Native Vegetation Clearance

Princes Highway Site Five Overtaking Lane

Data Report

Clearance under the *Native Vegetation Regulations 2017*

17 May 2022

Prepared by H. Merigot – EBS Ecology (NVC Accredited Consultant)

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Version 3

Prepared by for WSP Pty Ltd

Document Control					
Revision No.	**Date issued**	**Authors**	**Reviewed by**	**Date Reviewed**	**Revision type**
1	29/11/2021	H. Merigot (NVC Accredited Consultant)	Dr M. Louter	29/11/2021	Draft
2	19/01/2022	H. Merigot	-	-	Final
3	17/5/2022	H. Merigot	-	-	Final

Distribution of Copies			
Revision No.	**Date issued**	**Media**	**Issued to**
1	08/12/2021	Electronic	Rebecca Wenzel, WSP Pty Ltd
2	19/01/2022	Electronic	Rebecca Wenzel, WSP Pty Ltd
3	17/5/2022	Electronic	Hannah Keynes, DIT

Project Number: EX200503C

CITATION: EBS Ecology (2022) Native Vegetation Clearance Princes Highway Site Five Overtaking Lane Data Report. Report to WSP Pty Ltd. EBS Ecology, Adelaide.

Cover photograph: *Acacia melanoxylon* in the Project Area.

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Glossary and abbreviations

BDBSA	Biological Database of South Australia (maintained by DEW)
DAWE	Department of Agriculture, Water and the Environment (Commonwealth)
DEW	Department for Environment and Water (South Australia)
EBS	Environment and Biodiversity Services Pty Ltd (trading as EBS Ecology)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ha	Hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
km	Kilometre(s)
MM	Maintenance Marker
NatureMaps	Initiative of DEW that provides a common access point to maps and geographic information about South Australia's natural resources in an interactive online mapping format
NPW Act	*National Parks and Wildlife Act 1972*
NV Act	*Native Vegetation Act 1991*
NVC	Native Vegetation Council
PMST	Protected Matters Search Tool (under the EPBC Act; maintained by DAWE)
Project	Proposed overtaking lane along Princes Highway near Mt Gambier.
Project Area	Location of the proposed overtaking lanes at Site 5 – Mt Gambier
SA	South Australia(n)
Search Area	5 km buffer of the Project Area considered in the desktop assessment database searches
SEB	Significant Environmental Benefit
sp.	Species
spp.	Species (plural)
ssp.	Sub-species
STAM	Scattered Tree Assessment Method
TEC	Threatened Ecological Community
var.	Variety (a taxonomic rank below that of species and subspecies, but above that of form)

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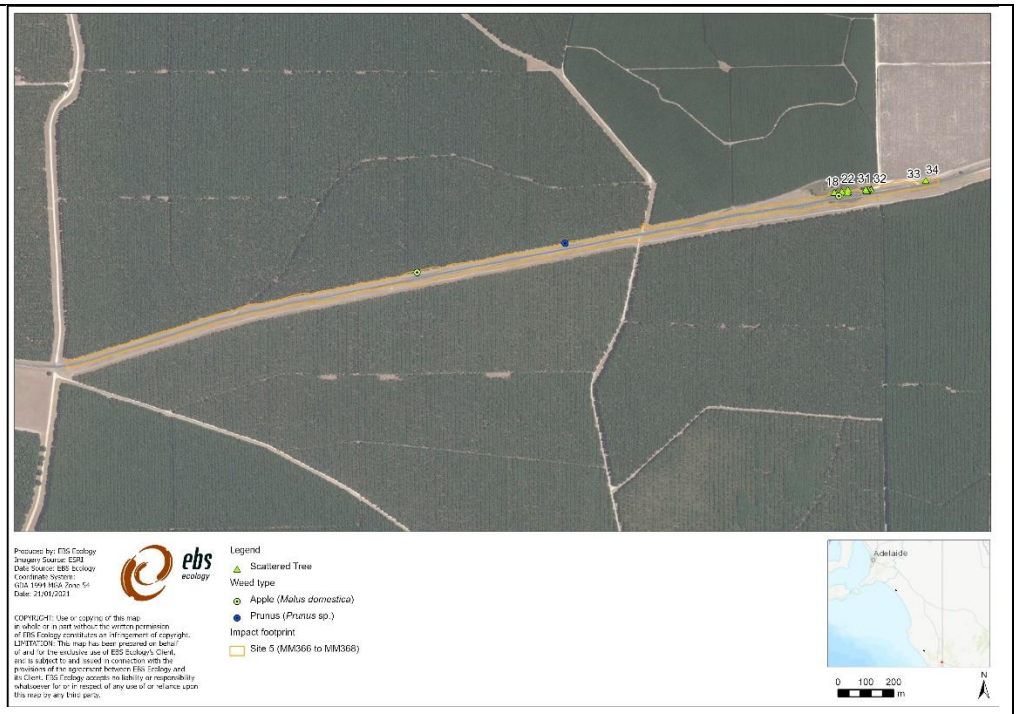
1. Application information

Table 1. Application details.

Applicant:	WSP Pty Ltd		
Key contact:	**Bill Zhang** [redacted]		
Landowner:	Department of Infrastructure and Transport		
Site Address:	14 km east of Mt Gambier towards the Vic/SA border. The Project Spans 2 km eastbound (**Site 5a** - MM366 to MM368) + 2 km westbound (**Site 5b** - MM367 to MM369).		
Local Government Area:	Grant District Council	**Hundred:**	Gambier
Title ID:	Road reserve Property adjacent: CT6256/738 CT6256/738 CT6256/738	**Parcel ID**	Road reserve Property adjacent: H420400 S578 H420400 S579 H420400 S580

Table 2. Summary of the proposed clearance.

Purpose of clearance:	Clearance is required to establish new overtaking lanes along Princes Highway.
Native Vegetation Regulation:	Regulation 12, Schedule 1: Clause 32 – Works on behalf of Commissioner of Highways
Description of the vegetation under application:	Scattered trees of *Acacia melanoxylon* (Australian Blackwood) ranging in health from excellent to fair.
Total proposed clearance – area (ha) and/or number of trees:	**21 *Acacia melanoxylon*** trees are proposed to be cleared.
Level of clearance:	Level 4
Overlay (Planning and Design Code):	Native Vegetation Overlay

Map of proposed clearance area:	
Mitigation Hierarchy:	***Avoidance -*** As overtaking lanes are built immediately adjacent to the existing roads, construction is required next to the existing Princes Highway and within the existing road corridor boundary. Along the majority of the overtaking lane extent, there is no native vegetation. During planning and design, reducing impacts to vegetation was considered alongside other constraints on this section of road, such as site distances and the presence of curves, existing junctions and width of the road corridor. ***Minimization*** – The proposed vegetation clearance is confined to the project footprint. As a standard practice during construction, the contractors will be advised to retain vegetation if it does not need to be cleared for the project, to utilise pruning if possible and to use non-invasive excavation techniques when working in the structural root zone of trees to be retained. Additionally, impact to vegetation will be minimised by implementing of a Construction Environmental Management Plan (CEMP). Where possible, the footprint of the project has been minimised to the smallest possible, whilst still facilitating the function and safety of the road. ***Rehabilitation or restoration –*** The overtaking lanes are permanent land clearance that is unlikely to be rehabilitated or restored. ***Offset –*** The adverse impacts to native vegetation that cannot be avoided or minimised will be offset through the achievement of a SEB that outweighs the proposed impact.
SEB Offset proposal	Payment of **$33,480.33** which includes an administration fee of **$1,745.42** (including GST).

2. Purpose of clearance

2.1. Description

EBS Ecology (EBS) was engaged by WSP Pty Ltd (WSP) on behalf of the Department for Infrastructure and Transport (DIT) to provide an ecological assessment for the proposed overtaking lanes along Princes Highway, Site 5 - Mt Gambier (the Project). High level assessments of vegetation for five possible overtaking lane locations were initially assessed, with three of these selected to be constructed along the Princes Highway. Eastbound and westbound overtaking lanes are proposed along approximately 3 kilometres (km) of roadside with impacts occurring on both sides of the road.

Objectives

EBS were engaged by WSP to undertake a flora and fauna assessment of the Project Area to determine potential key risks to significant flora, fauna and/or communities, including the following project components:

- Undertake a desktop assessment of the likelihood of occurrence and status of threatened flora and fauna protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and State *National Parks and Wildlife Act 1972* (NPW Act);
- Assess native vegetation within the Project Area for clearance using the Native Vegetation Council (NVC) endorsed Scattered Tree Assessment Method (STAM); and
- Calculate the Significant Environmental Benefit (SEB) offset requirements based on the impact footprint.

The report presents findings of the desktop assessment; in addition to results of the STAM required for assessing trees proposed for clearance under the *Native Vegetation Regulations 2017*.

2.2. Background

Project Area

The Project Area occurs along the Princes Highway, approximately 14 km east of the town of Mt Gambier, approaching the border between the states of South Australia and Victoria (Figure 1). The proposed eastbound overtaking lane (Site 5a) spans 2 km from Maintenance Marker (MM)366 to MM368, and the proposed westbound overtaking lane (Site 5b) spans 2 km from MM367 to MM369 with the overtaking lanes overlapping for 1 km.

Current and surrounding land use

The Project Area consists of a public roadside reserve alongside the Princes. The vegetation present in the location of the proposed overtaking lane consists predominantly of exotic grass and herb understorey, with scattered native vegetation in the eastern section of the Project Area. The Project Area is surrounded by *Pinus radiata* softwood plantation within the Green Triangle forestry plantation.

Administrative Boundaries

The Project Area occurs within the Grant District Council area within the Limestone Coast Landscape Management Region, Hundred of Gambier and the Grey County.

Bioregions

The Interim Biogeographical Regionalisation of Australia (IBRA) identifies geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The bioregions are further refined into subregions and environmental associations. The Project Area is located in the Naracoorte Coastal Plain IBRA bioregion, the Glenelg Plain IBRA subregion and the Caroline IBRA environmental association. Approximately 10% (15190 hectares (ha)) of the subregion and 7% (1827 ha) of the environmental association is mapped as remnant native vegetation, of which 59% (8988 ha) and 83% (1520 ha) respectively is formally conserved.

2.3. General location map

The location of the Site 5 (a and b) overtaking lanes is provided in Figure 1.

Figure 1. Location of the overtaking lanes.

2.4. Details of the proposal

The Project Area consists of eastbound and northbound overtaking lanes that are both approximately 2 km long and overlap for approximately 1 km. The eastbound overtaking lane is situated between maintenance markers MM366 to MM368 along Princes Highway and the westbound overtaking lane is situated between maintenance markers MM367 to MM369.

2.5. Approvals required *or* obtained

Native Vegetation Act 1991 **(NV Act)** – no previous approvals associated with the Project.

Environment Protection and Biodiversity Conservation Act 1999 **(EPBC Act)** – EPBC approval is not required for this for this Project.

Planning, Development and Infrastructure Act 2016 **(DPI Act) –** Development approval is not required for this Project.

National Parks and Wildlife Act 1972 **(NPW Act) –** EBS Ecology has the required flora collection permit (Permit number: K25613-20).

Landscape South Australia Act 1991 – A Water Affecting Permit is not required for this Project. A permit to transport declared weeds on a public road may be required for this Project.

Aboriginal Heritage Act 1988 – Approval will be required if any sites, objects or remains are uncovered during the works.

2.6. Native Vegetation Regulation

The Project is considered to be permitted under the following regulation:

Regulation 12(32)—Works on behalf of Commissioner of Highways

Clearance of vegetation incidental to work being undertaken by or on behalf of the Commissioner of Highways (other than repair or maintenance work of a kind referred to in Part 1 clause 2).

3. Method

3.1. Flora assessment

The flora assessment was undertaken by NVC Accredited EBS Consultants J. Skewes and Ecologist E. West from 8-11 December 2020 in accordance with the Scattered Trees Assessment Method (STAM) (NVC, 2020).

3.1.1. Scattered Tree Assessment Method

The STAM is derived from the *Scattered Tree Clearance Assessment in South Australia: Streamlining, Guidelines for Assessment and Rural Industry Extension* report (Cutten and Hodder 2002). The STAM is suitable for assessing scattered trees in the following instances:

- Individual scattered trees (i.e. canopy does not overlap). The spatial distribution of trees may vary from approaching what would be considered their original distribution (pre-European) through to single isolated trees in the middle of a paddock; or
- Dead trees (when a dead tree is considered native vegetation); or
- Clumps of trees (contiguous overlapping canopies) if the clump is small (approximately <0.1 ha); and
- For both scattered trees and clumps:
    - The ground layer comprises wholly or largely of introduced species;
    - Some scattered colonising native species may be present, but represent <5% of the ground cover; and
    - The area around the trees consists of introduced pasture or crops.

Details of the scattered tree Point Scoring System are outlined in the *Scattered Tree Assessment Manual* (NVC 2020).

The numbers of uncommon and threatened scattered tree using fauna species entered into the Scattered Tree Scoresheet were calculated by cross-referring the Biological Database of South Australia data extract and the lists of scattered tree using fauna in the *Scattered Tree Assessment Manual* (NVC 2020). The resource use of each species identified was considered when determining each tree's suitability for threatened fauna species (e.g. species that only use hollows in scattered trees were only assigned to scattered trees containing hollows).

3.2. Fauna assessment

Fauna surveys were conducted in conjunction with the flora assessments along the site. All native and exotic fauna species opportunistically encountered (directly observed, or tracks, scats, burrows, nests and other signs of presence) during the native vegetation assessment were recorded. Potential fauna refuge sites, such as hollows, were noted as an indication of availability of suitable habitat. Particular attention was paid to identifying habitat for threatened species. For each opportunistic fauna observation, the species, number of individuals, GPS location, detection methodology (sight, sound or sign) and habitat were recorded.

3.3. Desktop assessment

To determine the potential for any threatened flora and fauna species and Threatened Ecological Communities (TECs) (both Commonwealth and State listed) to occur within the Project Area, a desktop assessment. This was undertaken using a 5 km buffer in database searches: Protected Matters Search Tool (PMST) and Biological Database of South Australia (BDBSA).

3.3.1. PMST report

A Protected Matters Search Tool (PMST) report was generated on 13th of July 2020 to identify nationally threatened flora and fauna, migratory fauna and TECs under the EPBC Act relevant to the Project Area (DAWE 2020). Only species and TECs identified in the PMST report that are likely or known to occur within the Search Area were assessed for their likelihood of occurrence within the Project Area.

3.3.2. BDBSA data extract

A data extract from the BDBSA was obtained from NatureMaps to identify flora and fauna species that have been recorded within 5 km of the Project Area (data extracted 21 July 2021; DEW 2020). The BDBSA is comprised of an integrated collection of species records from the South Australian Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia and the Australasian Wader Study Group, which meet the Department for Environment and Water's (DEW) standards for data quality, integrity and maintenance. Only species with records since 1995 and a spatial reliability of less than 1 km were assessed for their likelihood of occurrence.

3.3.3. Likelihood of occurrence

The criteria for the likelihood of occurrence of threatened species within the Project Area are described in Table 3.

Table 3. Criteria for the likelihood of occurrence of threatened species within the Project 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 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. Assessment outcomes

4.1. Vegetation assessment

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

The Project Area at Site 5 contains native vegetation that is highly modified due to previous disturbances associated with road construction and the adjacent pine forestry plantations. Less than 5% of the vegetation is native with only a few native species present in small pockets across the Site. A large patch of *Acacia melanoxylon* is present in the northern part of the site, consisting of 21 individuals (Figure 2) which were assessed using STAM. The condition of the trees range from fair to excellent. There were an additional six native species recorded at the site:

- *Pteridium esculentum* (Bracken Fern)
- *Austrostipa* sp.
- *Chloris truncata* (Windmill grass)
- *Ficinia nodosa* (Knobby Club-rush)
- *Chrysocephalum* sp.
- *Acaena echinata* (Sheep's Burr).

Across the remainder of the site, exotic grassland is widespread and consists of a major infestation comprising the following species: *Lagurus ovata* (Hare's Tails), *Trifolium arvense* (Hare's Foot Clover), *Avena barbata* (Bearded Oat) and *Oenothera stricta* (Evening Primrose).

The landform of the Project Area is generally flat with some considerable rises within the roadside reserve. The site overlies the Kromelite Land System which exhibits occasional calcarenite outcrops, however is predominantly comprised of a sandy plain with deep sands and few low rises with deep sand over brown clay soils. The site also overlies the Caroline Land System which is predominantly comprised of linear and irregular low dunes and sand plains, with patches of shallow soils on calcarenite forming rises.

4.1.2. Details of the scattered trees proposed to be impacted

Twenty-one individual scattered trees of *Acacia melanoxylon* (Australian Blackwood) are proposed to be impacted by the proposed overtaking lanes (Table 4). Locations of the scattered trees are provided in Figure 2. Photo's of all the 21 trees are provided in Appendix 3.

Table 4. Details of the scattered trees proposed to be impacted.

Tree #	Tree spp.	No. of trees	Height (m)	Hollows	Diameter (cm)	Canopy dieback (%)	Biodiversity Score	Fauna Habitat Score	Photo #
16	*Acacia melanoxylon*	4	13.0	0	29	0	3.53	1.8	170
17	*A. melanoxylon*	5	12.0	0	22	20	1.97	1.8	169
18	*A. melanoxylon*	5	10.0	0	20	30	1.07	1.8	167
19	*A. melanoxylon*	1	8.0	0	18	15	0.63	1.8	168
20	*A. melanoxylon*	3	6.0	0	12	10	0.45	1.8	165
21	*A. melanoxylon*	2	8.0	0	16	15	0.60	1.8	164
22	*A. melanoxylon*	1	9.0	0	40	20	2.13	1.8	166

4.1.3. Site map showing areas of proposed impact

Figure 2. Scattered trees assessed and weed vegetation observed within the Project Area during field survey. Sites 5a and 5b are combined.

4.2. Threatened species assessment

The EPBC PMST identified that no Threatened Ecological Communities (TEC) are likely to be present within 5 km of the Project Area.

4.2.1. Threatened flora

EPBC Act

The PMST identified five flora species listed as threatened under the EPBC Act as known or likely to occur within 5 km of the Project Area (Table 5). Of these, four are also listed under the NPW Act. None of the threatened species have been recorded within 5 km recently, and there is no suitable habitat present within the Project Area. Therefore the five species are deemed unlikely to occur within the Project Area,

NPW Act

The BDBSA search did not identify threatened flora species listed under the NPW Act within 5 km of the Project Area. (Table 5).

Table 5. Threatened flora likelihood of occurrence assessment for the Project Area.

Scientific name	Common name	Conservation status		Source of record	PMST category/ NatureMaps Sighting Date	Habitat	Likelihood of occurrence within project area
		Aus	SA				
Glycine latrobeana	Clover Glycine	VU	V	1	Likely to occur within area	Inhabits native grasslands, dry sclerophyll forests, woodlands and low open woodlands, typically with a grassy ground layer, and growing on undulating plains (DAWE 2021).	**Unlikely** No suitable habitat in Project Area.
Prasophyllum spicatum	Dense Leek-orchid	VU	E	1	Likely to occur within area	Occurs on sandy soils in coastal and near-coastal heathland and heathy woodland (DAWE 2021).	**Unlikely** No suitable habitat in Project Area.
Pterostylis chlorogramma	Green-striped Greenhood	VU	E	1	Likely to occur within area	Grows in peaty grey sands, near soaks, growing amid low sedges with shrubby E. baxteri (DAWE 2021).	**Unlikely** No suitable habitat in Project Area.
Senecio psilocarpus	Swamp Fireweed	VU	V	1	Likely to occur within area	Occurs on high-quality herb-rich wetlands on plains (DAWE 2021).	**Unlikely** No suitable habitat in Project Area.
Xerochrysum palustre	Swamp Everlasting	VU		1	Likely to occur within area	Wetlands on heavy black-clay soils, including shallow freshwater marshes and sedge-swamps (DAWE 2021).	**Unlikely** No suitable habitat in Project Area.

Conservation status

Aus: Australia (*Environment Protection and Biodiversity Conservation Act 1999*). **SA**: South Australia (*National Parks and Wildlife Act 1972*). **Conservation Codes**: **CE**: Critically Endangered. **EN/E**: Endangered. **VU/V**: Vulnerable. **R**: Rare.

Source of Information

1. EPBC Act Protected Matters Report (DAWE 2020) – 5 km buffer applied to Project Area.

4.2.2. Threatened fauna

EPBC Act

The PMST search identified 11 EPBC Act listed threatened species and 3 terrestrial and wetland Migratory species that are known or likely to occur within the 5km buffer from the Project Area (Table 6). Only two of these EPBC listed species is considered as potentially occurring within the Project Area:

- Southern Bent-wing Bat (*Miniopterus orianae bassanii*) (Australia: CR; SA: E)
    - This species roosts underground, and forages predominantly in woodlands near large natural wetlands, river basins and agricultural areas. This species may also forage in urban areas and amongst coastal vegetation. There are both permanent and wetland areas within 13 km of the Project Area, and this species may forage within the Project Area. The vegetation proposed for clearance is unlikely to represent important habitat for this species due to its isolation from connected suitable habitat and lack of other suitable habitat in the vicinity of the Project Area.
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (Australia: VU; SA: R)
    - The Grey-headed Flying-fox (GHFF) has been assessed as possibly occurring within the Project Area. GHFFs are known to occupy forests, woodlands, coastal lowlands, and tablelands of south-eastern Australia. The likelihood that Grey-headed Flying Foxes will use resources provided by a food tree is influenced by distance from the colony's roost and tree cover (McDonald-Madden *et al.* 2005). Although there is suitable habitat within the Project Area, as it is located approximately 150 km from the nearest GHFF camp (near Warrnambool, Victoria), the trees present within the Project Area are unlikely to be considered important habitat for GHFF and therefore, the vegetation clearance for this Project is highly unlikely to impact of the population of GHFFs.

All other EPBC Act listed threatened or migratory fauna species have been assessed as unlikely to occur in the Project Area due to an absence of suitable habitat. Pelagic species were excluded as the Project Area is terrestrial only.

NPW Act

The desktop search identified a total of 16 NPW Act listed threatened species within 5 km of the Project Area (Table 6), of which three were recorded within 5 km of the Project Area since 1995:

- Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) (Vulnerable in South Australia);
- Common Brushtail Possum (*Trichosurus vulpecula*) (Rare in South Australia); and
- Yellow-footed Antechinus (*Antechinus flavipes*) (Vulnerable in South Australia).

Locations of threatened fauna records are provided in Appendix 4. These species and their likelihood of occurrence are described below:

Yellow-tailed Black Cockatoo: The Yellow-tailed Black-Cockatoo occurs in a variety of habitat types, including eucalypt woodland, heathlands, subalpine areas, pine plantations and occasionally in urban areas. The Yellow-tailed Black-Cockatoo is found up to 2000m throughout south-eastern Australia, from Eyre Peninsula to south and central eastern Queensland. This species breeds in mature live trees with large hollows and feed on the seeds of native trees and pinecones. There are pine plantations adjacent to the Project Area, therefore this species may use habitat within the Project Area.

Common Brushtail Possum: This species occurs anywhere where trees with suitable hollows occur, including open forests and woodlands but also urban areas and cities. The species can be common in urban areas (Strahan, 2004). There are trees no with hollows within the Project Area, therefore this species is unlikely to occur within the Project Area.

Yellow-footed Antechinus: This species occupies a variety of habitats, including dry arid scrubland and sclerophyll forest. In the north, it also inhabits coastal heaths, swamps and woodland; in the far north it is found in tropical vine forest. The Project Area consists of scattered trees with highly disturbed understorey, therefore this species is unlikely to occur in the Project Area.

Table 6. Likelihood of threatened fauna species to occur in the Project Area.

Scientific name	Common name	Conservation status		Source of record	PMST category/ NatureMaps Sighting Date	Habitat	Likelihood of occurrence within project area
		Aus.	SA				
Amphibia	**Amphibians**						
Litoria raniformis	Growling Grass Frog	VU		1	Species or species habitat likely to occur within area	In woodland and near large permanent ponds that have emergent reeds and other vegetation.	**Unlikely** Project Area not in close vicinity to any large permanent ponds, lacking woodland community.
Aves	**Birds**						
Botaurus poiciloptilus	Australasian Bittern	EN		1	Species or species habitat likely to occur within area	Freshwater wetlands and rarely in estuaries or tidal wetlands, favouring wetlands dominated by sedges, rushes and reeds growing over a muddy or peaty substrate	**Unlikely** Suitable habitat for this species is unlikely to occur in the Project Area.
Calyptorhynchus banksii graptogyne	South-eastern Red-tailed Black-Cockatoo	EN		1	Breeding known to occur within area	Delimited by Keith to Lucindale to Mt Gambier in South Australia, this species is restricted to Desert Stringybark (*Eucalyptus arenacea*) and Brown Stringybark (*E. baxteri*) woodlands occurring on deep aeolian sands in the Glenelg, Wimmera and Naracoorte Plains, and adjacent woodlands. Nest in scattered trees with hollows	**Unlikely** Species could be observed flying over. Unsuitable habitat in Project Area.
Hirundapus caudacutus	White-throated Needletail	VU, Mi	V	1	Species or species habitat known to occur within area	Almost exclusively aerial in Australia, recorded most commonly above wooded areas (DAWE 2021).	**Unlikely** Species could be observed flying over.

Scientific name	Common name	Conservation status		Source of record	PMST category/ NatureMaps Sighting Date	Habitat	Likelihood of occurrence within project area
		Aus.	SA				
Myiagra cyanoleuca	Satin Flycatcher	Mi		1	Species or species habitat known to occur within area	Known inhabitant of forest, woodland, mangroves and coastal heath scrub. Prefers dense, wet gullies of heavy eucalypt forest in breeding season (Morcombe 2011).	**Unlikely** Unsuitable habitat in Project Area.
Rhipidura rufifrons	Rufous Fantail	Mi		1	Species or species habitat likely to occur within area	Inhabits wet sclerophyll forests, often in gullies dominated by eucalypts, and usually with a dense shrubby understorey often including ferns (DAWE 2021).	**Unlikely** Unsuitable habitat in Project Area.
Rostratula australis	Australian Painted Snipe	EN		1	Species or species habitat likely to occur within area	Dense vegetation of swamps, surrounds and shallows of well vegetated wetlands (Morcombe 2021).	**Unlikely** Unsuitable habitat in Project Area.
Tringa nebularia	Common Greenshank	Mi		1	Species or species habitat known to occur within area	Diverse inland and coastal including permanent and temporary wetlands – billabongs, swamps, lakes, floodplains, sewage farms, saltworks ponds, flooded irrigated crops, estuaries and bays, mudflats and mangroves (Morcombe 2021).	**Unlikely** Unsuitable habitat in Project Area.
Zanda funerea whiteae	Yellow-tailed Black Cockatoo		E	2	2018	The Yellow-tailed Black-Cockatoo occurs in a variety of habitat types, including eucalypt woodland, heathlands, subalpine areas, pine plantations and occasionally in urban areas. The Yellow-tailed Black-Cockatoo is found up to 2000 m throughout south-eastern	**Possible** Suitable habitat within the Project Area.

Scientific name	Common name	Conservation status		Source of record	PMST category/ NatureMaps Sighting Date	Habitat	Likelihood of occurrence within project area
		Aus.	SA				
						Australia, from Eyre Peninsula to south and central eastern Queensland.	
Mammnalia	**Mammals**						
Antechinus flavipes	Yellow-footed Antechinus		V	2	2007	Inhabits dry forests on the inland side of the Great Dividing Range, Australia (Kelly & Bennett 2008).	**Unlikely** No suitable habitat within the Project Area.
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN	V	1	Species or species habitat likely to occur within area	Areas of dense ground cover in varied habitat: heathland, shrubland, sedgeland, heathy open forest and woodland. Can be found in a range of soil types, although usually associated with infertile, sandy and well drained soils (DAWE 2021).	**Unlikely** Unsuitable habitat (no dense ground cover) in Project Area.
Miniopterus orianae bassanii	Southern Bent-wing Bat	CR	E	1	Species or species habitat likely to occur within area	Roosts underground, forages predominantly in woodlands near large natural wetlands, river basins and agricultural areas. May also forage in urban areas and amongst coastal vegetation.	**Possible** This species may forage within the Project Area.
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE Mainland)	VU	E	1	Species or species habitat likely to occur within area	In south-west Victoria, they inhabit open forests dominated by *Eucalyptus obliqua* or *E. baxteri* on highly acidic clay soils with a thin layer of sand (DAWE 2021).	**Unlikely** No forest habitat in Project Area.
Pseudomys shortridgei	Heath Mouse	EN	E	1	Species or species habitat known to occur within area	Occurs in species-rich and structurally complex heathland and woodland, nests/burrows amongst dense ground cover (DAWE 2021).	**Unlikely** Unsuitable habitat in Project Area.

Scientific name	Common name	Conservation status		Source of record	PMST category/ NatureMaps Sighting Date	Habitat	Likelihood of occurrence within project area
		Aus.	SA				
Pteropus poliocephalus	Grey-headed Flying-fox	VU	R	2	2020	Occupies forests, woodlands, coastal lowlands, tablelands of south-eastern Australia. Also known to utilise urban areas for feeding and roosting.	**Possible** Nearby suitable habitat, but this species is not known to utilise *Acacia melanoxylon* species for habitat or foraging.
Trichosurus vulpecula	Common Brushtail Possum		R	2	2005	Anywhere where trees with suitable hollows occur, including open forests and woodlands but also urban areas and cities. The species can be common in urban areas (Strahan 2004).	**Unlikely** No trees with hollows to be impacted.

Conservation status

Aus: Australia (*Environment Protection and Biodiversity Conservation Act 1999*). **SA**: South Australia (*National Parks and Wildlife Act 1972*). **Conservation Codes**: **CE**: Critically Endangered. **EN/E**: Endangered. **VU/V**: Vulnerable. **R**: Rare.

Source of Information

1. EPBC Act Protected Matters Report (DAWE 2020) – 5 km buffer applied to Project Area.
2. NatureMaps data extract (NatureMaps, 2021) - 5 km buffer applied to Project Area

4.3. Cumulative impacts

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

Direct impacts of the proposal include the removal of 21 *Acacia melanoxylon* trees.

The potential indirect impact of the Project include:

- Dust generation during construction, which may impact surrounding vegetation;
- Noise generation, both during construction and from traffic, which may impact fauna species in the area.

It is unlikely that the Project will alter the hydrology (e.g. raised or lowered water table, flooding, impounding water or reduced water supply).

DIT has a number of safety upgrades proposed for the Princes Highway including new overtaking lanes, overtaking lane extensions, intersection upgrades, rest area upgrades and road rehabilitation. Clearance will be required for a number of these projects, however, given the relatively small amount of clearance spread across the >300 km stretch of road, there is unlikely to be a substantial cumulative impact.

4.4. Addressing 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

As overtaking lanes are built immediately adjacent to the existing roads, construction is required next to the existing Princes Highway and within the existing road corridor boundary. Along the majority of the overtaking lane extent, there is no native vegetation. During planning and design, reducing impacts to vegetation was considered alongside other constraints on this section of road, such as site distances and the presence of curves, existing junctions and width of the road corridor.

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).

The proposed vegetation clearance is confined to the project footprint. As a standard practice during construction, the contractors will be advised to retain vegetation if it does not need to be cleared for the project, to utilise pruning if possible and to use non-invasive excavation techniques when working in the structural root zone of trees to be retained. Additionally, impact to vegetation will be minimised by implementing of a Construction Environmental Management Plan (CEMP).

Where possible, the footprint of the project has been minimised to the smallest possible, whilst still facilitating the function and safety of the road.

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 overtaking lanes are permanent land clearance that is unlikely to be rehabilitated or restored.

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 adverse impacts to native vegetation that cannot be avoided or minimised will be offset through the achievement of a SEB that outweighs the proposed impact.

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.

Table 7. Assessment against the Principles of Clearance.

Principle of clearance	Relevant information	Assessment against the principles	Moderating factors that may be considered by the NVC
Principle 1(b) – significance as a habitat for wildlife	Nine fauna species were observed or identified in the area through scats during the fauna assessment within the Project Area (Appendix 1). No threatened fauna species were observed. Two EPBC listed threatened fauna species was identified in the desktop as potentially occurring within in the Project Area, the Southern Bent-wing Bat and Grey-headed Flying-fox. Three State listed threatened fauna species were identified as potentially occurring within the Project Area, Yellow-tailed Black Cockatoo, Common Brushtail Possum and Yellow-footed Antechinus. Trees; Fauna Habitat Score: 1.8 (all trees) Biodiversity Score: between 0.23-6.38)	Seriously at Variance - All trees	Some vegetation within the Project Area is suitable foraging habitat for Southern Bent-wing bat, however the vegetation proposed for clearance is unlikely to represent important habit for this species due to its isolation from connected suitable habitat and the lack other suitable habitat in the vicinity of the Project Area. There is suitable habitat within the Project Area for Grey-headed Flying-foxes, however, as it is located approximately 150 km from the nearest GHFF camp (near Warrnambool, Victoria), the trees present within the Project Area are unlikely to be considered important habitat for GHFF.
Principle 1(c) – plants of a rare, vulnerable or endangered species	The desktop search identified five EPBC flora species that may occur within 5 km of the Project Area, however, all species were assessed as unlikely to occur in the Project Area due to the absence of suitable habitat. There are no NPW Act listed threatened species recorded within 5 km of the Project Area since 1995. Threatened Flora Score(s): 0 (all trees)	Not at Variance	N/A
Principle 1(d) – the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered	No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems are considered present within the clearance area. Threatened Community Score – 1	Not at Variance	N/A

4.6. Risk assessment

The level of risk associated with the application

Table 8. Summary of the level of risk associated with the application.

Total clearance	No. of trees	21
	Area (ha)	-
	Total biodiversity Score	34.61
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 4

5. Clearance summary

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
16	4	1.8	0	3.53	0.8	11.87	$12,347.24
17	5	1.8	0	1.97	1.0	10.33	$10,740.04
18	5	1.8	0	1.07	1.0	5.62	$5,847.25
19	1	1.8	0	0.63	1.0	0.66	$683.67
20	3	1.8	0	0.45	1.0	1.41	$1,470.02
21	2	1.8	0	0.60	1.0	1.25	$1,304.47
22	1	1.8	0	2.13	0.4	0.89	$928.97
Total	**21**			**34.61**		**32.04**	**$33,480.33**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	34.61	32.04	$31,734.91	$1,745.42	$33,480.33

Economies of Scale Factor	0.5
Rainfall (mm)	751

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.

☐ Apply to have SEB Credit assigned from another person or body.

☐ Apply to have an SEB to be delivered by a Third Party.

☒ 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:

WSP proposes to achieve the SEB by paying into the Native Vegetation Fund. The total SEB payment required for the clearance of clearance of 21 scattered trees with a Total Biodiversity Score of 34.61 is **$33,480.33** which includes an administration fee of **$1,745.42** (including GST).

7. References

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8. Appendices

Appendix 1. Fauna Species List

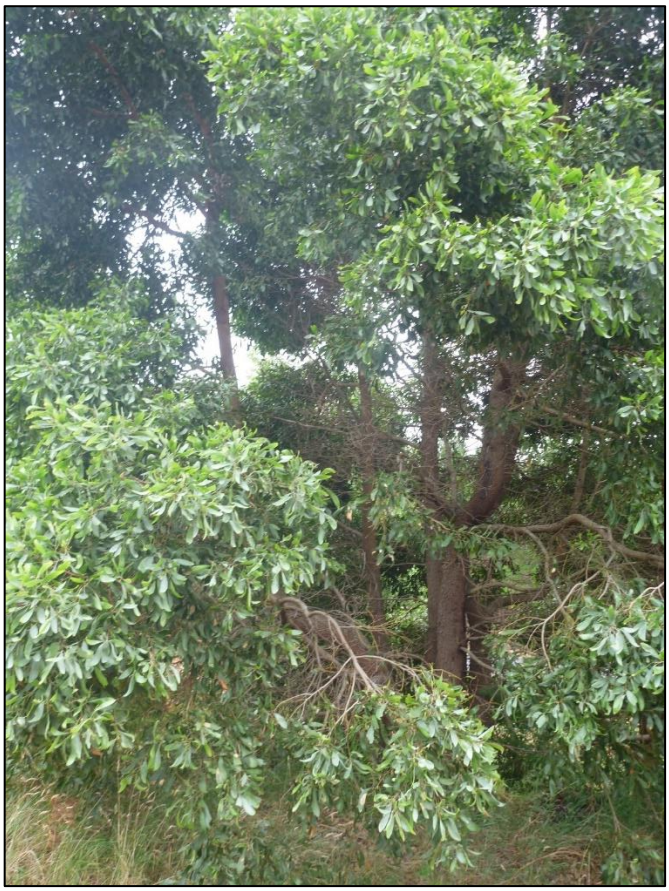
Species name	Common Name	Identification Method
Acanthiza pusilla	Brown Thornbill	Observed
Corvus coronoides	Australian Raven	Observed
Lichenostomus chrysops	Yellow faced Honeyeater	Observed
Macropod sp.	Kangaroo	Scats
Malurus cyaneus	Superb Fairywren	Observed
Pardalotus punctatus	Spotted Pardalote	Burrow
Strepera versicolor	Grey Currawong	Observed
Tachyglossus aculeatus	Short-beaked Echidna	Observed
Vulpes vulpes	Fox	Observed

Appendix 2. Scattered Tree Vegetation Assessment Scoresheets associated with the proposed clearance and SEB Area (*submitted in Excel format*)

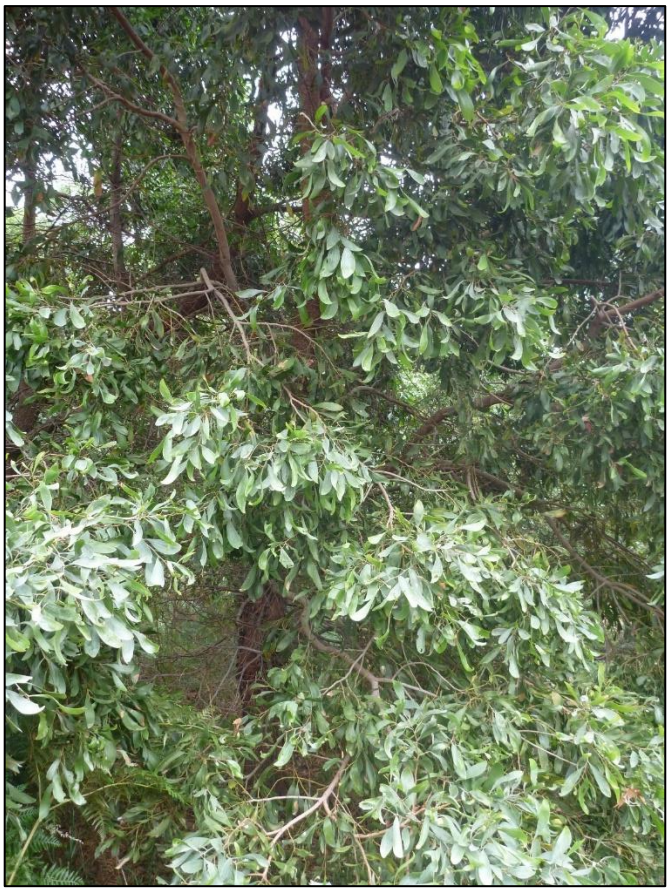
Appendix 3. Scattered Tree Assessment Photographs.

Tree 16: *Acacia melanoxylon*

Tree 17: *Acacia melanoxylon*



Tree 18: ***Acacia melanoxylon***



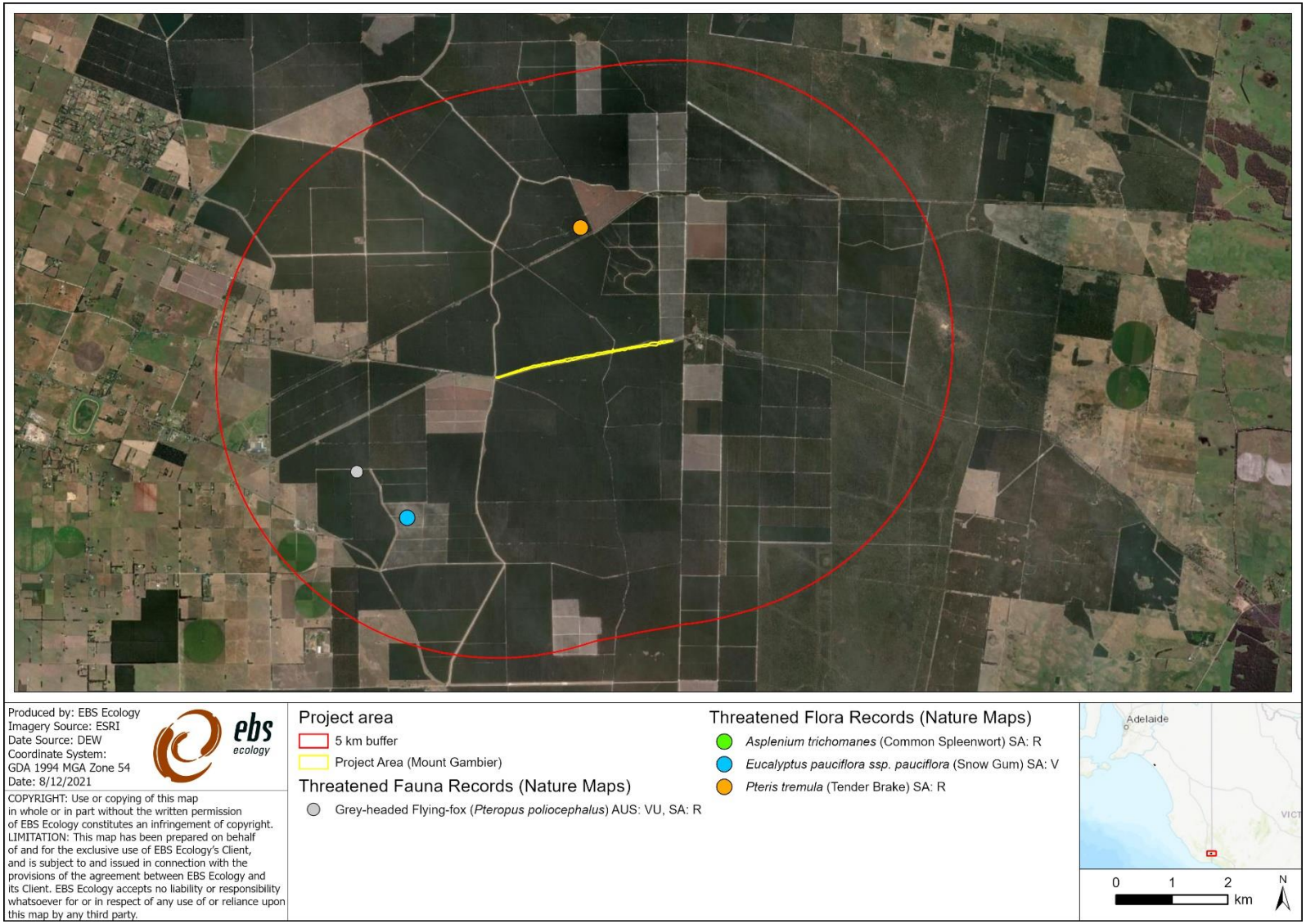
Tree 19: ***Acacia melanoxylon***

Tree 20: ***Acacia melanoxylon***

Tree 21: ***Acacia melanoxylon***

Tree 22: *Acacia melanoxylon*

Appendix 4. Location of flora and fauna records within 5 km of the Project Area.



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