



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8911/1
Permit Holder:	DevelopmentWA
Duration of Permit:	13 November 2020 – 13 November 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of road upgrades.

2. Land on which clearing is to be done

Lot 13 on Plan 16906, Forrestdale
Lot 15 on Plan 16906, Forrestdale
Lot 57 on Plan 3347, Forrestdale
Lot 1 on Deposited Plan 46467, Forrestdale
Lot 10 on Diagram 61348, Forrestdale
Lot 5 on Diagram 41103, Forrestdale
Lot 872 on Deposited Plan 36228, Forrestdale
Lot 79 on Deposited Plan 226007, Forrestdale
Allen Road Reserves (PIN 11867214), Forrestdale
Keane Road Reserve (PINs 11867208 and 1344975), Forrestdale

3. Area of Clearing

The Permit Holder must not clear more than 0.586 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8911/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

6. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

PART III - RECORD KEEPING AND REPORTING

7. Record keeping

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date(s) that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 6 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 7 of this Permit.

8. Reporting

The Permit Holder must produce the records required under condition 7 of this Permit when required by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Meenu Vitarana

A/MANAGER

NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

21 October 2020

Plan 8911/1

115°57'0.000"E

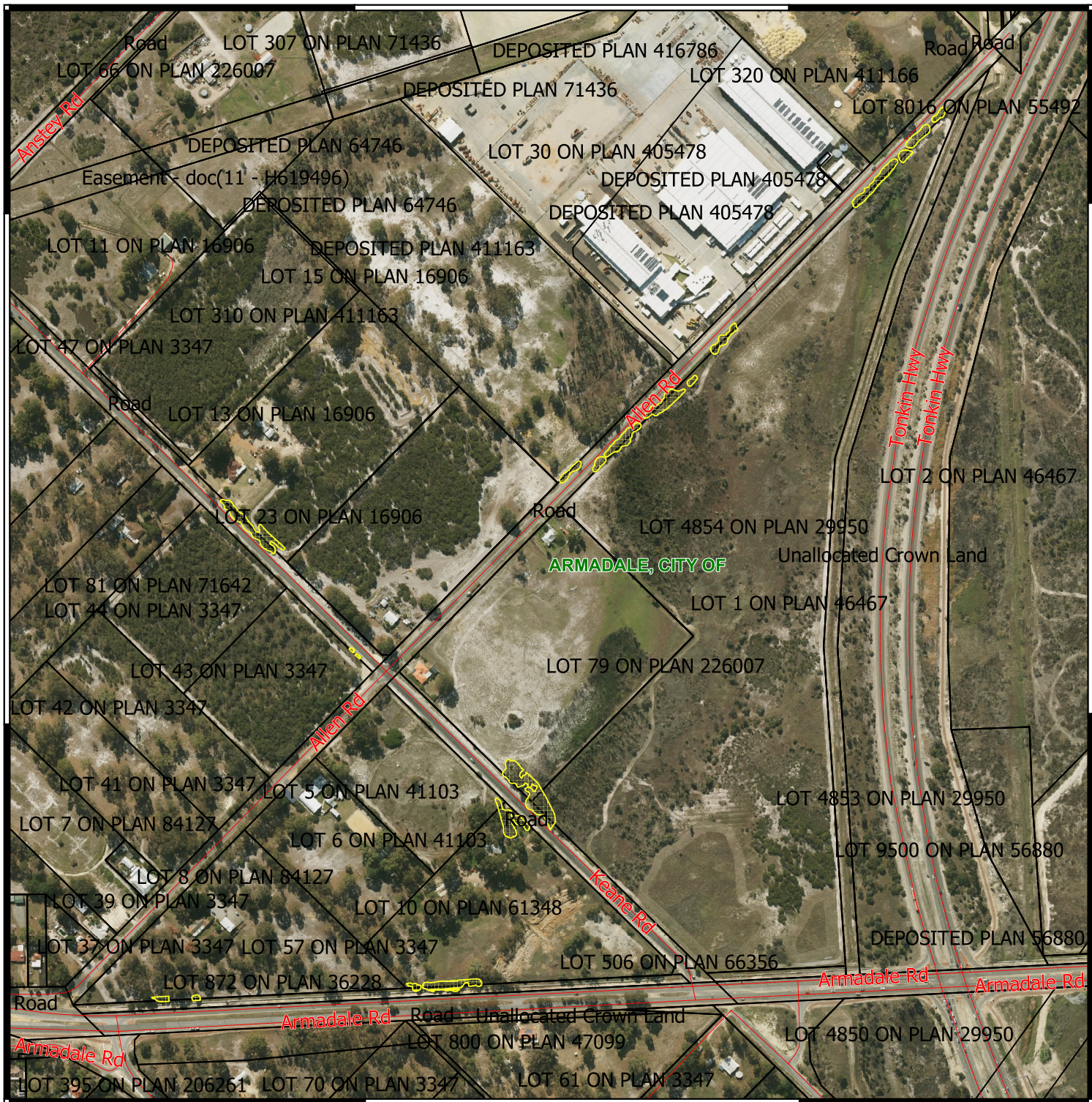
115°57'18.000"E

32°8'24.000"S

32°8'24.000"S

32°8'42.000"S

32°8'42.000"S



115°57'0.000"E

115°57'18.000"E

CPS layers

 CPS areas approved to clear

base layers

 Road Centrelines

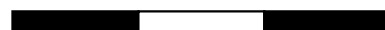
 Local Government Authority (LGA) Boundaries (LGATE-233)

Map Layers

 Land TenureLGATE - 226



0 100 200 300 m



1:6000

MGA Zone 50
Geocentric Datum of Australia 1994

Officer delegated under section 20 of the
Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8911/1
Permit type:	Purpose permit
Applicant name:	DevelopmentWA
Application received:	5 June 2020
Application area:	0.586 hectares (ha)
Purpose of clearing:	Road upgrades
Method of clearing:	Mechanical Removal
Property:	Lot 13 on Plan 16906, Forrestdale Lot 15 on Plan 16906, Forrestdale Lot 57 on Plan 3347, Forrestdale Lot 1 on Deposited Plan 46467, Forrestdale Lot 10 on Diagram 61348, Forrestdale Lot 5 on Diagram 41103, Forrestdale Lot 872 on Deposited Plan 36228, Forrestdale Lot 79 on Deposited Plan 226007, Forrestdale Allen Road Reserves (PIN 11867214), Forrestdale Keane Road Reserve (PINs 11867208 and 1344975), Forrestdale
Location (LGA area/s):	City of Armadale
Localities (suburb/s):	Forrestdale

1.2. Description of clearing activities

The application is to clear 0.586 ha of parkland cleared native vegetation adjacent to an existing road formation to facilitate upgrades to sections of the Allen Road, Keane Road and Armadale Road, within the City of Armadale. The application form states that the total area of clearing is 0.8937 ha of native vegetation, however the area was revised during validation to 0.586 ha as a portion of the clearing was determined to be exempt in accordance with a subdivision approval approved by the Western Australian Planning Commission. The extent of the proposed clearing is indicated in Figure 1 (see Section 1.5).

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	21 October 2020
Decision area:	0.586 hectares (ha) of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 5 June 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Section 3).

In particular, the Delegated Officer has determined that:

- the proposed clearing is not likely to have a significant impact on the environmental values of biological values including habitat for flora and fauna species, significant remnant vegetation, or land and water resources (see section 3.2); and
- the implementation of a suitable weed and dieback management condition is appropriate to mitigate the impact of spreading weeds and dieback into adjacent wetland and potential TEC remnant vegetation (see Section 3.2.).

In determining to grant a clearing permit subject to conditions pertaining to avoiding and minimising clearing and weed and dieback conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map

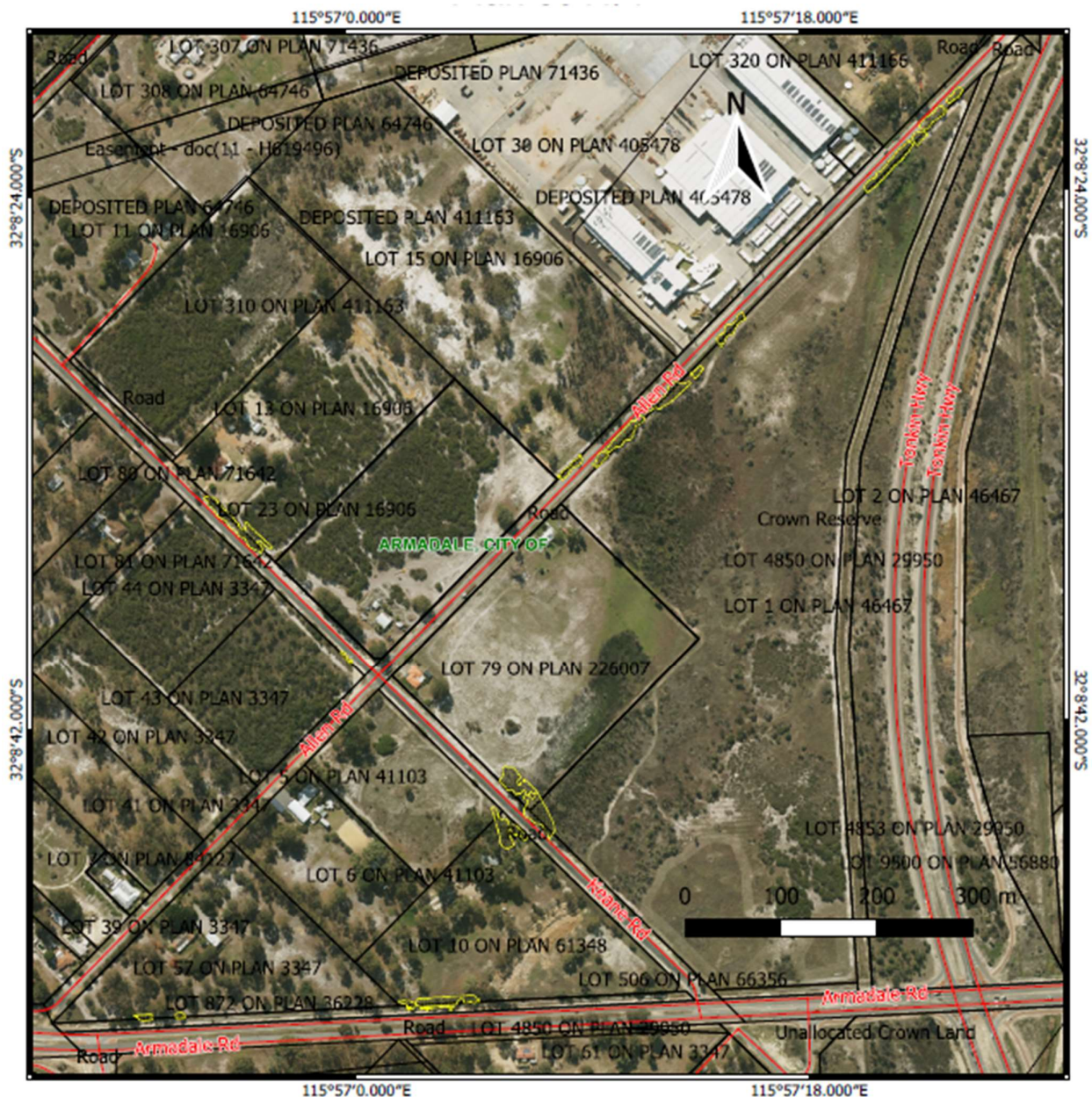


Figure 1. Map of areas approved to clear.

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity; and
3. the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act); and
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013); and
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application. However, aerial imagery indicate that the road upgrade design had considered avoiding vegetation where possible.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that the clearing may pose a risk to the environmental value(s) of biological values, significant remnant vegetation, and land and water resources, and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment:

As discussed under Appendix A (section 2) of this report, approximately 53 threatened or priority fauna species have been recorded within the local area. The majority of these species are significant waterbird and migratory wading species protected under International Agreements that are likely to utilise the wetlands that occur within the local area. As noted under section 3.2.4, the application area traverses wetland habitats, however, as the riparian vegetation within the application area is in a completely degraded (Keighery, 1994) condition and does not contain permanent water bodies, it is not likely to provide significant habitat for these species.

The likelihood of occurrence assessment (Appendix A, Section 2) determined that the application area may provide suitable foraging habitat for the Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo (collectively referred to as black cockatoos within the report), protected under the *Biodiversity Conservation Act 2016* (BC Act) within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Notice). As shown in the representative photographs (photographs 2 and 3, Appendix D), the application area contains a few individual juvenile *Corymbia calophylla* trees over an understorey of introduced grasses which may provide suitable foraging habitat for these species. However, this foraging habitat is considered to be of poor quality and the loss of this habitat will not impact upon any local populations of black cockatoo species. The *Corymbia calophylla* trees within the application area are not large enough in size to contain hollows suitable for black cockatoo nesting.

The Quenda, a Priority 4 listed species, may occur in the application area given the presence of an understorey comprised mainly of thick non-native grasses. However, noting the lack of native species in the understorey, and that better quality suitable habitat is likely to occur in conservation areas located in close proximity to the application area, the proposed clearing is unlikely to significantly impact upon the conservation status of this species.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

Conditions: No fauna management conditions required.

3.2.2. Environmental value: biological values (flora) – Clearing Principles (a), (c) and (d)

Assessment

3.2.2.1 Conservation-significant flora

According to available databases, a total of 58 conservation significant flora species, comprising sixteen threatened flora species and 42 priority (P) flora species have been recorded within the local area (10km radius). No records of conservation significant flora have been recorded within the application area. The closest of these is a threatened flora species known as *Diuris purdiei*, located approximately 454 metres from the application area. This is a perennial herb species that commonly grows in grey-black moist sands associated to winter-wet swamps (Western Australian Herbarium, 1998-). Although the application area contains winter wet habitat which may provide suitable habitat for this species, in consideration of the mapped soil type within the application area and the photographs submitted by the applicant which demonstrate the application area is void of native understorey species and dominated by grassy weeds (see Appendix D), the application area is unlikely to include or be necessary for the continued existence of this threatened species.

The Critically Endangered native grass *Austrostipa jacobsoniana* has a known Gosnells population approximately 2.5 kilometres to the north-east of the application area. The species is found in calcareous-clay to fine sandy-clay over a Muchea Limestone Formation in a low-lying area on the fringe of a seasonally wet depression (Department of Parks and Wildlife (DPAW, 2016). The soil type associated with the Gosnells population is not represented over the application area. Noting this and the completely degraded understorey comprising of exotic grassy weeds, it is unlikely this species would be present in the application area.

Noting the application area contains vegetation that has been significantly disturbed through historical clearing and weed invasion, it is unlikely that the application area would support any threatened or priority flora taxa that have been recorded within the local area.

Assessment:

3.2.2.2 Conservation-significant ecological communities

According to available datasets, a small portion of the application area (approximately 0.004 hectares) along Keane Road reserve intersects an occurrence of the 'Banksia Woodlands of the Swan Coastal Plain' (Banksia woodlands) threatened ecological community (TEC), which is federally listed as endangered under the EPBC Act and as a 'Priority 3' Priority Ecological Community (PEC) by DBCA (Department of the Environment and Energy [DotEE], 2016). Three other occurrences of the TEC occur adjacent to the application areas.

The Banksia Woodlands ecological community is restricted to areas in and immediately adjacent to the Swan Coastal Plain IBRA bioregion, including the Dandaragan plateau. This coastal plain stretches from around Jurien Bay in the north, to Dunsborough in the south (DotEE, 2016). The Approved Conservation Advice for the TEC states that to be considered representative of the TEC a remnant in the Swan Coastal Plain bioregion must include at least one of four Banksia species being *Banksia attenuata* (candlestick banksia), *Banksia menziesii* (firewood banksia), *Banksia prionotes* (acorn banksia) and/or *Banksia ilicifolia* (holly-leaved banksia); must include an emergent tree layer often including marri, jarrah, or tuart, and other medium trees including *Eucalyptus tottiana* (pricklybark), *Nuytsia floribunda* (WA Christmas tree), western sheoak, *Callitris arenaria* (sandplain cypress), *Callitris pyramidalis* (swamp cypress) or *Xylomelum occidentale* (woody pear); and must include an often highly species-rich understorey (TSSC, 2016).

The supporting documentation provided by PGV Environmental confirmed that the patch of native vegetation that occurs within the Banksia woodlands TEC mapped occurrence consists of one *Corymbia calophylla* tree and scattered *Melaleuca pressiana* over weedy grasses (refer to Appendix D, photograph 2) which is not consistent to this TEC (PGV Environmental, 2020). Given this, the application area is not considered to be representative of the Banksia woodlands TEC.

Noting the close proximity of the mapped occurrences of the Banksia Woodlands TEC to the application areas, there is potential for the proposed clearing activities to indirectly impact the adjacent remnant vegetation that may be representative of the TEC through the spread of weeds and dieback. Weed and dieback management practices will assist to minimise this risk.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable subject to relevant conditions (see below) in relation to this environmental value.

Conditions: To address the abovementioned impacts, the following condition will be added to the permit:

- Dieback and weed control: To ensure protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials into adjacent TEC vegetation.

3.2.3. Environmental value: significant remnant vegetation– Clearing Principles (e)

Assessment:

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The extent of mapped native vegetation in the local area (10 kilometre radius) is at 23.64 per cent, which is below the national objectives and targets for biodiversity conservation in Australia. Vegetation within the application area occurs within the mapped Southern River Heddle vegetation complex. Within the local area, this complex retains 18.43 per cent of its pre-European extent remaining (see Appendix A). Noting that the current vegetation extent for both the mapped Swan Coastal Plain vegetation complexes and the local area fall below the 30 per cent threshold, the application area is considered to be a remnant within an extensively cleared landscape.

However, as demonstrated in the representative photographs under Appendix D, the vegetation in the clearing areas comprises single trees or groups of native trees over an understorey of exotic weedy grasses. It is unlikely that the completely degraded parkland cleared native vegetation within the proposed clearing areas contributes to vegetation connectivity in the local area.

In consideration of the above, the application area is not considered to be a significant remnant of native vegetation and the proposed clearing is not likely to have a significant impact on the extensively cleared local area.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

Conditions: No management conditions required.

3.2.4. Environmental value: land and water resources – Clearing Principle (f)

Assessment:

Based on available databases, there are no watercourses or drainage lines that intersect the application area. A man-made drain and the Wungong River are mapped approximately 20 metres and 1.7 kilometres from the application area respectively.

According to the Geomorphic Wetlands Swan Coastal Plain dataset, approximately 56.9 per cent or 0.332 hectares of the application area is mapped within three wetland occurrences, comprising of 0.2 hectares of a Resource Enhancement Wetland with the Unique Feature Identifier (UFI) 7525 and 0.1332 hectares of the application area of a Multiple-use wetland with the UFIs 15831 and 14351. The land use within these wetlands is mapped as general rural and the native vegetation remaining has been significantly impacted and fragmented by clearing for urban development. Noting the extent and completely degraded (Keighery, 1994) condition of the wetland vegetation proposed to be cleared which largely occurs adjacent to an existing road formation, the proposed clearing is not likely to significantly impact on the environmental values of these wetlands.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable subject to relevant conditions (see below) in relation to this environmental value.

Conditions: To address the above impacts, the following conditions will be added to the permit:

- Dieback and weed control: To ensure protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials into adjacent wetland vegetation.

3.3. Relevant planning instruments and other matters

The City of Armadale (the City) agreed to the applicant undertaking the proposed clearing of native vegetation within their road reserves subject to the following requests:

- the City be given the opportunity, prior to any clearing, to identify any salvageable logs or hollows for use in City reserves;
- the applicant continues to liaise with the City in an effort to mitigate environmental impact(s) where possible; and
- immediately prior to the removal of vegetation an inspection is undertaken to ensure the absence of any native fauna nesting species (City of Armadale, 2020).

It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

1. Site characteristics

Site characteristic	Details
Local context	The application area comprises of parkland cleared native vegetation that occurs adjacent to existing road formations along the Allen, Keane and Armadale Road Reserves within the City of Armadale. A combination of cleared and vegetated residential lots adjoin the road reserves proposed to be upgraded. The majority of the vegetation proposed for clearing is riparian vegetation (approximately 0.332 hectares) associated to the multiple-use and resource enhancement wetlands that intersect the application area. Bush Forever Site 342 (Anstey-Keane Damplands and adjacent bushland). Spatial data indicates that the local area, being that within a 10 kilometre radius of the application area, retains approximately 8,114.52 ha of native vegetation. This represents approximately 23.64 per cent of the pre-European vegetation extent.
Vegetation description	The application area is mapped as Southern River Complex, which is described as open woodland of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - Banksia species with fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark) along creek bed (Heddl et al., 1980). Vegetation composition was determined by the supporting documentation provided by PGV Environmental on behalf of the applicant (PGV Environmental, 2020). The vegetation proposed to be cleared comprises of scattered natives (<i>Melaleuca preissana</i>, <i>Melaleuca raphiophylla</i>, <i>Kunzea glabrescens</i> and <i>Corymbia calophylla</i>) and planted exotics over grassy weeds (PGV Environmental, 2020). Representative photographs are available in Appendix D demonstrate that the application area is completely void of native understorey species and dominated by a high density of invasive grassy weeds.
Vegetation condition	Vegetation condition was determined from supporting documentation (photographs) provided by PGV Environmental on behalf of the applicant (PGV Environmental, 2020). The vegetation proposed to be cleared appears to be in a completely degraded condition on the scale described by Keighery (1994) scale (see Appendix C). The full Keighery condition rating scale is provided in Appendix C, below.
Soil description	The proposed clearing area is mapped within two soil subsystems of the Pinjarra system, as described by the Department of Primary Industries and Regional Development below: - Pinjarra P8 Phase (Map unit 213Pj__P8): Broad poorly drained flats and poorly defined stream channels with moderately deep to deep sands over mottled clays; acidic or less commonly alkaline grey and yellow duplex soils to uniform bleached or pale brown sands over clay (mapped across approximately 0.356 ha/61.1 per cent of the application area); and - Pinjarra, B2 Phase (Map unit 213Pj__B2) Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 metres (mapped across approximately 0.23 ha/38.9 per cent of the application area) (Schoknecht et al. 2004).
Land degradation risk	The proposed clearing area is mapped within the Pinjarra Hills System and within the 'Pinjarra P8 Phase' and 'Pinjarra B2 Phase' subsystems (Schoknecht et al. 2004). Land degradation risk for each system is summarised in the table below and is expressed as the percentage of that map unit being at risk.

Site characteristic	Details																								
	Land Degradation Risk Categories for mapped soil subsystems																								
	<table><tr><th>Risk categories</th><th>Pinjarra P8 Phase</th><th>Pinjarra B2 Phase</th></tr><tr><td>Wind erosion</td><td>10-30% of map unit has a high to extreme wind erosion risk</td><td>>70% of map unit has a high to extreme wind erosion risk</td></tr><tr><td>Water erosion</td><td><3% of map unit has a high to extreme water erosion risk</td><td><3% of map unit has a high to extreme water erosion risk</td></tr><tr><td>Salinity</td><td>3-10% of map unit has a moderate to high salinity risk</td><td><3% of map unit has a moderate to high salinity risk</td></tr><tr><td>Subsurface Acidification</td><td>>70% of map unit has a high subsurface acidification risk</td><td>>70% of map unit has a high subsurface acidification risk</td></tr><tr><td>Flood risk</td><td><3% of the map unit has a moderate to high flood risk</td><td><3% of the map unit has a moderate to high flood risk</td></tr><tr><td>Water logging</td><td>3-10% of map unit has a moderate waterlogging risk</td><td>>70% of map unit has a moderate to very high waterlogging risk</td></tr><tr><td>Phosphorus export risk</td><td>10-30% of map unit has a high phosphorus export risk</td><td>>70% of map unit has high phosphorus export risk</td></tr></table>	Risk categories	Pinjarra P8 Phase	Pinjarra B2 Phase	Wind erosion	10-30% of map unit has a high to extreme wind erosion risk	>70% of map unit has a high to extreme wind erosion risk	Water erosion	<3% of map unit has a high to extreme water erosion risk	<3% of map unit has a high to extreme water erosion risk	Salinity	3-10% of map unit has a moderate to high salinity risk	<3% of map unit has a moderate to high salinity risk	Subsurface Acidification	>70% of map unit has a high subsurface acidification risk	>70% of map unit has a high subsurface acidification risk	Flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk	Water logging	3-10% of map unit has a moderate waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk	Phosphorus export risk	10-30% of map unit has a high phosphorus export risk	>70% of map unit has high phosphorus export risk
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	Subsurface Acidification	>70% of map unit has a high subsurface acidification risk	>70% of map unit has a high subsurface acidification risk																						
	Flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk																						
	Water logging	3-10% of map unit has a moderate waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk																						
Phosphorus export risk	10-30% of map unit has a high phosphorus export risk	>70% of map unit has high phosphorus export risk																							
As indicated in the land degradation risk table above, wind erosion, subsurface acidification and waterlogging is mapped as 70% of the map unit having a high to extreme risk associated to the Pinjarra B2 Phase subsystem which comprises of 38.9 per cent of the application area.																									
Acid Sulfate Soil (ASS) risk mapping shows that the subject sites are located within areas identified as having a high to moderate risk of ASS occurring within three metres of the natural soil surface, or a moderate to low risk of ASS occurring within three metres of the natural soil surface but high to moderate risk of ASS beyond three metres below the natural soil surface.																									
Waterbodies	The desktop assessment indicated that a large portion of the application area (approximately 0.2 hectares or 34.1 per cent) is located within a Resource Enhancement Wetland (Unique Feature Identifier (UFI) 7525). A small component (0.1332 hectares or 22.7 per cent) occurs within a Multiple-use Wetland with the UFIs 15831 and 14351. The application area does not intersect any watercourses. A man-made drain occurs approximately 20 metres east of the application area. The Wungong River is mapped approximately 1.7 kilometres from the application area. The Forestdale Lake (ANCA and RAMSAR wetland) occurs approximately 849 metres south west of the application area.																								
Conservation areas	The proposed clearing area does not intersect with any Bush Forever sites or DBCA managed lands. The closest nature reserve to the proposed clearing area is the Forrestdale Lake Nature Reserve approximately 784 metres from the area under application. The nearest conservation area is Bush Forever Site No 342 (Anstey-Kean Damplands and adjacent bushland) which is also a conservation category wetland located approximately 427 metres north of the application area.																								
Climate and landform	Rainfall: 900 millimetres (mm) per annum Evapotranspiration: 800 and 900 mm per annum Geology: Alluvial, shoreline, and eolian deposits Groundwater Salinity (Total Dissolved Solids): 500-1000 mg/L																								

2. Flora, fauna and ecosystem analysis

With consideration of the site characteristics set out above, relevant datasets (see Appendix E), representative photographs of the application area (see Appendix D) and supporting documentation provided by the applicant, conservation significant flora species and ecological communities that have been recorded in the local area are not likely to be impacted by the clearing.

A total of 53 threatened or priority fauna species have been recorded within the local area, including 16 threatened fauna species, 20 fauna species protected under international agreement, one other specially protected fauna species, one Priority 1 fauna species, one Priority 2 fauna species, six Priority 3 fauna species and eight Priority 4 fauna species (DBCA, 2007-). None of these records occur within the application area. Noting the site characteristics set out above, relevant datasets (see Appendix E), representative photographs of the application area (see Appendix D), fauna habitat preferences and records from the local area, a likelihood of occurrence assessment determined that the following conservation significant fauna species may be impacted by the clearing.

Fauna of conservation significance that may occur within the application area

Species	Conservation Status (WA)	Distance of closest record to application area	Suitable habitat features (fauna)
Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>)	VU	Approximately 1.4 kilometres from application area	Application area includes juvenile scattered <i>Corymbia calophylla</i> trees that may provide suitable foraging habitat.
Baudin's cockatoo (<i>Calyptorhynchus baudinii</i>)	EN	Approximately 6.1 kilometres from application area	Application area includes juvenile scattered <i>Corymbia calophylla</i> trees that may provide suitable foraging habitat.
Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>)	EN	Approximately 247 metres from application area	Application area includes juvenile scattered <i>Corymbia calophylla</i> trees that may provide suitable foraging habitat.
Quenda <i>Isodon fusciventer</i>	P4	Approximately 68 metres from application area	Application area contains dense Lovegrass in understorey which may provide suitable habitat for this species.

3. Vegetation extent

Remnant Vegetation Statistics (Government of Western Australia, 2019)

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA ¹ managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA² bioregion					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA ¹ managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
Heddlle Vegetation complex in Bioregion					
Southern River Complex	58,791.48	10,832.18	18.43	1,720.68	1.60
Local Area					
10 kilometre radius	34,325.13	8,114.52	23.64	-	-

¹ Department of Biodiversity, Conservation and Attractions. Current extent as proportion of pre-European extent within DBCA-managed lands.

² Interim Biogeographic Regionalisation for Australia.

Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.” <u>Assessment:</u> While one threatened flora species has the potential to occur within the application area based on habitat preference and proximity of known records, the proposed clearing area comprises vegetation in completely degraded (Keighery, 1994) condition that has been subject to significant disturbance through previous clearing activities and weed invasion and is not likely to comprise a high level of biodiversity. The application area is therefore not likely to comprise locally or regionally significant flora, vegetation or ecological communities.	Not likely to be at variance	Yes Refer to Section 3.2.2
<u>Principle (b):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.” <u>Assessment:</u> The application area comprises suitable habitat for the Priority Quenda which is considered to be common in the local area with up to 603 records identified, the closest being 68metres from the application area. A few scattered <i>Corymbia calophylla</i> trees within the application area may potentially provide a feeding resource for all three species of black cockatoo. Noting the shape and extent of the proposed clearing, the completely degraded (Keighery, 1994) condition fauna habitat, and its location being in close proximity to protected remnant vegetation within the local area, the proposed clearing is unlikely to comprise significant habitat for these or other native fauna.	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
<u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.” <u>Assessment:</u> Noting that the vegetation within the application area is in completely degraded (Keighery, 1994) condition with no native understorey observed in the representative photographs, and has been subject to significant disturbance resulting from previous clearing activities and weed invasion, the proposed clearing area is unlikely to contain suitable or significant	Not likely to be at variance	Yes Refer to Section 3.2.2

Assessment against the Clearing Principles	Variance level	Is further consideration required?
habitat for threatened flora species listed under the <i>Biodiversity Conservation Act 2018</i> .		
<u>Principle (d):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.” <u>Assessment:</u> Six state listed TEC’s have been mapped within the local area, with the closest being the ‘Shrublands on dry clay flats’ TEC mapped approximately 538 metres from the application area. Noting the application area consists of parkland cleared native vegetation in completely degraded (Keighery, 1994) condition), the proposed clearing area is not considered to comprise vegetation representative of any of the state listed TEC’s that have been recorded within the local area.	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.” <u>Assessment:</u> The application area is considered to occur within an extensively cleared area given the remnant native vegetation remaining in the local area and mapped Southern River complex are approximately 23.64 per cent and 18.43 respectively. However, noting that the application area is in a completely degraded (Keighery, 1994) condition, and that impacts to biological values are not considered to be significant as discussed further under Section 3.2.1 and 3.2.2, it is unlikely to be a significant remnant, nor considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	Yes Refer to Section 3.2.3 above.
<u>Principle (h):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.” <u>Assessment:</u> Given the distance and separation from the nearest conservation area (see Appendix A), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental values: land and water resources		
<u>Principle (f):</u> “Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.” <u>Assessment:</u> According to available databases, an occurrence of a Resource Enhancement wetland and two occurrences of a Multiple-use wetland intersect the application area, totalling an area of approximately 56.9 per cent or 0.332 hectares of the application area. The vegetation proposed to be cleared within these areas includes species considered to be riparian, however the riparian vegetation has been assessed as completely degraded condition.	At variance	Yes Refer to Section 3.2.4 above
<u>Principle (g):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.” <u>Assessment:</u> The mapped ‘Pinjarra B2 Phase’ soils are have a high risk of land degradation in the form of wind erosion, subsurface acidification and waterlogging. Noting the proposed clearing comprises of small patches of completely degraded (Keighery, 1994) condition vegetation located adjacent to an existing road and cleared areas, the proposed clearing is not likely to have an appreciable impact on land degradation. The proposed clearing is	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
unlikely to require dewatering or excavation of more than 100 cubic metres of soil, as such ASS disturbance is unlikely.		
<u>Principle (i):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."</i> <u>Assessment:</u> No water courses, drainage lines or Public Drinking Water Source Areas are recorded within the proposed clearing area. A portion of the application area (0.332 hectares) intersects an occurrence of a Resource Enhancement Wetland and two occurrences of a Multiple-use Wetland. The proposed clearing result in an increase in surface water run-off which has the potential to lead to sedimentation into these wetlands. Noting the extent and purpose of the proposed clearing and its location adjacent to an existing road, impacts to surface water quality are expected to be minimal and limited to the duration of the proposed clearing activities. Taking into account the topography and the underlying groundwater salinity, the proposed clearing is unlikely to cause deterioration in underground water quality.	Not likely to be at variance	No
<u>Principle (j):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</i> <u>Assessment:</u> As indicated in the land degradation risk table under Appendix A, the soil types mapped across the application area have a low flood risk.	Not likely to be at variance	No

Appendix C – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D – Photographs of the vegetation

Representative photographs of the vegetation in the Allen, Keane and Armadale Road Reserves provided in the supporting documentation (PGV Environmental, 2020).

Allen Road Reserve



Photo 1: *Melaleuca preissiana* and *Melaleuca raphiophylla* over weeds in a completely degraded (Keighery, 1994) condition.



Photo 2: One *Corymbia calophylla* and Paperbarks over weeds in completely degraded (Keighery, 1994) condition in the Southern end of Keane Road Reserve



Photo 3: Juvenile isolated *Corymbia calophylla* trees over weeds (within Lot 10 on Diagram 61348, Forrestdale, adjacent to the western side of Keane Road Reserve)

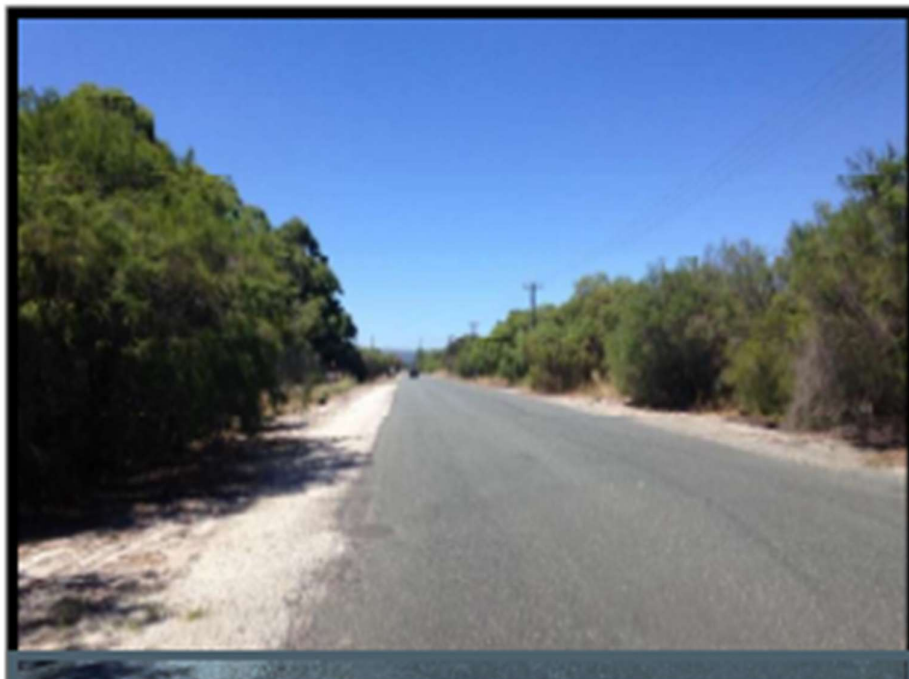


Photo 4: *Kunzea glabrescens* over weeds in a completely degraded (Keighery, 1994) condition on both sides of Keane Road Reserve north of the Allen Road Reserve intersection.

Armada Road Reserve



Photo 5: *Melaleuca preissiana*, *Melaleuca raphiophylla* and *Casuarina obesa* in Armadale Road Reserve near Allen Road cul-de-sac and stand of *Melaleuca preissiana* in adjoining Lot 57 on Plan 3347, Forrestdale.

Appendix E – References and databases

1. GIS datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

2. References

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