				
Threatened species or community	Not applicable.				
Landscape context score	1.14	Vegetation Condition Score	42.28	Conservation significance score	1.10
Unit biodiversity Score	53.01	Area (ha)	0.33	Total biodiversity Score	17.49

Site map showing areas of proposed impact



Figure 6. Block A Site A1



Figure 7. Block B Site B1

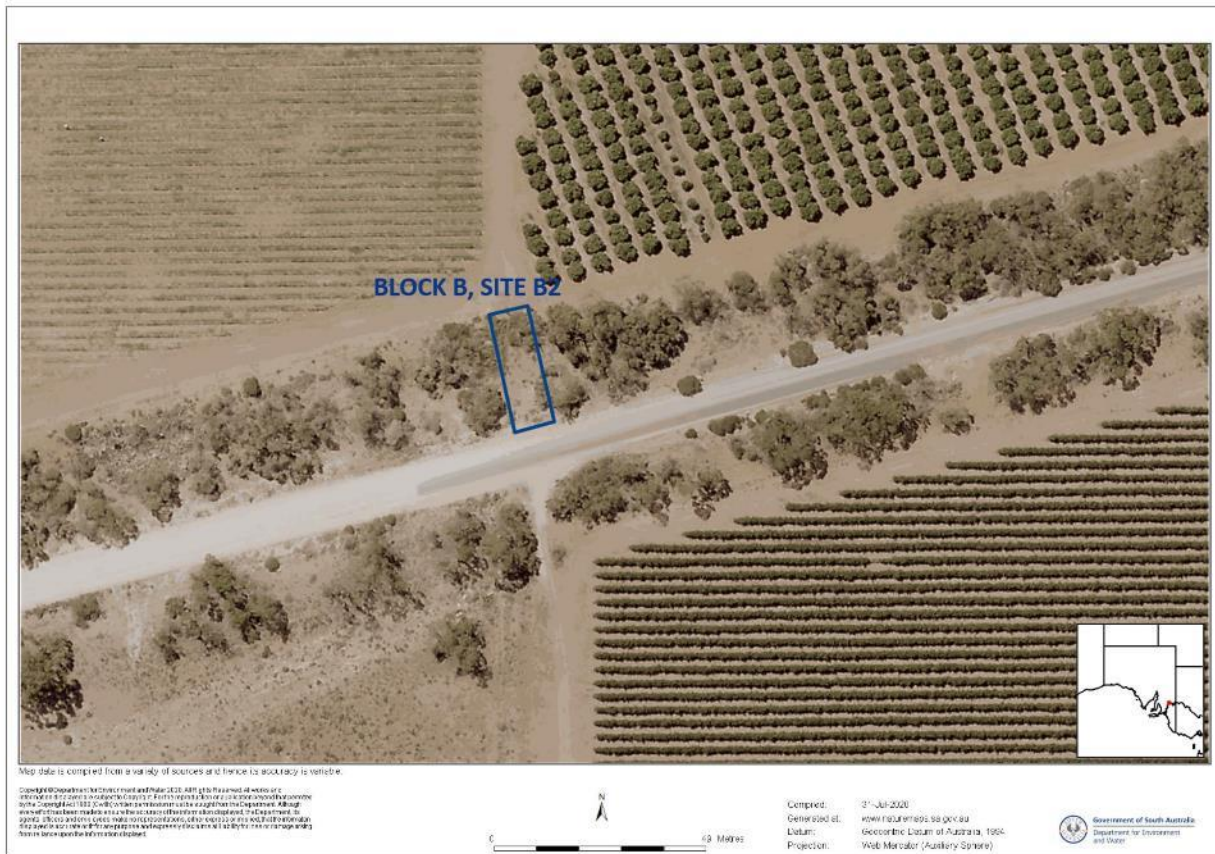


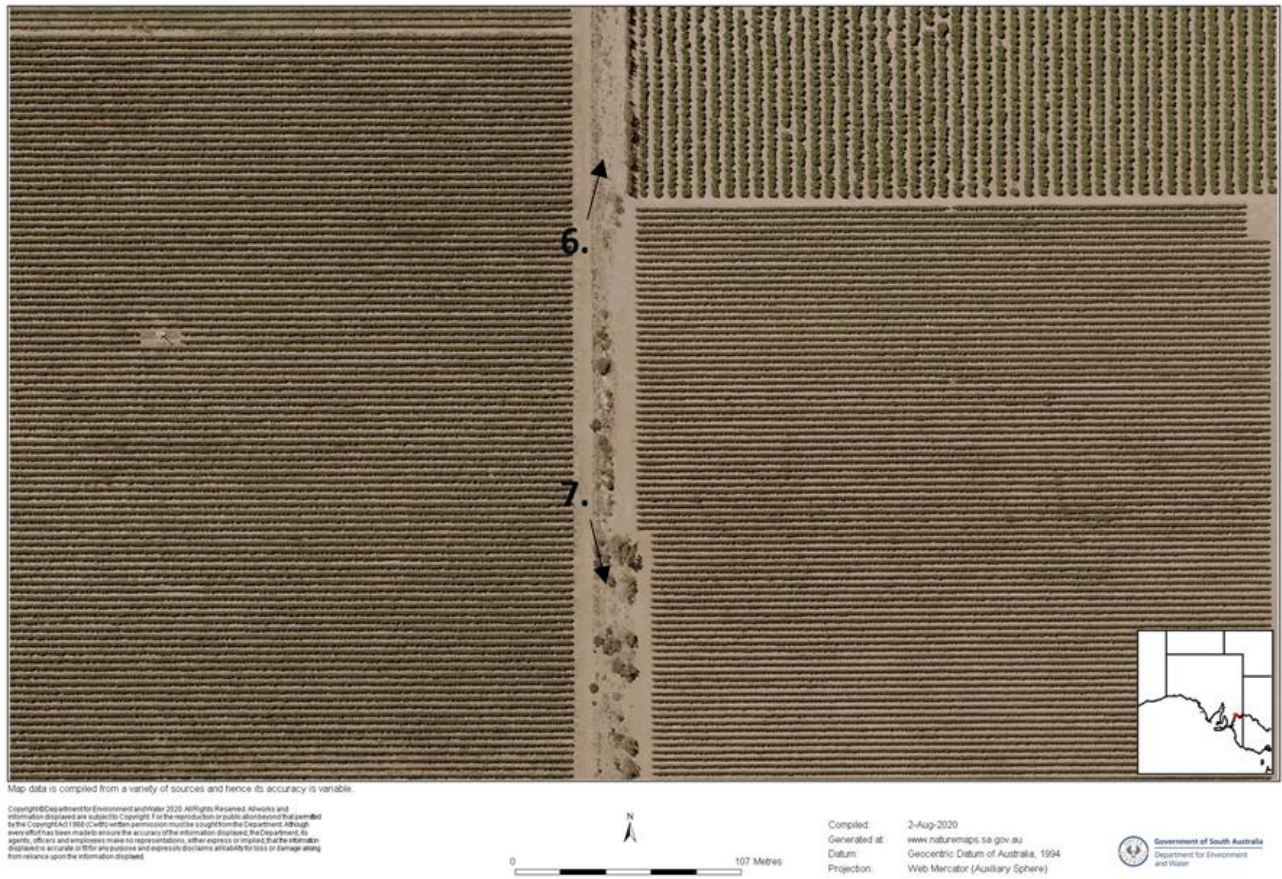
Figure 8. Block B Site B2



Figure 9. Block B Site B3

Photo log







4.2 Threatened Species 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
<i>Ardeotis australis</i> Australian Bustard	V	-	3	2004	Native grasslands, woodlands and open agricultural habitat	Possible – limited suitable habitat available.
<i>Corcorax melanorhamphos</i> White-winged Cough	R	-	3	2004	Open forests and woodlands, wetter areas with leaf litter and mud	Highly likely. Observed in similar habitat previously
<i>Coturnix ypsilophora australis</i> Brown Quail	V	-	3	2004	Dense grasslands often on the edge of open forests	Possible. Site is fringed by open areas with grassy rows between orchards/vineyards.
<i>Hieraaetus morphnoides</i> Little Eagle	V	-	3	2017	Woodland and forest and open country	Likely. Recorded close to the northern end of the site.
<i>Litoria raniformis</i> Southern Bell Frog	V	VU	3,5	2011	Large permanent waterbodies with abundant growth on banks	Possible, at Site A1, but unlikely to be impacted by works
<i>Melanodryas cucullata</i> cucullata Hooded Robin (YP, MN, AP, MLR, MM, SE)	R	-	3	2004	Structurally diverse open woodlands	Likely. Some of the better quality sites may support this species.
<i>Microeca fascinans</i> Jacky Winter	ssp	-	3	2004	Open woodland with open shrub layer and bare ground	Likely. Parts of the site support this type of vegetation.
<i>Morelia spilota</i> Carpet Python	R	-	3	2012	A variety of habitats including temperate grasslands, open forest, woodland	Likely. Habitat type present, though limited hollows present
<i>Pachycephala inornata</i> Gilbert's Whistler	R	-	3	2004	Mallee, woodlands, shrublands with continuous or patchy understorey	Likely, suitable habitat exists on site
<i>Tachyglossus aculeatus</i> Short-beaked Echidna	ssp	ssp	3	2004	A range of habitats including open	Highly likely.

					woodland, grasslands	
<i>Trichosurus vulpecula</i> Common Brushtail Possum	R	-	3	2004	Arboreal, inhabiting hollows in a range of habitat types	Likely, though hollows limited.
<i>Manorina flavigula</i> Yellow-throated Miner	ssp	-	4	2020	Dry forest and woodland, especially mallee	Likely – unconfirmed sighting at site B5.
Additional fauna relevant to Block A						
<i>Anhinga novaehollandiae</i> Australasian Darter	R	-	3	2017	Wetlands and sheltered coastal waters with tree trunks etc fringing water	Highly likely.
<i>Ardea intermedia plumifera</i> Plumed Egret	R	-	3	2011	Shallow coastal or freshwater including irrigation channels	Highly likely.
<i>Biziura lobata menziesi</i> Musk Duck	R	-	3	2010	Deep freshwater lagoons with dense reeds and open areas	Possible, but the subject site is not optimum habitat.
<i>Oxyura australis</i> Blue-billed Duck	R	-	3	2010	Large deep open freshwater dams and lakes with concealed bays	Likely.
<i>Podiceps cristatus australis</i> Great Crested Grebe	R	-	3	2007	Favours large deep open freshwater bodies	Likely.
<i>Spatula rhynchotis</i> Australasian Shoveler	R	-	3	2010	Wetlands, swamps lakes estuaries with open water fringed with vegetation	Likely.
<i>Stictonetta naevosa</i> Freckled Duck	V	-	3	2017	Permanent freshwater swamps and creeks with vegetation	Highly likely.
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 provide limited habitat or feeding resources for the species. Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provide no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 -40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

4.3 Cumulative impact

Clearance directly required for the development (e.g. access, building footprints, associated infrastructure – power and water, etc.),

- The footprint requires 3m linear clearance for excavator access for the majority of the route. Sufficient access is available around the footprint without requiring any additional clearance over the 3m width (most of the route is adjacent a cleared vehicle track). Where this is not available, additional clearance has been accounted for in the area calculation.

Subsequent clearance that will be permitted or required

- The pump shed at Site A1 is to be situated on the top of the embankment grading down to the river, immediately adjacent an existing shed, supported on piers. A boat ramp access is adjacent, to the south east, and it is unlikely that any further clearance will be required. However, an allowance for clearance of 10m around a building has been factored into the area calculation.

Indirect clearance that may occur as a result of the development (e.g. dust generation smoothing vegetation, altered hydrology inundating or drying vegetation, impacting on tree root zones (the application of fill) impacting on tree health),

- There will be no dust generated by the underground pipeline except during construction. Construction timeframes indicate that seasonal rains are likely to remove any dust thus generated. No fill will be required, and all construction impacts have been accounted for in the footprint and area calculations, including those on root systems of trees.

Future stages or associated components of a development

- It is not anticipated there will be any future stages associated with this project.
- Other potential impacts have been considered, including fencing (any replacement fencing proposed will be located on the road reserve boundary adjacent an existing vehicle track and has been included in the calculations).

4.4 Address the Mitigation Hierarchy

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

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

The site visit included an overview of the proposed route with the consultant and the proponent, during which changes were made to the route to avoid areas of native vegetation. As a result, clearance of approximately 0.2ha of native vegetation (*Maireana brevifolia* shrubland) and clearance of a group of three Mallee trees was avoided. Refer route plans, Part 2, Figures 3, 4 and 5.

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).

Wherever possible, the route has utilized cleared or degraded areas of vegetation (e.g. Sites B1 and B2). Use of existing tracks has also potentially reduced the amount of vegetation requiring clearance. Sites B3, 4 and 5 have been selected to reduce vegetation impacts by going through the most degraded part of the block (e.g. the eastern side of B3, and western side of B4 and B5, against the edge of tracks).

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.

Although no human assistance is proposed to regenerate the site, natural regeneration is likely to occur once works are complete. Rehabilitation on site is not considered optimum method to remediate the impacts of clearance in this case. An SEB offset via payment into the fund is the preferred option.

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.

An SEB offset payment is considered the most effective method of offsetting the impact of this project. The proponent is not in a position to undertake rehabilitation or restoration as the land on which works are proposed belongs to Council.

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

Principle of clearance	Considerations
Principle 1a - it comprises a high level of diversity of plant species	<p><u>Relevant information</u></p> <p>The number of plant species recorded (native and introduced) for each vegetation association; VA 1 – <i>Eucalyptus camaldulensis</i> / <i>Acacia stenophylla</i> woodland – 10 native, 7 introduced species VA 2 – <i>Eucalyptus socialis</i> open mallee – 35 native, 10 introduced species VA 3 – <i>Maireana brevifolia</i> / <i>Enchylaena tomentosa</i> Shrubland – 4 native, 12 introduced species VA 4 – <i>Eucalyptus socialis</i> / <i>E. gracilis</i> +/- <i>Myoporum platycarpum</i> Woodland – 36 native, 11 introduced species</p> <p>Bushland Plant Diversity Score – A1 – 9 B1/2 – 12 B3 – 9 B4 – 18 B5 – 21</p>
	<p><u>Assessment against the principles</u></p> <p>Seriously at Variance VA 4 – <i>Eucalyptus socialis</i> / <i>E. gracilis</i> +/- <i>Myoporum platycarpum</i> (Site B5) The Association scored a >20 Native Plant Species Diversity Score for the above site</p> <p><u>At Variance</u> VA 2 – <i>Eucalyptus socialis</i> open mallee (Site B1/2, B4) The Association scored a 10-20 Native Plant Species Diversity Score for the above sites</p>
	<p><u>Moderating factors that may be considered by the NVC</u></p> <ul style="list-style-type: none"> - Amount of clearance related to the area of remnant The area of clearance of VA 2 is less than 0.25% of the vegetation within a 5km radius to be impacted.
Principle 1b - significance as a habitat for wildlife	<p><u>Relevant information</u></p> <p><i>List of threatened species that were recorded or may use the vegetation.</i> See section 4.2 and Appendix 1, with 2 listed species rating 'highly likely'; 6 'likely' and 3 'possible' in regard to likelihood of use of the habitat assessed. Although this result may indicate clearance may be at variance, the degraded nature of the sites and the relative scale of the clearance, being up to 3m from the edge of the remnant where edge effects are notable and quality is lowest, is not considered significant enough to justify rating 'seriously at variance' with Principle 1b.</p> <p><i>Detail if the vegetation supports a high diversity of animal species</i> VA3 is not considered likely to support a high diversity of fauna species. The number of weed species is significantly greater than the number of native species, indicating it is highly degraded. Very few fauna species, or evidence of, were observed in this association. . VA2 and VA4, Sites B1, 2, 4 and 5, each recorded 18 native and 3 introduced fauna species during the assessment, however these were almost all common, non-specialist species often observed in degraded habitats. Large mature trees with hollows were not common in either VA, reducing the potential for use by hollow dependent species.</p>

	<p>The new reporting methodology requires all fauna listed be included in the report, (with the exception of those with specific habitat requirements not present at the assessment site) and the Native Vegetation Group assessor is responsible for the decision regarding likely presence. This may result in a higher than warranted variance rating at reporting stage, and appears this might be the case in this instance.</p> <p><i>Does the vegetation provide a corridor for movements between other areas of native vegetation, or a habitat refuge, especially in heavily cleared areas?</i></p> <p>Sites B4 and B5 provide a corridor between two remnant patches on private property, one east and one west of the project site, south of Oxford landing Road. The western patch forms part of an almost continuous band of remnant vegetation between two sections of River, from Oxford landing to Murbko Flat. The road reserve vegetation – except where adjacent these larger remnants – is not thought to provide important refuge potential or to contribute significantly to the east-west linkage.</p> <p>Patches;</p> <p>VA 1 (Site A1) Threatened Fauna Score – 0.1 Unit biodiversity Score – 34.09</p> <p>VA2 (Sites B1/2) Threatened Fauna Score – 0.1 Unit biodiversity Score – 25.44</p> <p>VA3 (Site B3) Threatened Fauna Score – 0.1 Unit biodiversity Score – 10.61</p> <p>VA2 (Site B4) Threatened Fauna Score – 0.1 Unit biodiversity Score – 43.79</p> <p>VA4 (Site B5) Threatened Fauna Score – 0.1 Unit biodiversity Score – 53.01</p> <p><u>Assessment against the principles</u> Seriously at Variance</p> <p>VA 4 – <i>Eucalyptus socialis</i>/ <i>Myoporum platycarpum</i> Woodland (Site B5) This Association has a Unit Biodiversity Score of >50</p> <p>VA 1 – <i>Eucalyptus camaldulensis</i>/ <i>Acacia stenophylla</i> woodland (Site A1) VA 2 – <i>Eucalyptus socialis</i> open mallee (Site B1/2) VA 3 – <i>Maireana brevifolia</i> Shrubland (Site B3) The Associations have a Threatened Fauna Score of ≥ 0.05</p> <p><u>Moderating factors that may be considered by the NVC</u></p> <ul style="list-style-type: none"> - Impact significance – scale of clearance and low quality of edge to be cleared - Non-essential habitat – the clearance areas do not provide essential habitat for most of the listed species
<p>Principle 1c - plants of a rare, vulnerable or</p>	<p><u>Relevant information</u></p> <p>Database searches identified four threatened flora species within the required search criteria. None of the listed species were found on site.</p> <p>Threatened Flora Score(s) – All Sites received a Threatened Flora Score of 0.</p>

endangered species	<u>Assessment against the principles</u> <u>Seriously at Variance</u> N/A <u>At Variance –</u> N/A
	<u>Moderating factors that may be considered by the NVC</u> N/A
Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:	<u>Relevant information</u> No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems were historically recorded or present Threatened Community Score – All Sites obtained a Threatened Community Score of 1.
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> N/A
	<u>Moderating factors that may be considered by the NVC</u> N/A
Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	<u>Relevant information</u> Remnancy figures for IBRA Association and IBRA Subregion for both Blocks A and B are 18% and 21% respectively. <u>Discuss the health and likely longevity of remnants.</u> Sites A1, B1/2 and B3 are considered in poor condition and given their linear nature and exposure to edge effects and farming practices adjacent, are likely to continue to degrade over time with a limited longevity expected. Sites B4 and B5, however, are, I part, more diverse both structurally and species-wise, and where they adjoin larger blocks of remnant vegetation, their continuity as relatively healthy remnants is likely. Total Biodiversity Score – 31.05 (comprised of the following): VA 1 (Site A1) Total biodiversity Score – 0.61 VA2 (Sites B1/2) Total biodiversity Score – 0.28 VA3 (Site B3) Total biodiversity Score – 0.85 VA2 (Site B4) Total biodiversity Score – 11.82 VA4 (Site B5) Total biodiversity Score – 17.49
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> Not applicable <u>At Variance</u> With a total biodiversity score of 31.05 and 10-30% remnancy, the area of impact is at variance with this principal.
	<u>Moderating factors that may be considered by the NVC</u> Quality of remnant (for sites A1, B1/2 and B3, and part of site B4)
Principle 1f - it is growing in, or in association with, a wetland environment.	<u>Relevant information</u> Site A1, VA 1, occurs on the bank of the River Murray.
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> VA 1 – <i>Eucalyptus camaldulensis</i> / <i>Acacia stenophylla</i> woodland
	<u>At Variance –</u> N/A

	<p><u>Moderating factors that may be considered by the NVC</u></p> <ul style="list-style-type: none"> - Impact Significance <p>It is unlikely that clearance will have a significant impact on the ecological character of the wetland.</p>
<p>Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.</p>	<p><u>Relevant information</u></p> <p><i>Detail the location of trees or vegetation relative to sites frequented by the public (e.g. roads, towns, lookout, etc.)</i></p> <p>Given the local topography, location and land use surrounding the site, the vegetation assessed is not generally visible from public spaces including roads or tourism venues. Access is by private property and generally not available to the public. It is in an area without towns nearby (Cadell and Waikerie are 11 and 14km away, respectively).</p> <p><i>Provide details of cultural or historical values</i></p> <p>This information is not known, and such values are considered unlikely.</p> <p><i>Discuss possible effect on landscape character</i></p> <p>Clearance may reduce local amenity enjoyed by those living or working adjacent, however the clearance is confined to the edge of narrow bands of vegetation and is unlikely to significantly alter the landscape character of the local area. The sites do not contain large trees usually associated with high community regard.</p>
	N/A
	<p><u>Moderating factors that may be considered by the NVC</u></p> <p>N/A</p>

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	0
	Area (ha)	0.7096
	Total biodiversity Score	31.05
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1b
Risk assessment outcome		Level 4 (please see discussion under this principle)

4.7 NVC Guidelines

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

N/A

5. Clearance summary

Clearance Area(s) Summary table

Block	Site	Species diversity score	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	A1	9	1	0	0.1	34.09	0.018	0.61	1			0.64	152.30	8.38
B	B1/2	12	1	0	0.1	25.44	0.0112	0.28	1			0.30	71.81	3.95
B	B3	9	1	0	0.1	10.61	0.0804	0.85	1			0.90	211.76	11.65
B	B4	18	1	0	0.1	43.79	0.27	11.82	1			12.42	2934.48	161.40
B	B5	21	1	0	0.1	53.01	0.33	17.49	1			18.37	4341.77	238.80
						Total	0.7096	31.05				32.63	\$7712.12	\$424.18

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	31.05	32.63	\$7712.12	\$424.18	\$8136.30

Economies of Scale Factor	0.35
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:

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

PAYMENT SEB

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

- **\$8136.30** including Admin Fee

7. Appendices

Appendix 1. Listed Fauna Species List

SPECIES	COMNAME	ESACT STATUS CODE	NPWACTSTATUS CODE
Anhinga novaehollandiae			
novaehollandiae	Australasian Darter		R
Ardea intermedia plumifera	Plumed Egret		R
Ardeotis australis	Australian Bustard		V
Biziura lobata menziesi	Musk Duck		R
Corcorax melanorhamphos	White-winged Chough		R
Coturnix ypsilophora australis	Brown Quail		V
Hieraaetus morphnoides	Little Eagle		V
Litoria raniformis	Southern Bell Frog	VU	V
	Hooded Robin (YP, MN, AP, MLR, MM, SE)		R
Melanodryas cucullata cucullata			R
Microeca fascians	Jacky Winter		ssp
Morelia spilota	Carpet Python		R
Oxyura australis	Blue-billed Duck		R
Pachycephala inornata	Gilbert's Whistler		R
Podiceps cristatus australis	Great Crested Grebe		R
Spatula rhynchotis	Australasian Shoveler		R
Stictonetta naevosa	Freckled Duck		V
Tachyglossus aculeatus	Short-beaked Echidna	ssp	ssp
Trichosurus vulpecula	Common Brushtail Possum		R
Manorina flavigula	Yellow-throated Miner		ssp

Appendix 2. Bushland Vegetation Assessment Scoresheets

Vegetation Condition Scores		Conservation Significance Score	
SITE:	A1	Is the vegetation association considered a Threatened Ecological community or Ecosystem?	Yes/No
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus camaldulensis / Acacia stenophylla Woodland	State (Provisional List of Threatened Ecosystems of SA) Rare community (0.1 pt)	<input type="checkbox"/>
SIZE OF SITE (Ha)	0.018	State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	<input type="checkbox"/>
		State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	<input type="checkbox"/>
		Nationally (EPBC Act) Vulnerable community (0.35 pts)	<input type="checkbox"/>
		Contains a Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	<input type="checkbox"/>
		<i>Note: all sites will score a minimum Conservation Significance Score of 1</i>	Threatened Community Score 1
Native Plant species diversity Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)	Regeneration No regeneration present (0 Points) <input type="checkbox"/> Very low regeneration, consisting of highly scattered juvenile plants of a limited number of species (3 points) <input checked="" type="checkbox"/> Regeneration present, consisting of multiple individual juvenile plants but a limited number of species (6 points) <input type="checkbox"/> Multiple species regenerating, but low numbers of juvenile plants (9 points) <input type="checkbox"/> Multiple species regenerating with multiple individual juveniles present with varying age classes (12 points) <input type="checkbox"/> Regeneration Score (Max 12) 3	Number of Threatened Flora Species recorded for the site (within the site)	Number
<5% (3 Points) <input type="checkbox"/>		<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
5-10% (6 Points) <input type="checkbox"/>		State Rare species recorded (1 pt each)	0
11 - 20% (9 Points) <input checked="" type="checkbox"/>		State Vulnerable species recorded (2.5 pt each)	0
21 - 30% (12 Points) <input type="checkbox"/>		State Endangered recorded (5 pts each)	0
31 - 40 % (15 Points) <input type="checkbox"/>		Nationally Vulnerable species recorded (10 pts each)	0
41 - 50% (18 Points) <input type="checkbox"/>		Nationally Endangered or Critically endangered species recorded (20 pts each)	0
51 - 60% (21 Points) <input type="checkbox"/>		0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	0
61 - 70% (24 Points) <input type="checkbox"/>		Threatened Flora Score	0
71 - 80% (27 Points) <input type="checkbox"/>			
>80% (30 Points) <input type="checkbox"/>			
Native Plant species diversity score (max score of 30)	9	Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
Weed Scores		<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
Does the site contain plant species declared under the <i>NRM Act 2004</i> (1.5 points) <input checked="" type="checkbox"/>		State Rare species observed or locally recorded (1 pt each)	11
Cover rating for all declared weeds (max of 6)	1	State Vulnerable species observed or locally recorded (2.5 pt each)	3
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point) <input checked="" type="checkbox"/>		State Endangered species observed or locally recorded (5 pt each)	0
Cover rating for all environmental weeds (max of 6)	3	Nationally Vulnerable species observed or locally recorded (10 pts each)	1
Weed Score (max score of 15)	10.5	Nationally Endangered or Critically endangered species observed or locally recorded (20 pts each)	0
		0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	28.5
Is the community naturally treeless? <input type="checkbox"/>		Threatened Fauna Score	0.1
Mature Tree Score (max 8)	6	CONSERVATION SIGNIFICANCE SCORE 1.1	
Fallen timber/debris (max 5)	1.5		
Hollow-bearing trees (max 5)	1		
Tree Canopy Cover Score (max 5)	5		
Native:exotic Understorey biomass score (max 5)	4		
Native Plant life form	8		
Vegetation Condition Score calculation			
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees <i>If the community is naturally treeless this score is multiplied by 1.24</i>		28.50	
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)		5.00	
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))		26.72	
		Photo Point and Vegetation Survey Location	
		Direction of the Photo	
		North east	
		GPS Reference	
		Datum WGS84	
		Zone (52, 53 or 54) 54	
		Easting (6 digits) 394751	
		Northing (7 digits) 6226938	
		Description	
		Area where above ground pipe and pumping infrastructure to be installed on the river bank. Footprint approximately 3m wide x 14m long.	
		Assessment for Clearance	
		Loss Factor 1.0	
		Loadings for clearance of protected areas	
		Reductions for rehabilitation of impact site	
		SEB Points required 0.64	
		Approximate hectares required 0.08	
		Economies of Scale factor 0.35	
		Mean Annual rainfall for the site (mm) 256	
		Payment into the fund (GST Exclusive) \$152.30	
		Administration fee (GST Inclusive) \$8.38	

Vegetation Condition Scores					Conservation Significance Score				
SITE:		B1 & B2 (aggregated)			Is the vegetation association considered a Threatened Ecological community or Ecosystem?				Yes/No
BCM COMMUNITY		MDBSA 3.2 Mallee with Open Sclerophyll / Chenopod Shrub Understorey			State (Provisional List of Threatened Ecosystems of SA) Rare community (0.1 pt)				<input type="checkbox"/>
VEGETATION ASSOCIATION DESCRIPTION		Eucalyptus socialis Open Mallee			State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)				<input type="checkbox"/>
SIZE OF SITE (Ha)		0.0112			State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)				<input type="checkbox"/>
					Nationally (EPBC Act) Vulnerable community (0.35 pts)				<input type="checkbox"/>
					Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)				<input type="checkbox"/>
Benchmarked attributes (Scores determined by comparing to a Benchmark community)				Native Plant Life Forms	Cover rating	Note: all sites will score a minimum Conservation Significance Score of 1			Threatened Community Score
									1
Number of Native Species (Minus herbaceous annuals for spring Surveys)				11	Number of Threatened Flora Species recorded for the site (within the site)				Number
Native Plant Species Diversity Score (max 30) from benchmark score weighted by a factor of 2				12.0	*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.				
Number of regenerating native species				0	Trees > 15m				
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5				0	Trees 5 - 15 m				
					Trees < 5m				
					Mallee > 5m				3
					Mallee < 5m				3
					Shrubs > 2m				2
					Shrubs 0.5 - 2m				1
					Shrubs < 0.5				4
					Forbs				
					Mat Plants				
					Grasses > 0.2m				
					Grasses < 0.2m				
					Sedges > 1m				1
					Sedges < 1m				1
					Hummock grasses				
					Vines, scramblers				
					Mistletoe				
					Ferns				
					Grass-tree				
					Total				11
Native Plant Life Forms (max 20) from benchmark score weighted by a factor of 2				12.0	Threatened Flora Score				0
					0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16 pts; 20 or > = 0.2 pts				0
					Potential habitat for Threatened Fauna Species (number observed or previously recorded)				Number
					*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.				
					State Rare species observed or locally recorded (1 pt each)				5
					State Vulnerable species observed or locally recorded (2.5 pt each)				2
					State Endangered species observed or locally recorded (5 pt each)				0
					Nationally Vulnerable species observed or locally recorded (10 pts each)				1
					Nationally Endangered or Critically endangered species observed or locally recorded (20 pts each)				0
					0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts				20
					Threatened Fauna Score				0.1
					CONSERVATION SIGNIFICANCE SCORE				1.1
Non-Benchmarked Attributes (Scores determined from direct field observations)					Total Scores for the Site				
Is the community naturally treeless?					<input type="checkbox"/>	Score		Vegetation Condition x Landscape Context x Conservation Significance =	
Fallen Timber/Debris (max 5)					0.5	LANDSCAPE CONTEXT SCORE		1.15	UNIT BIODIVERSITY SCORE
Hollow-bearing trees (max 5)					1	VEGETATION CONDITION SCORE		20.11	25.44
Mature Tree (max 8)					2	CONSERVATION SIGNIFICANCE SCORE		1.10	Total Biodiversity Score
Tree Canopy Cover (max 5)					2				(Biodiversity Score x hectares)
									0.28
Vegetation Condition Score calculation					Photo Point and Vegetation Survey Location				
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms					Direction of the Photo				
Fallen timber/debris + Hollow-bearing trees					South				
- If the community Score is Not Benchmarked (SNB) for regeneration this score is multiplied 1.24					GPS Reference				
- If the community is naturally treeless this score is multiplied by 1.29					Datum WGS84				
27.50					Zone (52, 53 or 54) 54				
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)					Easting (6 digits) 394599				
21.50					Northing (7 digits) 6226063				
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))					Description				
20.11					Between the white stake and 3m to left is the impact zone (just right of fence post)				
<div> <div>Low</div> <div>Medium</div> <div>High</div> </div> <div> <div>Native Plant Species Diversity</div> <div>Weed Score</div> <div>Native Plant Life Forms</div> <div>Regeneration</div> <div>Native:exotic Understorey Biomass</div> <div>Mature Trees</div> <div>Tree Canopy Cover</div> <div>Tree Hollows</div> <div>Fallen timber</div> <div>Vegetation Condition Score</div> </div>					<div> <div>What is the purpose of Assessment?</div> <div>Clearance</div> <div>SEB Area</div> <div>Other</div> </div> <div> <div>Assessment for Clearance</div> <div>Loss Factor</div> <div>Loadings for clearance of protected areas</div> <div>Reductions for rehabilitation of impact site</div> <div>SEB Points required</div> </div> <div> <div>Approximate hectares required</div> <div>Economies of Scale Factor</div> <div>Mean Annual rainfall for the site (mm)</div> <div>Payment into the fund (GST Exclusive)</div> <div>Administration fee (GST Inclusive)</div> </div>				
					<div> <div>1.0</div> <div>260</div> <div>\$71.81</div> <div>\$3.95</div> </div>				

Vegetation Condition Scores		Conservation Significance Scores	
SITE: B3		Is the vegetation association considered a Threatened Ecological community or Ecosystem?	
VEGETATION ASSOCIATION DESCRIPTION: Maireana brevifolia/Enchylaena tomentosa Chenopod shrubland		State (Provisional List of Threatened Ecosystems of SA) Rare community (0.1 pt)	
SIZE OF SITE (Ha): 0.0804		State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	
		State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	
		Nationally (EPBC Act) Vulnerable community (0.35 pts)	
		Contains a Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	
		Note; all sites will score a minimum Conservation Significance Score of 1	
		Threatened Community Score	
		1	
Native Plant species diversity		Number of Threatened Flora Species recorded for the site (within the site)	
Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)		If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.	
<5% (3 Points)		State Rare species recorded (1 pt each)	
5-10% (6 Points)		State Vulnerable species recorded (2.5 pt each)	
11 - 20% (9 Points)		State Endangered recorded (5 pts each)	
21 - 30% (12 Points)		Nationally Vulnerable species recorded (10 pts each)	
31 - 40 % (15 Points)		Nationally Endangered or Critically endangered species recorded (20 pts each)	
41 - 50% (18 Points)		0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	
51 - 60% (21 Points)		Threatened Flora Score	
61 - 70% (24 Points)		0	
71 - 80% (27 Points)		0	
>80% (30 Points)		0	
Native Plant species diversity score (max score of 30)		Potential habitat for Threatened Fauna Species (number observed or previously recorded)	
9		Number	
Weed Scores		If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.	
Does the site contain plant species declared under the NRM Act 2004 (1.5 points)		State Rare species observed or locally recorded (1 pt each)	
Cover rating for all declared weeds (max of 6)		State Vulnerable species observed or locally recorded (2.5 pt each)	
2		State Endangered species observed or locally recorded (5 pt each)	
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)		Nationally Vulnerable species observed or locally recorded (10 pts each)	
Cover rating for all environmental weeds (max of 6)		Nationally Endangered or Critically endangered species observed or locally recorded (20 pts each)	
3		0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	
Weed Score (max score of 15)		Threatened Fauna Score	
9		0.1	
Is the community naturally treeless?		CONSERVATION SIGNIFICANCE SCORE	
Tree attributes not scored for treeless community		1.1	
Native:exotic Understorey biomass score (max 5)		Total Scores for the Site	
1		Score	
		LANDSCAPE CONTEXT SCORE	
		1.14	
		VEGETATION CONDITION SCORE	
		8.46	
		CONSERVATION SIGNIFICANCE SCORE	
		1.10	
		Vegetation Condition x Landscape Context x Conservation Significance =	
		UNIT BIODIVERSITY SCORE	
		10.61	
		Total Biodiversity Score	
		(Biodiversity Score x hectares)	
		0.85	
Vegetation Condition Score calculation		Photo Point and Vegetation Survey Location	
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees		Direction of the Photo	
If the community is naturally treeless this score is multiplied by 1.24		North	
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - (Biomass score x 2))exp2/2)		GPS Reference	
16.12		Datum WGS84	
38.00		Zone (52, 53 or 54) 54	
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))		Easting (6 digits) 394618	
8.46		Northing (7 digits) 6225474	
		Description	
		Chenopod shrubland, to the west of a row of planted Casuarina sp. Impact will be from 2m to 5m west (left) of trees	
		Assessment for Clearance	
		Approximate hectares required	
		0.11	
		Economies of Scale factor	
		0.35	
		Mean Annual rainfall for the site (mm)	
		256	
		Payment into the fund (GST Exclusive)	
		\$211.76	
		Administration fee (GST Inclusive)	
		\$11.66	

Vegetation Condition Scores		Conservation Significance Score																					
SITE:	B4	Is the vegetation association considered a Threatened Ecological community or Ecosystem?																					
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus socialis open mallee over Acacia sp & Senna sp.	State (Provisional List of Threatened Ecosystems of SA) Rare community (0.1 pt)	<input type="checkbox"/>																				
SIZE OF SITE (Ha)	0.27	State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	<input type="checkbox"/>																				
		State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	<input type="checkbox"/>																				
		Nationally (EPBC Act) Vulnerable community (0.35 pts)	<input type="checkbox"/>																				
		Contains a Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	<input type="checkbox"/>																				
Native Plant species diversity		Note; all sites will score a minimum Conservation Significance Score of 1																					
Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)		Threatened Community Score																					
<table border="1"> <tr><td><5% (3 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>5-10% (6 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>11 - 20% (9 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>21 - 30% (12 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>31 - 40 % (15 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>41 - 50% (18 Points)</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>51 - 60% (21 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>61 - 70% (24 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>71 - 80% (27 Points)</td><td><input type="checkbox"/></td></tr> <tr><td>>80% (30 Points)</td><td><input type="checkbox"/></td></tr> </table>		<5% (3 Points)	<input type="checkbox"/>	5-10% (6 Points)	<input type="checkbox"/>	11 - 20% (9 Points)	<input type="checkbox"/>	21 - 30% (12 Points)	<input type="checkbox"/>	31 - 40 % (15 Points)	<input type="checkbox"/>	41 - 50% (18 Points)	<input checked="" type="checkbox"/>	51 - 60% (21 Points)	<input type="checkbox"/>	61 - 70% (24 Points)	<input type="checkbox"/>	71 - 80% (27 Points)	<input type="checkbox"/>	>80% (30 Points)	<input type="checkbox"/>	1	
<5% (3 Points)	<input type="checkbox"/>																						
5-10% (6 Points)	<input type="checkbox"/>																						
11 - 20% (9 Points)	<input type="checkbox"/>																						
21 - 30% (12 Points)	<input type="checkbox"/>																						
31 - 40 % (15 Points)	<input type="checkbox"/>																						
41 - 50% (18 Points)	<input checked="" type="checkbox"/>																						
51 - 60% (21 Points)	<input type="checkbox"/>																						
61 - 70% (24 Points)	<input type="checkbox"/>																						
71 - 80% (27 Points)	<input type="checkbox"/>																						
>80% (30 Points)	<input type="checkbox"/>																						
Native Plant species diversity score (max score of 30)		18																					
Weed Scores		Number of Threatened Flora Species recorded for the site (within the site)																					
Does the site contain plant species declared under the NRM Act 2004 (1.5 points)		*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.																					
Cover rating for all declared weeds (max of 6)		State Rare species recorded (1 pt each)																					
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)		State Vulnerable species recorded (2.5 pt each)																					
Cover rating for all environmental weeds (max of 6)		State Endangered recorded (5 pts each)																					
Weed Score (max score of 15)		Nationally Vulnerable species recorded (10 pts each)																					
11.5		Nationally Endangered or Critically endangered species recorded (20 pts each)																					
Is the community naturally treeless?		0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts																					
Mature Tree Score (max 8)		Threatened Flora Score																					
3		0																					
Fallen timber/debris (max 5)		0																					
Hollow-bearing trees Score (max 5)		0																					
Tree Canopy Cover Score (max 5)		0																					
5		0																					
Native:exotic Understorey biomass score (max 5)		0																					
5		0																					
Vegetation Condition Score calculation		CONSERVATION SIGNIFICANCE SCORE																					
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees		1.1																					
If the community is naturally treeless this score is multiplied by 1.24		Total Scores for the Site																					
37.50		LANDSCAPE CONTEXT SCORE																					
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)		Score																					
5.50		1.14																					
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))		VEGETATION CONDITION SCORE																					
34.92		34.92																					
		CONSERVATION SIGNIFICANCE SCORE																					
		1.10																					
		Vegetation Condition x Landscape Context x Conservation Significance =																					
		UNIT BIODIVERSITY SCORE																					
		43.79																					
		Total Biodiversity Score																					
		(Biodiversity Score x hectares)																					
		11.82																					
		Photo Point and Vegetation Survey Location																					
		Direction of the Photo																					
		North																					
		GPS Reference																					
		Datum																					
		WGS84																					
		Zone (52, 53 or 54)																					
		54																					
		Easting (6 digits)																					
		394626																					
		Northing (7 digits)																					
		6225139																					
		Description																					
		The northern part of the site, as in this photo, shows more open disturbed areas than the southern																					
		Assessment for Clearance																					
		Approximate hectares required																					
		1.55																					
		Loss Factor																					
		1.0																					
		Loadings for clearance of protected areas																					
		256																					
		Reductions for rehabilitation of impact site																					
		SEB Points required																					
		12.42																					
		Payment into the fund (GST Exclusive)																					
		\$2,934.48																					
		Administration fee (GST Inclusive)																					
		\$161.40																					

[illegible]



**FINAL Scoresheet
A1.xlsm**



**FINAL Scoresheet
B1 B2.xlsm**



Block B B3.jpg



**FINAL Scoresheet
B4.xlsm**



**FINAL Scoresheet
B5.xlsm**

Appendix 3. Flora Species List

Plant Species Recorded (Native and Introduced)		Threatened Sp.		Introduced Species
Species	Common Name	EPBC	SA	
<i>Atriplex stipitata</i>	Bitter Saltbush			
<i>Acacia sclerophylla</i> var. <i>sclerophylla</i>	Hard-leaf Wattle			
<i>Enchylaena tomentosa</i> var.	Ruby Saltbush			
<i>Carpobrotus modestus/rossii</i>	Native Pigface			
<i>Senna artemisioides</i> ssp. <i>artemisioides</i>	Desert Senna			
<i>Salsola australis</i>	Buckbush			
<i>Dodonaea viscosa</i> ssp. <i>angustissima</i>	Narrow-leaf Hop-bush			
<i>Eucalyptus gracilis</i>	Yorrell			
<i>Eucalyptus socialis</i> ssp.	Beaked Red Mallee			
<i>Eucalyptus dumosa</i>	White Mallee			
<i>Eucalyptus incrassata</i>	Ridge-fruited Mallee			
<i>Eucalyptus oleosa</i> ssp.				
<i>Senecio pinnatifolius</i> group	Variable Groundsel			
<i>Myoporum platycarpum</i> ssp.	False Sandalwood			
<i>Senna artemisioides</i> ssp. <i>petiolaris</i>				
<i>Maireana brevifolia</i>	Short-leaf Bluebush			
<i>Rhagodia parabolica</i>	Mealy Saltbush			
<i>Acacia ligulata</i>	Umbrella Bush			
<i>Maireana sedifolia</i>	Bluebush			
<i>Roepera apiculata</i>	Pointed Twinleaf			
<i>Roepera aurantiaca</i> ssp. <i>aurantiaca</i>	Shrubby Twinleaf			
<i>Rhagodia spinescens</i>	Spiny Saltbush			
<i>Olearia pimeleoides</i>	Pimelea Daisy-bush			
<i>Vittadinia cuneata</i> var.	Fuzzy New Holland Daisy			
<i>Westringia rigida</i>	Stiff Westringia			
<i>Acacia oswaldii</i>	Umbrella Wattle			
<i>Acacia rigens</i>	Nealie			
<i>Acacia wilhelmiana</i>	Dwarf Nealie			
<i>Pittosporum angustifolium</i>	Native Apricot			
<i>Santalum acuminatum</i>	Quandong			
<i>Grevillea huegelii</i>	Comb Grevillea			
<i>Salsola australis</i>	Buckbush			
<i>Lomandra</i> sp.	Mat-rush			
<i>Dissocarpus paradoxus</i>	Ball Bindyi			
<i>Haloragis aspera</i>	Rough Raspwort			
<i>Maireana pyramidata</i>	Black Bluebush			
<i>Rytidosperma</i> sp.	Wallaby-grass			
<i>Austrostipa</i> sp.	Spear-grass			
<i>Triodia irritans</i>	Spinifex			
<i>Avena barbata/fatua</i>	Wild Oat			*
<i>Brassica</i> sp.				*
<i>Sonchus</i> sp.	Sow-thistle			
<i>Asphodelus fistulosus</i>	Onion Weed			*
<i>Bromus diandrus</i>	Great Brome			*
<i>Carrichtera annua</i>	Ward's Weed			*
<i>Portulaca</i> sp.	Purslane			
<i>Rapistrum rugosum</i> ssp. <i>rugosum</i>	Turnip Weed			*
<i>Diplotaxis</i> sp.	Rocket			*
<i>Hypochaeris radicata</i>	Rough Cat's Ear			*
<i>Marrubium vulgare</i>	Horehound			*
<i>Urtica</i> sp.	Nettle			
<i>Medicago</i> sp.	Medic			*

Plant Species Recorded (Native and Introduced)		Threatened Sp.		Introduced Species
Species	Common Name	EPBC	SA	
<i>Atriplex semibaccata</i>	Berry Saltbush			
<i>Acacia stenophylla</i>	River Cooba			
<i>Enchylaena tomentosa</i> var.	Ruby Saltbush			
<i>Einadia nutans</i> ssp.	Climbing Saltbush			
<i>Senna artemisioides</i> ssp. <i>artemisioides</i>	Desert Senna			
<i>Salsola australis</i>	Buckbush			
<i>Isolepis</i> sp.	Club-rush			
<i>Phragmites australis</i>	Common Reed			
<i>Melaleuca lanceolata</i>	Dryland Tea-tree			
<i>Eucalyptus camaldulensis</i> ssp.	River Red Gum			
<i>Asparagus asparagoides</i> f.	Bridal Creeper			*
<i>Asparagus aethiopicus</i>	Asparagus Fern			*
<i>Avena barbata/fatua</i>	Wild Oat			*
<i>Brassica</i> sp.				*
<i>Cotoneaster</i> sp.	Cotoneaster			*
<i>Cynodon dactylon</i> var. <i>dactylon</i>	Couch			*
<i>Heliotropium curassavicum</i>	Smooth Heliotrope			*

Appendix 4. Copies of associated approvals

Please see documents forwarded separately