



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 8933/1
<b>Permit Holder:</b>	Shire of Capel
<b>Duration of Permit:</b>	11 April 2021 to 11 April 2031

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

### **PART I – CLEARING AUTHORISED**

#### **1. Clearing authorised (purpose)**

The Permit Holder is authorised to clear native vegetation for the purpose of road construction and upgrades.

#### **2. Land on which clearing is to be done**

Weld Road reserve (PIN 11543462), Capel and Elgin

#### **3. Clearing authorised**

The Permit Holder must not clear more than 1.12 hectares of native vegetation within the area cross-hatched yellow in Figure 1a and Figure 1b of Schedule 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.

#### **5. Type of clearing authorised**

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

#### **6. Period during which clearing is authorised**

The Permit Holder must not clear any native vegetation after 11 April 2026.

## **PART II – MANAGEMENT CONDITIONS**

### **7. Avoid, minimise, and reduce impacts and extent of clearing**

In determining the native vegetation authorised to be cleared under this permit, the Permit Holder must apply the following principles, set out in descending 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.

### **8. Weed and dieback management**

When undertaking any clearing authorised under this permit, the Permit Holder must take the following measures to minimise the risk of 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 known *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.

### **9. Directional clearing**

The Permit Holder must conduct clearing activities in a slow, progressive manner from one direction to other (e.g. west to east) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

### **10. Offset – revegetation**

Within 12 months of the commencement of clearing, the Permit Holder must implement and adhere to the *Revegetation plan*, including but not limited to the following actions:

- (a) Retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared;
- (b) Commence *revegetation* and *rehabilitation* within the area cross-hatched red in Figure 2 of Schedule 1 by:
  - (i) ripping the *offset site* to remove any areas of compaction or other obstructions that could prevent root penetration of seedlings;
  - (ii) deliberately *planting* native vegetation that will result in similar species composition, structure and density of native vegetation to the surrounding vegetation within the *offset site*; and
  - (iii) ensuring only *local provenance* seeds and propagating material area used to *revegetate* and *rehabilitate* the area.
- (c) Establishing eight 10 x 10 metre quadrat monitoring sites within the *offset site*;
- (d) Conducting *pest animal* control;
- (e) Fencing the *offset site*;
- (f) Removing rubbish from the *offset site*;

- (g) Realigning the existing four wheel drive vehicle tracks currently present through the proposed *offset site* outside of the *offset site* to meet up with existing tracks in the surrounding area;
- (h) Installing a four-metre trafficable firebreak that complies with the Shire of Harvey requirements around the interior perimeter fence of the *offset site*;
- (i) Water planted vegetation between November and March during first year following planting;
- (j) Implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;
- (k) Undertake weed control activities annually;
- (l) Achieve the following completion criteria after the five year monitoring period for areas *revegetated* and *rehabilitated* under this Permit:

Criterion	Aspect	Completion targets	Completion criteria	Monitoring
1	Species richness	Species richness of minimum 50 per cent of those planted	Species richness in the <i>offset site</i> is at least 50 per cent of the species that have been planted.	The species in the <i>offset site</i> will be counted twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established
2	Vegetation structure – Tuart ( <i>Eucalyptus gomphocephala</i> ) woodland	Vegetation within the <i>offset site</i> to be broadly representative of Tuart-Jarraah-Marri vegetation structure present in the surrounding area	Structure of the <i>offset site</i> to consist of species occurring within the surrounding area	Structure of the <i>offset site</i> to be assessed twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established
3	Percentage of weeds present.	<ul style="list-style-type: none"> <li>• Reduction of more than 70 per cent of population density of <i>Ehrharta calycina</i> (Perennial Veldt Grass)</li> <li>• Reduction of 90 per cent of <i>Trachyandra divaricata</i> (False Onion Weed) population</li> </ul>	The <i>offset site</i> should have no more than 30 per cent cover of Perennial Veldt Grass and no more than 10 per cent of False Onion Weed.	Monitor the <i>offset site</i> for weeds by quadrats twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established.
4	Survival rate to be achieved.	<p>If after <i>planting</i> a survival rate of at least 65 per cent is not achieved, infill <i>planting</i> must occur. The survival rate includes:</p> <ul style="list-style-type: none"> <li>• 75 per cent of trees (overstorey),</li> <li>• 55 percent of shrubs; and</li> <li>• 75 per cent of herbs (understorey).</li> </ul>	The <i>offset site</i> needs to ensure a survival rate of at least 65 per cent of the density planted is achieved after five years.	The number of surviving plants in the <i>offset site</i> will be monitored twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established.

5	Stem Density/composition -	Minimum plant density (p/ha) is: <ul style="list-style-type: none"> <li>• one tree (overstorey) per 10 m<sup>2</sup>,</li> <li>• two shrubs per 5 m<sup>2</sup>; and</li> <li>• one herb per 2 m<sup>2</sup></li> </ul>	The <i>offset site</i> contains a minimum of 10,000 native plant stems established per hectare.	Stem density to be assessed twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established.
6	Patch size of bare ground	The maximum patch size of bare ground is 30 m <sup>2</sup>	The <i>offset site</i> has no more than 30 m <sup>2</sup> of bare ground	The patch size of bare ground of the <i>offset site</i> to be assessed twice annually by an <i>environmental specialist</i> in spring and autumn for a minimum of three years after the last year plants were established.
7	Gates and boundary fence	Gates and boundary fence to be in good condition with no obvious damage that will enable the entry of fauna, including rabbits and/or kangaroos into the <i>offset site</i> .	N/A	Condition of the gates and fence around the <i>offset site</i> to be assessed twice annually in spring and autumn for a minimum of three years after the last year plants were established.

- (m) Undertake remedial action for areas *revegetated* and *rehabilitated* where monitoring indicated that revegetation has not met the completion criteria, outlined in condition 10(l) of this permit, including:
- (i) Revegetate the area by deliberately *planting* native vegetation that will result in the minimum target set out in condition 10(l) of this permit and ensuring only *local provenance* seeds and propagating material are used;
  - (ii) undertake further weed control activities;
  - (iii) undertake further watering activities; and
  - (iv) annual monitoring by an *environmental specialist* of the *offset site* following the three years of bi-annual monitoring outlined in condition 10(l), until the completion criteria, outlined in condition 10(l) of this Permit are met.

### **PART III - RECORD KEEPING AND REPORTING**

#### **11. Records that must be kept**

The Permit Holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

**Table 1: Records that must be kept**

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ol style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(b) 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</li> </ol>

No.	Relevant matter	Specifications
		<p>and Northings;</p> <p>(c) the date that the area was cleared;</p> <p>(d) the size of the area cleared (in hectares);</p> <p>(e) the direction of clearing;</p> <p>(f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 7 of this Permit; and</p> <p>(g) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 8 of this Permit.</p>
2.	In relation to the <i>revegetation</i> and <i>rehabilitation</i> areas pursuant to condition 10 of this Permit	<p>(a) the location of any areas <i>revegetated</i> and <i>rehabilitated</i>, 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;</p> <p>(b) the date the fence and firebreak were installed and evidence of maintenance;</p> <p>(c) the date rubbish was removed from the <i>offset site</i>;</p> <p>(d) <i>Pest animal</i> and <i>weed</i> control measures undertaken;</p> <p>(e) a description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken;</p> <p>(f) the size of the area <i>revegetated</i> and <i>rehabilitated</i> (in hectares);</p> <p>(g) the species composition, structure and density of the <i>offset site</i>;</p> <p>(h) The assessment of the <i>revegetation</i> and <i>rehabilitation</i> against Criterion outlined in condition 10(l);</p> <p>(i) any remedial actions undertaken in accordance with condition 10(m); and</p> <p>(j) a copy of the <i>environmental specialist's</i> report.</p>

## 12. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 11 of this Permit; and
  - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 January of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.

- (c) Prior to 11 January 2031, the Permit Holder must provide to the *CEO* a written report of records required under condition 11 of this Permit, where these records have not already been provided under condition 12(a) of this Permit.

## DEFINITIONS

In this permit, the terms in Table have the meanings defined.


**Table 2: Definitions**

Term	Definition
CEO	Chief Executive Officer of the <i>department</i> responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
Clearing	has the meaning given under section 3(1) of the EP Act.
Condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Dieback	Means the effect of <i>Phytophthora</i> species on native vegetation.
Direct seeding	means a method of re-establishing vegetation through establishment of a seed bed and the introduction of seeds of the desired plant species.
Environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the <i>CEO</i> as a suitable environmental specialist.
EP Act	<i>Environmental Protection Act 1986</i> (WA).
Fill	means material used to increase the ground level, or to fill a depression.
Local provenance	means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
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.
Native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
Offset site	means the area cross-hatched red in Figure 2 of Schedule 1
Optimal time	means the period from April to June for undertaking <i>planting</i> and <i>seeding</i> .
Pest animal	Animals that are known to impact the survival of <i>revegetation/rehabilitation</i> i.e. rabbits.
Planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
Regeneration	means revegetation that can be established from in situ seed banks contained either within the topsoil or seed-bearing mulch.

Term	Definition
Rehabilitate, rehabilitated and rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area using methods such as natural <i>regeneration</i> , <i>direct seeding</i> and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
Revegetate/ed/ion	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural <i>regeneration</i> , <i>direct seeding</i> and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
Revegetation plan	means a plan developed by the Permit Holder for the <i>revegetation</i> and <i>rehabilitation</i> of the <i>offset site</i> in accordance with condition 10 of this Permit. “ <i>Shire of Capel – Offset Site Revegetation Plan – Weld Road and Payne Street (Natural Area, 2020)</i> ”
Weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; 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.

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**END OF CONDITIONS**


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Ryan Mincham  
 MANAGER  
 NATIVE VEGETATION REGULATION

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

19 March 2021

# Schedule 1

The boundary of the area authorised to be cleared is shown in the maps below



**Figure 1a: Map of the boundary of the area within which clearing may occur**



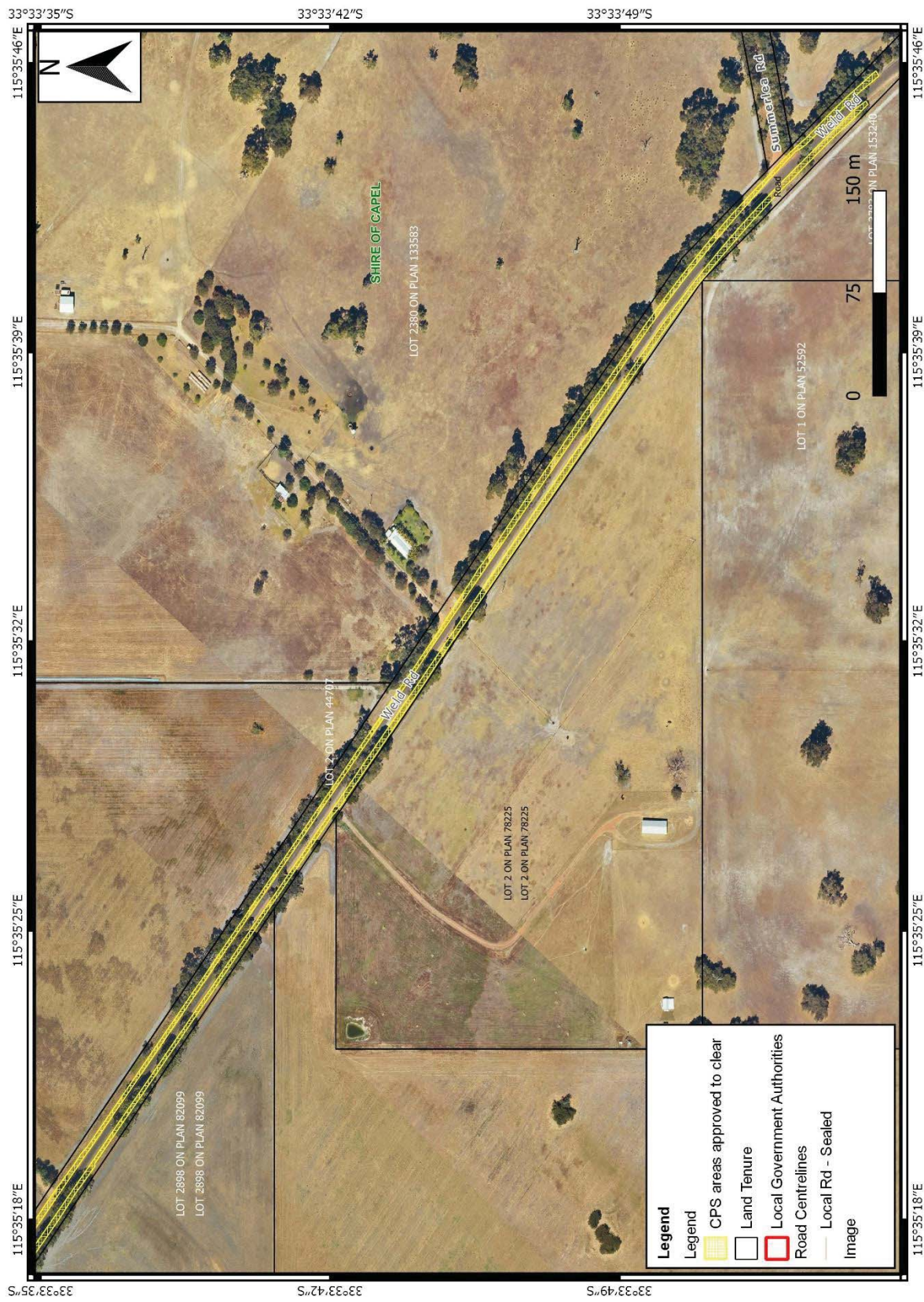
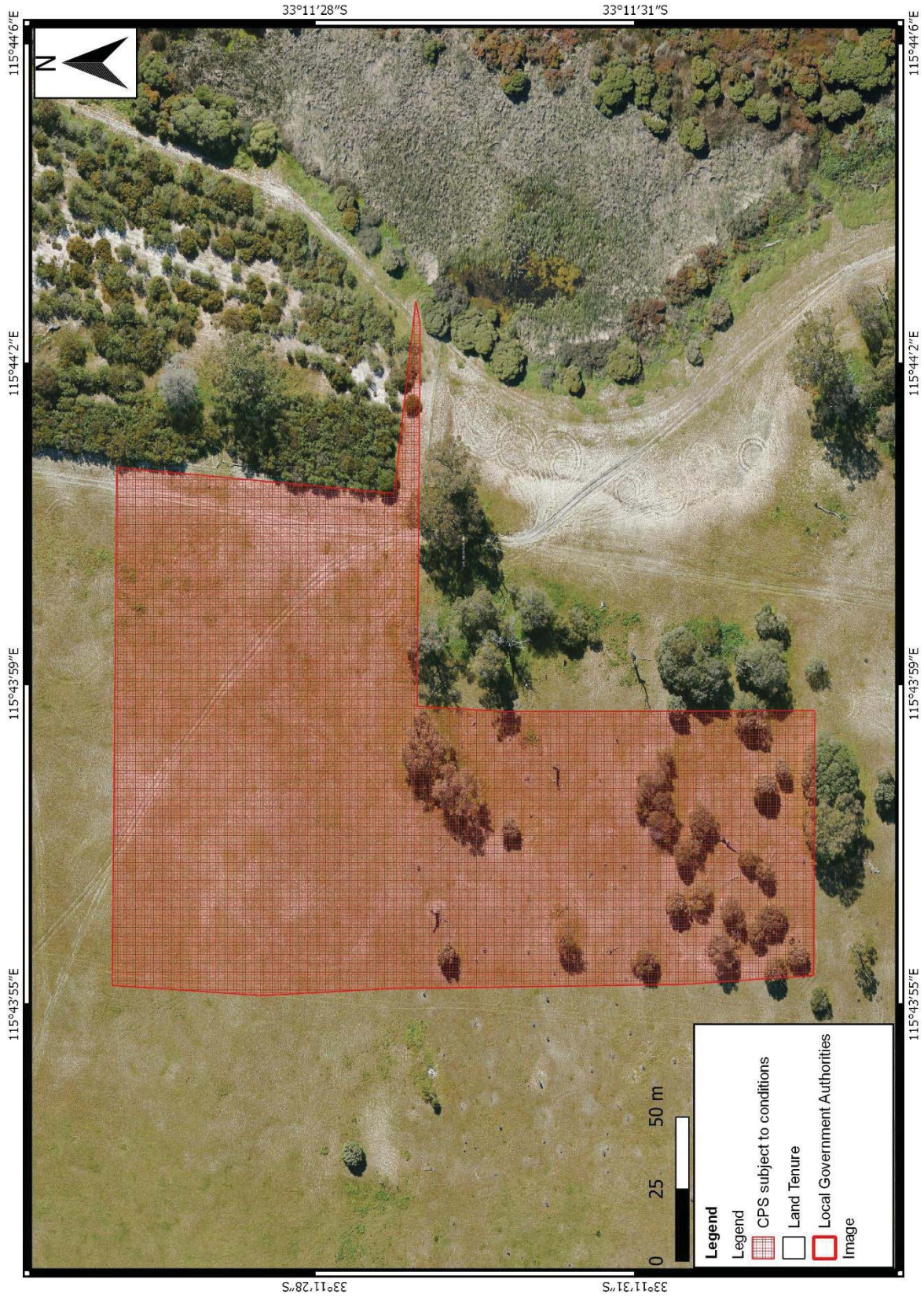


Figure 1b: Map of the boundary of the area within which clearing may occur



**Figure 2: Map of the boundary of the area within which revegetation and rehabilitation must occur**



# Clearing Permit Decision Report

## 1. Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 8933/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Shire of Capel
<b>Application received:</b>	11 June 2020
<b>Application area:</b>	1.77 (hectares) ha of native vegetation within a 3.77 ha footprint
<b>Revised area:</b>	1.12 ha
<b>Purpose of clearing:</b>	Road widening and maintenance
<b>Method of clearing:</b>	Mechanical clearing
<b>Property:</b>	Weld Road reserve (PIN 11543462)
<b>Location (LGA area/s):</b>	Shire of Capel
<b>Localities (suburb/s):</b>	Capel and Elgin

### 1.2. Description of clearing activities

The native vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The application is to clear vegetation, including trees to enable widening of the road.

The application was revised during the assessment process in response to the Department of Water and Environmental Regulation (DWER) correspondence outlining the impacts identified during the assessment of the proposed clearing. The changes included:

- reduction in the amount of clearing from 1.77 ha to 1.12 ha to avoid and minimise the clearing impacts (see Section 3.1 for further details)
- retention of approximately 136 (or 65 per cent) habitat trees within the Weld Road reserve.

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Granted
<b>Decision date:</b>	19 March 2021
<b>Decision area:</b>	1.12 ha of native vegetation, as outlined 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 DWER on 3 June 2020. DWER advertised the application for public comments 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 Sections 3 and 4), avoidance and minimisation actions considered by the Shire (2020), the findings of biological surveys (Natural Areas Holdings Pty Ltd (Natural Area), 2020), as well as relevant datasets available at the time of the assessment (see Appendix F). The Delegated Officer also took into consideration that the purpose of the clearing is to improve safety of the Weld Road.

Based on the findings of the assessment, the Delegated Officer determined that the proposed clearing will result in the loss of 1.12 ha of significant foraging habitat for black cockatoos and 1.12 ha of native vegetation considered as

a significant remnant in an extensively cleared landscape. To counterbalance this significant residual impact, the Shire has submitted an offset proposal that involves revegetation of an area in completely degraded (Keighery, 1994) condition within Lot 150 on Deposited Plan 29857, Parkfield, which is currently vested with the Department of Biodiversity, Conservation and Attractions (DBCA) for the purpose of conservation.

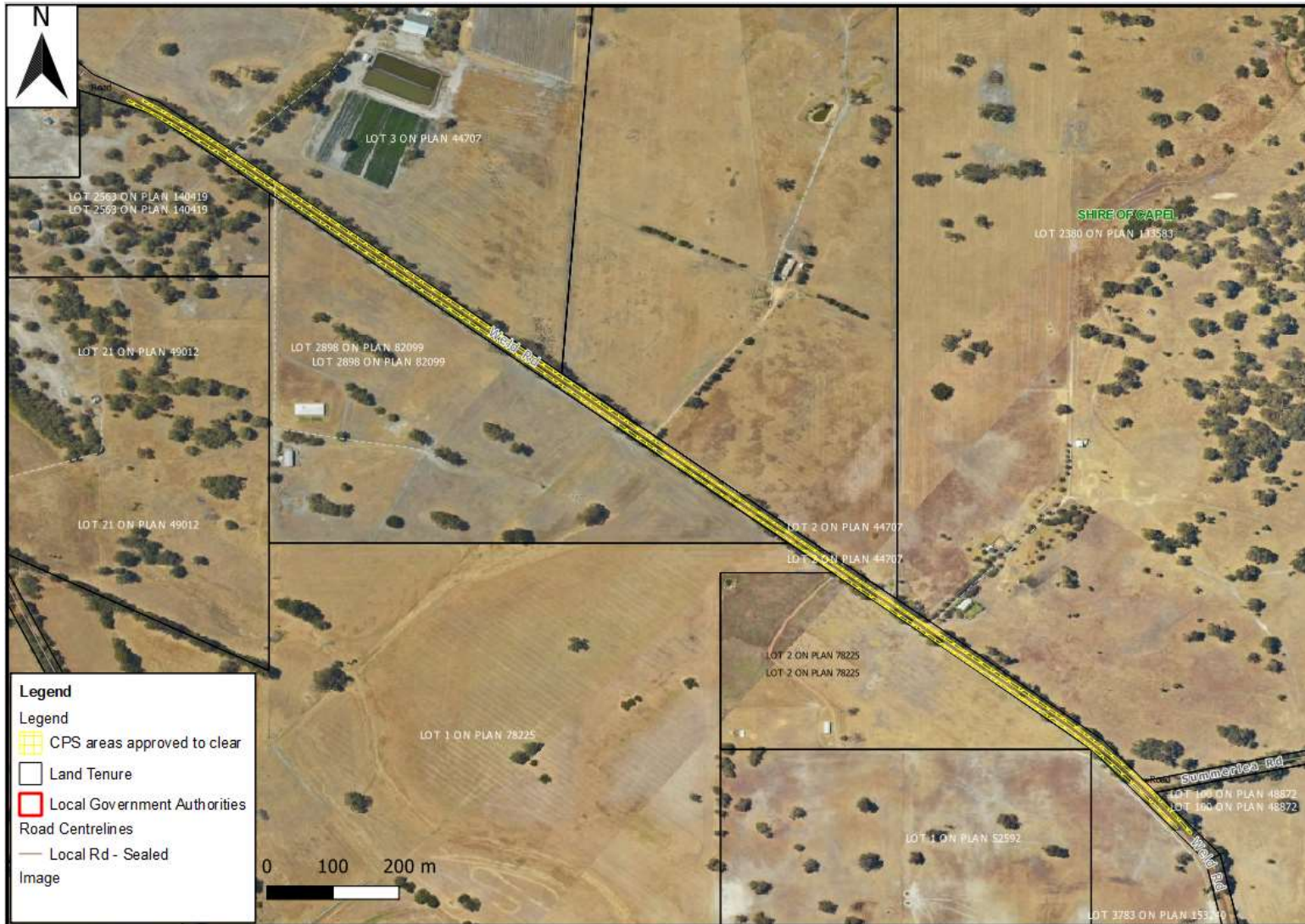
Taking into consideration the Shire's avoidance, minimisation and mitigation measures and based on a calculation using the *Environmental Protection and Biodiversity Protection Act 1999* (EPBC Act) Offsets calculator, the Delegated Officer determined that the revegetation of 2.68 hectares of vegetation commensurate with the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community (Tuart Woodland) threatened ecological community (TEC) would be adequately proportionate to the significance of the environmental values being impacted.

It was also determined that a number of conservation significant fauna may be utilising the application area at the time of clearing. Slow, directional clearing that enables fauna to move into adjacent habitat will mitigate impacts to individuals that may be present at the time of clearing.

Given the application area is adjacent to native vegetation that contains suitable habitat for fauna, weed and dieback management practices will assist in mitigating impacts to adjacent vegetation.

The Delegated Officer considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area and that offset, fauna and weed and dieback management practices will mitigate any potential impacts.

### 1.5. Site map



**Figure 1.** Map of the application area. The area cross-hatched yellow indicates the area 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
3. The principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *EPBC Act*
- *Biodiversity Conservation Act 2016 (BC Act)*
- *Country Areas Water Supply Act 1947 (CAWS Act)*

Relevant policies considered during the assessment were:

- *Environmental Offsets Policy (2011)*

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016).

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that there were no alternatives to the proposed clearing area and that tree retention would be considered where possible. This did not adequately demonstrate that all reasonable efforts had been taken to avoid and minimise potential impacts of the clearing on environmental values.

Following receipt of DWER correspondence outlining the impacts identified during the assessment of the proposed clearing, the Shire reduced the amount of clearing from 1.77 ha to 1.12 ha and retained 136 (or 65 per cent) habitat trees within the Weld Road reserve.

After consideration of the additional avoidance and mitigation measures, the Delegated Officer determined that an offset, to counterbalance the significant residual impacts to biological values (fauna) and significant remnant vegetation was necessary. In accordance with the WA State Government's Environmental Offsets Policy and Environmental Offsets Guidelines, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided is summarised in Section 4.

### 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 area 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 biological values (fauna), significant remnant vegetation 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:

Based on available datasets, 40 conservation significant species have been recorded within the local area. The majority of the recorded fauna species are typically associated with marine, estuarine or freshwater habitats, and despite some records occurring in close proximity to the application area, suitable coastal or wetland habitat for

these species is not present within the application area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type and the condition of the vegetation within the application area, it was considered that the application area is likely to comprise suitable habitat for:

- *Calyptorhynchus latirostris* (Carnaby's Cockatoo);
- *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo);
- *Calyptorhynchus baudinii* (Baudin's Black Cockatoo);
- *Dasyurus geoffroii* (Chuditch)
- *Phascogale tapoatafa* subsp *wambenger* (Southern Brush-tailed Phascogale)
- *Pseudocheirus occidentalis* (Western ringtail possum)
- *Setonix brachyurus* (Quokka).

### **Black cockatoos**

The application area is within the known distribution and predicted breeding range of the Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's black cockatoo (*Calyptorhynchus baudinii*) (collectively referred to as black cockatoos herein this report). Within the local area, based on DBCA datasets, two records for Forest red-tailed black cockatoo, 35 records for Baudin's black cockatoo and 58 records for Carnaby's cockatoo were identified.

Carnaby's cockatoo typically nests in eucalypt woodlands, primarily in the hollows of Wandoo (*Eucalyptus wandoo*), Salmon Gum (*E. salmonophloia*), Marri (*Corymbia calophylla*) Karri (*Eucalyptus diversicolor*) and Swamp Yate (*Eucalyptus occidentalis*) (Groom, 2010). Baudin's black cockatoo typically nest in large, mostly vertical, hollows of Karri (*Eucalyptus diversicolor*), Marri (*Corymbia calophylla*), Wandoo (*Eucalyptus wandoo*) and Bullich (*Eucalyptus megacarpa*), while for forest red-tailed black cockatoos, Marri (*Corymbia calophylla*) is the most important nesting tree throughout their range. Suitable breeding trees are large, mature marris, approximately 120-150 years in age and a mean overall height of 20.24 m (Johnston, Kirkby and Sarti, 2013).

No black cockatoo nesting tree has been recorded or identified in the application area (Natural Area, 2020). The survey identified two trees within the survey area with hollows which did not have sufficient size to be used for nesting by black cockatoos. These hollows had entrances less than 10 centimetres in diameter and contained beehives. Considering this, the proposed clearing will not impact on black cockatoo breeding habitat.

The fauna assessment indicates that the vegetation present represents suitable foraging habitat for all three species of black cockatoo. Suitable foraging species identified were *Eucalyptus marginata* and *Corymbia calophylla*, both considered foraging species for Forest red-tailed black cockatoo, Baudin's black cockatoo, and Carnaby's cockatoo. Historic evidence of foraging by black cockatoos was recorded during the fauna survey (Natural Area, 2020).

Clearing will result in up to 1.12 ha of suitable foraging habitat being impacted. Based on interrogation of DBCA datasets, within the local area there is approximately 5,733 ha of potential foraging habitat available, of which 2,232 ha is within DBCA managed land.

EPA (2019) notes that foraging habitat within 7 km of a breeding site is important to adequately support breeding cockatoos and given the proximity of the application area to a known breeding site, it is likely that the vegetation under application does have value for breeding black cockatoos. This is further supported by Saunders et al. (2014) who states that, breeding birds usually foraged within 6 km of their nest hollows, and occasionally foraged within a radius of 12 km. There are three confirmed, natural Carnaby's cockatoo breeding sites within the local area, with the closest being located approximately 8.3 km southwest of the application area.

In the Perth-Peel region, individual night roosts require food and water resources within 6 km. The closest confirmed roost site to the application area is 3.5 km south west, in close proximity to the Capel Nature Reserve. The presence of wetlands, watercourses and one confirmed roosting sites within a six-kilometre buffer makes the foraging habitat within the application area significant.

### **Western Ringtail Possum**

Western ringtail possums spend most of their time in trees (arboreal), particularly in the canopy of peppermint (*Agonis flexuosa*) woodland and eucalypt forests. They feed on leaves and like to forage for food at night (nocturnal). They build nests or resting places called 'dreys' from the foliage and also use tree hollows. The fauna survey recorded no evidence of Western ringtail possum presence or use within the proposed clearing area (Natural Area, 2020). *Agonis flexuosa* in the survey area were considered unlikely to be at a sufficient size to support dreys (Natural Area, 2020).

Given the lack of mature trees with hollows that would provide the primary diurnal refuge and breeding sites for possums, the application area is likely used only as a transient habitat for WRP. Slow, directional clearing will allow this species to disperse ahead of the clearing activity should it occur on site at the time of clearing.

### **Southern brush-tailed phascogale**

The preferred habitat of the brush-tailed phascogale is dry sclerophyll forests and open woodlands that contain hollow-bearing trees with a sparse ground cover. The species is known to cross up to 300 metres of open space to nest in isolated paddock trees. Nesting typically occurs in hollows of large trees with one study identifying suitable hollow entrance width as being between 2.4 and 5.5 centimetres (Rhind, 1996). Given the absence of hollow-bearing trees within the application area, the proposed clearing will not impact significant habitat for the brush-tailed phascogale. This species may be subject to individual harm should they be present at the time of clearing.

### **Chuditch and Quokka**

The fauna survey indicates that the application area potentially represents habitat for *Dasyurus geoffroii* (Chuditch) (13 records within the local area) and *Setonix brachyurus* (Quokka) (two records within the local area). Given the linear nature of the vegetation, in an otherwise cleared environment with no contiguous vegetation adjacent, the application area is unlikely to represent significant habitat for either the Chuditch or Quokka.

### **Ecological linkages**

The application area occurs 1.3 km east of a mapped South west regional ecological linkage which supports the movement of fauna between areas of remnant native vegetation, particularly between, Boyanup State Forest and Tuart Forest National Park. This regional ecological linkage is associated with the Capel River.

The vegetation within the area proposed to be cleared is unlikely to support this mapped ecological linkage, given the separation distance between them. However, roadside vegetation is extremely important as it forms linear strips of vegetation (and habitat) between other remnants. The vegetation within the application area may be acting as a separate ecological corridor, providing a linkage between the Boyup State Forest and Tuart Forest National Park. To mitigate the impacts on ecological corridors, the Shire has committed to retaining approximately 136 habitat trees (approximately 65 per cent) within the existing road reserve.

#### Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing will impact on significant foraging habitat for black cockatoos and suitable habitat for WRP, southern brush-tailed phascogale, chuditch and quokka.

Taking into account the City's avoidance, minimisation and mitigation measures, the Delegated Officer determined that the loss of 1.12 ha of significant black cockatoo foraging habitat can be addressed through a suitable offset (as conditioned on the clearing permit). Section 4 of this report provides further information on the offset provided.

The Delegated Officer has also determined that whilst not considered significant habitat for WRP, southern brush-tailed phascogale, quokka and chuditch, impacts to individuals of these species may occur at the time of clearing. To minimise the potential impacts, the applicant will be required to undertake slow, directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing.

### **3.2.2. Environmental value: significant remnant vegetation and conservation areas – Clearing Principles (e)**

Assessment: The extent of mapped native vegetation in the local area (10 km radius) is at 17.8 per cent. Vegetation within the application area is within the Southern River and Swan Complexes, both of which have less than 30 per cent of their original extent remaining.

Based on the vegetation survey conducted by Natural Area (2020), the vegetation within the proposed clearing area is restricted to the road reserve with a high perimeter to area ratio, with other small, fragmented remnants and cleared agricultural land adjacent. Within the local area, the closest larger remnant likely to be in better condition is the Tuart Forest National Park. Although the application area is not mapped within any ecological linkage, given the extensively cleared landscape, the vegetation within the application area may support fauna movement between this Reserve and the Boyup State Forest.

The vegetation within the application area comprises of significant habitat for black cockatoos. As the local area has been extensive clearing for agricultural purposes, strips of remnant vegetation, even those in a degraded



condition are significant to support local fauna populations. Furthermore, it is considered likely that the vegetation within the application area may be acting as an ecological corridor, providing a linkage between the Boyup State Forest and Tuart Forest National Park.

The application area is within a highly cleared landscape and provides significant habitat for conservation significant fauna species. Therefore, the application area is considered to be a significant remnant within an extensively cleared landscape.

There is a risk of weeds and dieback spreading into remnants of native vegetation adjacent to the proposed clearing and the applicant will be required to adhere to weed and dieback management measures (as conditioned on the clearing permit) to minimise this risk.

Outcome:

Taking into account the City's avoidance, minimisation and mitigation measures, the Delegated Officer determined that the loss of 1.12 ha of native vegetation considered significant as a remnant of native vegetation in an extensively cleared landscape can be addressed through a suitable offset (as conditioned on the clearing permit). Section 4 of this report provides further information on the offset provided.

The application area occurs adjacent to remnants of native vegetation. Adhering to weed and dieback management measures (as conditioned on the clearing permit) will minimise the risk of weeds and dieback being spread.

### **3.2.3. Environmental value: water resources – Clearing Principles (f)**

Assessment: A Multiple Use Wetland (MUW) is recorded within the proposed clearing area. This wetland is a palusplain, of which seasonal waterlogging is a characteristic. Given the proximity of the MUW, clearing of vegetation has the potential to cause deterioration in the quality of groundwater, particularly given the sandy nature of the soils and high risk of nutrient export.

Noting that the proposed clearing will be limited to no more than 1.12 ha scattered along an approximately 1.9 kilometre linear footprint and that approximately 65 per cent of deep rooted vegetation will remain within the Weld Road reserve post-clearing, the proposed clearing is not likely to have a significant impact upon riparian vegetation or the environmental values of the wetland.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing will not significantly impact on this environmental value.

For the reasons set out above, it is considered the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the hydrological and ecological values of the wetland. No clearing permit conditions are necessary in relation to this matter.

### **3.3. Relevant planning instruments and other matters**

With regards to recent clearing permit decisions in the local area, CPS 8116/1 was granted by DWER on 13 September 2019. In the decision report, DWER determined that the clearing was at variance with Principle (f) and may be at variance with Principle (b). The granting of the permit was subsequently appealed and following the appeal process, the Minister for Environment recommended that conditions be imposed for an offset and revegetation within the road reserve to counterbalance the significant residual impacts. DWER in reconsidering the residual environmental impacts of the clearing authorised under CPS 8116/1, determined that an offset comprised of revegetating 3.62 hectares of native vegetation would sufficiently counterbalance the significant residual impacts to foraging habitat for black cockatoo species.

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.

## **4. Suitability of the offset**

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- clearing of 1.12 ha of significant foraging habitat for black cockatoos; and
- clearing of 1.12 ha of a significant remnant in an extensively cleared landscape.

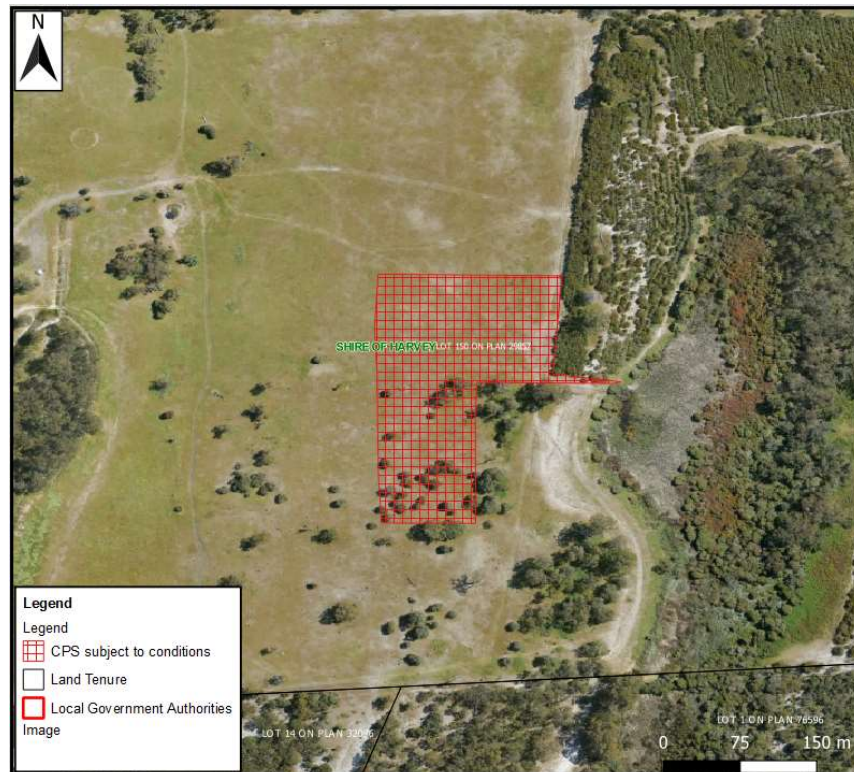
To counterbalance the above impacts, the Shire submitted an offset proposal that involves revegetation of an area in completely degraded (Keighery, 1994) condition within Lot 150 on Deposited Plan 29857, Parkfield (the offset

site) vested with the DBCA for the purpose of conservation. The offset site is located approximately 42.5 kilometres north of the application area in the Shire of Harvey.

This property was identified during the appeal process related to Clearing Permit 8116/1. During this process, the Minister for Environment (the Minister) noted the offset site is located adjacent to a recognised ecological linkage which includes a number of other DBCA managed lands. The Minister considered that the revegetation of this property would not only re-establish black cockatoo foraging habitat, but also improve ecological linkage values.

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, a calculation using the EPBC Act Offset calculator was undertaken. The calculation indicates that the revegetation of an area that is vested for the purpose of conservation from a completely degraded (Keighery, 1994) to good (Keighery, 1994) condition is sufficient to adequately address the impacts of the proposed clearing and restore the following environmental values:

- approximately 2.68 hectares of native vegetation that is a significant remnant within an extensively cleared landscape, contains black cockatoo foraging habitat, is representative of a Commonwealth listed TEC and improves ecological linkage values (Figure 2).



**Figure 2** - The area cross-hatched red indicates the area which will be revegetated in accordance with the offset conditions on the permit

The Offsets Policy states that environmental offsets relate to the environmental value that is being impacted. In some instances, it may be necessary to offset a value with a similar, but not identical, value.

While reviewing the proposed offset, DWER acknowledged that the characteristics of the offset site, such as topography and soil attributes, do not support a revegetation of the Southern River vegetation complex which is impacted by the clearing. The Delegated Officer considered that revegetation of a portion of the offset site which would at the completion meet the key diagnostic criteria of the Tuart Woodland TEC, is likely to achieve more beneficial environmental outcomes. Such revegetation would not only re-establish black cockatoo habitat and improve ecological linkage values, but also restore vegetation representative of Tuart Woodland TEC which has historically been extensively cleared and is likely to be completely lost if it is not protected and restored (Threatened Species Scientific Committee (TSSC), 2019).

The justification for the values used in the offset calculation is provided in Appendix D.

## 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 proposed clearing area is a remnant patch of overstorey vegetation within the Weld Road reserve. The application area is surrounded by cleared farmland on both sides. Fragmented remnants of native vegetation exist within the cleared farmland, and an area of uncleared vegetation (size approximately 58 ha) is present 160 metres east of the application area. Spatial data indicates the local area (10 kilometre radius of the proposed clearing area) retains approximately 17.28 per cent of the original native vegetation cover.											
Vegetation description	<p>A vegetation survey carried out by Natural Area Consulting (2020) identified one vegetation type: Marri woodland to be present within the survey area. This is inconsistent with the Swan vegetation complex mapped within the application area (Hedde et al, 1980) but consistent with Southern River vegetation complex which has also been mapped within the application area:</p> <ul style="list-style-type: none"> <li>Swan Complex (33) - Fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark) with localised occurrence of low open forest of <i>Casuarina obesa</i> (Swamp Sheoak) and <i>Melaleuca cuticularis</i> (Saltwater Paperbark).</li> <li>Southern River Complex (42) - 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 beds.</li> </ul>											
Vegetation condition	<p>A vegetation survey carried out by Natural Area Consulting (2020) identified vegetation within the application area predominantly in completely degraded (90 per cent) and good (10 per cent) condition, with two patches of good condition vegetation located at either end of the application area. The vegetation condition was classified using the Keighery (1994) scale.</p> <p>The full Keighery condition rating scale is provided in Appendix E, below. Representative photos are available in Appendix G.</p>											
Soil description	<p>The soil is mapped as a combination of the Pinjarra system and Bassendean soil systems within the application area. Three subsystems have been identified as occurring within the application area, they are as follows:</p> <ul style="list-style-type: none"> <li>Bassendean B1 Phase - Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale-yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 metres;</li> <li>Bassendean B6 Phase - Sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands.</li> <li>Pinjarra P9 Phase - Shallowly incised stream channels of minor creeks and rivers with deep acidic mottled yellow duplex soils.</li> </ul>											
Land degradation risk	<p>The Department of Primary Industries and Regional Development (DPIRD), provides a series of soil degradation risk mapping at the sub-system level (2020). The project area is located within 3 subsystems of the Bassendean and Pinjarra soil systems.</p> <p>The table below summaries the soil degradation risk within the project area.</p> <table border="1"> <thead> <tr> <th rowspan="2">Aspect</th> <th colspan="3">Degradation risk</th> </tr> <tr> <th>Bassendean B1 Phase</th> <th>Bassendean B6 Phase</th> <th>Pinjarra P9 Phase</th> </tr> </thead> <tbody> <tr> <td>Wind Erosion</td> <td>52%</td> <td>85%</td> <td>0%</td> </tr> </tbody> </table>	Aspect	Degradation risk			Bassendean B1 Phase	Bassendean B6 Phase	Pinjarra P9 Phase	Wind Erosion	52%	85%	0%
Aspect	Degradation risk											
	Bassendean B1 Phase	Bassendean B6 Phase	Pinjarra P9 Phase									
Wind Erosion	52%	85%	0%									

Site characteristic	Details			
	Waterlogging	10%	40%	100%
	Water Erosion	0%	0%	75%
	Salinity	0%	0%	0%
	Flood Risk	0%	0%	100%
	Phosphorous Export Risk	83%	91%	100%
Waterbodies	<p>The desktop assessment indicated that the application area is located within a Multiple Use Wetland (MUW) Palusplain (UFI 15809) geomorphic wetland. No watercourses intersect the application area. Two watercourses are located on the eastern and western side of the application area:</p> <ul style="list-style-type: none"> <li>• Capel River (mainstream), 815 m south-west at the closest point</li> <li>• Tren Creek (minor, non-perennial), 910 m north east at the closet point</li> </ul>			
Conservation areas	No conservation areas occur within the application area. The closest conservation reserve is part of the larger Ludlow Wonnerup Area, approximately 4.2km north west.			
Climate and landform	<p>The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. According to the Bureau of Meteorology (Ludlow, Station ID 009877, 2020):</p> <ul style="list-style-type: none"> <li>• average annual rainfall is 675 mm, with the majority falling between May and September</li> <li>• average maximum temperatures range from 18.1 °C in winter to 30.5 °C in summer</li> <li>• average minimum temperatures range from 6.1 °C in winter to 12.1 °C in summer.</li> </ul> <p>The application areas intersect the Pinjarra and Bassendean Systems:</p> <ul style="list-style-type: none"> <li>• Pinjarra system - Alluvial deposits (early Pleistocene to Recent) between the Bassendean Dunes Zone and the Darling Scarp, colluvial and shelf deposits adjacent to the Darling Scarp. Clayey to sandy alluvial soils with wet areas</li> <li>• Bassendean system – Pleistocene sand dunes with very low relief, leached grey siliceous sand intervening sandy and clayey swamps and gently undulating plains (DPIRD, 2020).</li> </ul>			

## 2. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (see Appendix G), and biological survey information, the following conservation significant flora and fauna species, and ecological communities may be impacted by the clearing.

Species / Ecological Community	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Surveys adequate to identify? (Y, N, N/A)
<b>Flora</b>					
<i>Acacia flagelliformis</i> (P4)	4.4	Y	Y		Y
<i>Acacia semitrullata</i> (P4)	2.4	Y	Y		Y
<i>Adelphacme minima</i> (P3)	5.2	Y	Y		Y
<i>Andersonia gracilis</i> (T) (EN)	-	Y	Y		Y
<i>Boronia tetragona</i> (P3)	2.6	Y	Y		Y

Species / Ecological Community	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Surveys adequate to identify? (Y, N, N/A)
<i>Caustis sp. Boyanup</i> (P3)	9.6	Y	Y		Y
<i>Chamelaucium roycei</i> (T) (VU)	10.2	Y	Y		Y
<i>Cyathochaeta teretifolia</i> (P3)	8.5	Y	Y		Y
<i>Daviesia elongata</i> (T) (VU)	9.1	Y	Y		Y
<i>Franklandia triaristata</i> (P4)	2.4	Y	Y		Y
<i>Grevillea maccutcheonii</i> (T) (EN)	-	Y	Y		Y
<i>Isopogon formosus subsp. dasylepis</i> (P3)	3.0	Y	Y		Y
<i>Jacksonia gracillima</i> (P3)	2.1	Y	Y		Y
<i>Leucopogon sp. Busselton</i> (P2)	2.4	Y	Y		Y
<i>Platytheca anasima</i> (P2)	8.9	Y	Y		Y
<i>Schoenus loliaceus</i> (P2)	8.2	Y	Y		Y
<i>Synaphea hians</i> (P3)	3.9	Y	Y		Y
<i>Synaphea odocoileops</i> (P1)	6.3	Y	Y		Y
<i>Synaphea petiolaris subsp. Simplex</i> (P3)	4.0	Y	Y		Y
<i>Synaphea sp. Fairbridge Farm</i> (T) (CR)	-	N	Y		Y
<i>Synaphea sp. Pinjarra Plain</i> (T) (EN)	8.3	Y	Y		Y
<i>Synaphea sp. Serpentine</i> (T) (CR)	7.8	Y	Y		Y
<b>Fauna</b>					
<i>Calyptorhynchus banksii naso</i> (T, VU)	4.4			Y	Y
<i>Calyptorhynchus baudinii</i> (T, EN)	1.8			Y	Y
<i>Calyptorhynchus latirostris</i> (T, EN)	2.3			Y	Y
<i>Dasyurus geoffroii</i> (T, VU)	2.4			Y	Y
<i>Phascogale tapoatafa subsp. wambenger</i> (CD)	1.5			Y	Y
<i>Setonix brachyurus</i> (T, VU)	-			Y	Y

### 3. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)	% remaining in local area (10km)
IBRA bioregion						
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	17.98	18.72
Vegetation complex						
Swan Complex	15,194.13	2,062.03	13.57	140.58	0.93	16.12
Southern River Complex	58,781.48	10,832.18	18.43	940.36	1.60	22.75

## Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> Noting the findings of the flora and fauna surveys (Natural Area, 2020) and that the majority of the application area is in completely degraded (Keighery, 1994) condition, it has been concluded that the application area is not likely to provide habitat for conservation significant flora and the vegetation in the application area is not representative of a threatened or priority ecological community recorded in the local area.</p> <p>The application area comprises significant foraging habitat for black cockatoos and suitable habitat for other conservation significant fauna species.</p>	Not likely to be at variance	No
<p><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.”</p> <p><u>Assessment:</u> The proposed clearing area contains significant foraging habitat for black cockatoos and suitable habitat for WRP, chuditch, southern brush-tailed phascogale and quokka.</p> <p>Although the application area is not mapped within any ecological linkage, the vegetation proposed to be cleared may support fauna movement across the extensively cleared landscape, particularly between the Boyup State Forest and Tuart Forest National Park.</p>	Is at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> The proposed clearing area is unlikely to contain any flora species listed as threatened under the BC Act (Natural Area 2020).</p>	Not likely to be at variance	No
<p><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.”</p> <p><u>Assessment:</u> The proposed clearing area does not contain species that can indicate the occurrence of a threatened ecological community listed under the BC Act 2016.</p>	Not likely to be at variance	No
<b>Environmental values: significant remnant vegetation and conservation areas</b>		
<p><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.”</p> <p><u>Assessment:</u> The extent of the native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The application area provides significant habitat for black cockatoos. Given this, the application area is considered significant as a remnant of native vegetation in an extensively cleared landscape.</p>	Is at variance	Yes Refer to Section 3.2.2 above.
<p><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.”</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>		
<p><b>Environmental values: land and water resources</b></p>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given the clearing area occurs within a mapped Multiple Use Wetland, the clearing area may impact on- or off-site hydrology and water quality. Noting the small amount of clearing of vegetation within the mapped wetland and that the vegetation to be cleared is scattered along a larger, linear clearing footprint, the proposed clearing is unlikely to have a significant impact on an environment associated with wetlands.</p>	Is at variance	Yes Refer to Section 3.2.3 above.
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> Noting the extent of the proposed clearing which is scattered along a larger, linear footprint, the proposed clearing is not likely to cause appreciable land degradation.</p>	Not likely to be at variance	No
<p><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></p> <p><u>Assessment:</u> Noting the extent of the proposed clearing which is scattered along a linear footprint, the proposed clearing is not likely to cause deterioration in the quality of surface of underground water.</p>	Not likely to be at variance	No
<p><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></p> <p><u>Assessment:</u> The proposed clearing is not likely to cause, or exacerbate, the incidence of flooding. It is anticipated construction along Weld Road will improve surface drainage and reduce the occurrence of flooding within the road reserve.</p>	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 – Offset calculator value justification

Field Name	Description	Justification for value used
<i>IUCN Criteria</i>	The IUCN criteria for the value being impacted	<b>1.2%</b> - Afforded to Carnaby's and Baudin's cockatoos listed as Endangered under the BC and EPBC Act. Forest red-tailed black cockatoo is listed as Vulnerable but the offset is based on species with higher conservation status. <b>0.0%</b> - Afforded to significant remnant of native vegetation in an extensively cleared landscape. There is no statutory listing for the loss of a significant remnant.
<i>Area of impact (habitat/community) or Quantum of impact (features/individuals)</i>	The area of habitat/community impacted or number of features/individuals impacted	<b>1.12</b> - The application area comprises 1.12 hectares of black cockatoo foraging habitat. The application area is also considered significant as a remnant of native vegetation in a highly cleared landscape.
<i>Quality of impacted area (habitat/community)</i>	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability.	<b>4</b> - Native vegetation predominantly in completely degraded condition with two small patches of vegetation in good condition. The vegetation in the application area is in an extensively cleared area and provides high quality black cockatoo foraging habitat.
<i>Time over which loss is averted (habitat/community)</i>	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	<b>20</b> - The offset site is vested with DBCA for the purpose of conservation. 20 years is the maximum value associated with this field.
<i>Time until ecological benefit (habitat/community) or Time horizon (features/individuals)</i>	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	<b>10</b> - It is assumed that the environmental values obtained from revegetation will not be evident until 10 years post-revegetating.
<i>Start area (habitat/community) or Start value (features/individuals)</i>	The area of habitat/community or number of features/individuals proposed to offset the impacts	The required area for each value post-consideration of mitigation area is shown below: <b>2.68</b> ha required to address impacts to black cockatoos habitat; and <b>2.38</b> ha required to address impacts to significant remnant of native vegetation.
<i>Start quality (habitat/community)</i>	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	<b>1</b> - A quality score of (1) (Completely degraded to Degraded) has been assigned based upon the revegetation management plan prepared by Natural Area (2020).
<i>Future quality without offset (habitat/community) or Future value without offset</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	<b>1</b> - It is assumed that the area would maintain its Completely Degraded to Degraded condition if no revegetation occurs.

<i>(features/individuals)</i>		
<i>Future quality with offset (habitat/community) or Future value with offset (features/individuals)</i>	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	<b>4</b> - it is assumed that the revegetation area could improve the vegetation condition to a Good condition.
<i>Risk of loss (%) without offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	<b>10%</b> - A risk of loss percentage without offset of 10% has been assigned due to the offset site being designated for conservation by the DBCA. There is low risk of loss as the site is managed by DBCA.
<i>Risk of loss (%) with offset (habitat/community)</i>	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	<b>10%</b> - A risk of loss percentage with offset of 10% has been assigned due to the offset site being designated for conservation by the DBCA. There is low risk of loss as the site is managed by DBCA.
<i>Confidence in result (%) – risk of loss (habitat/community)</i>	The capacity of measures to mitigate risk of loss of the proposed offset site	<b>90%</b> - A confidence in result (risk of loss) value of 90% has been afforded due to the high level of certainty about the risk without the proposed offset due to the Conservation purpose, unmanaged access, susceptibility to dieback, weeds and inappropriate fires.
<i>Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)</i>	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	<b>70%</b> - A confidence in result (change in quality) value of 70% has been afforded due to the high level of certainty about the successful achievement of the proposed offset due to the availability of a comprehensive vegetation management plan and the offset site being designated for conservation and managed by DBCA.
<i>% of impact offset</i>	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	<b>100%</b> - for black cockatoos obtained through the input of variables explained above.  Calculation for 1.12 ha impact of significant remnant of native vegetation comes out as 112.8% for a 2.68 hectare offset. Therefore, no additional area is required for impacts on this environmental value.

## Appendix E – Biological survey information excerpts / photographs of the vegetation

The Shire of Capel commissioned Natural Area to undertake a detailed flora and vegetation survey and a level 1 fauna survey along a 1.9 kilometre section of the roadside reserve along Weld Road. The total size of the survey area was approximately 4.3 ha which encompassed the application area (Figure 3).

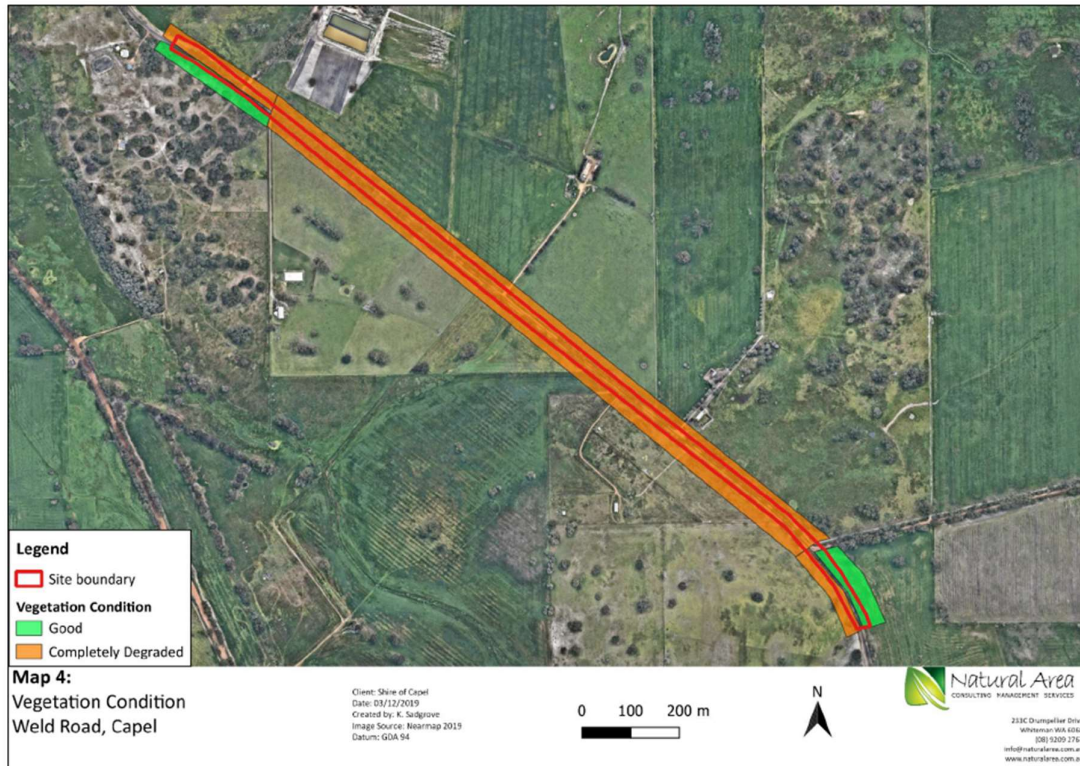


Figure 3 Survey area

One vegetation type was recorded across the survey site, namely Marri Woodland (Figure 4). This vegetation community comprised of *Corymbia calophylla* (Marri) over a middle story of *Xanthorrhoea preissii* (Grass Tree) and a weedy understory of introduced grasses.



Figure 4 Marri woodland

## **Key findings**

### Conservation significant flora

No threatened or priority flora species were recorded during the on-ground spring survey.

### Threatened ecological communities

No TECs were recorded on site, although DBCA databases indicated the potential presence of the Banksia Woodlands of the Swan Coastal Plain TEC.

### Conservation significant fauna

No sightings of conservation significant fauna species were observed during the survey. Evidence of black cockatoo foraging was noted at four locations by the way of chewed nuts. No signs of black cockatoo roosting or evidence of hollows being used were identified.

No indications of the presence of WRP was recorded, with any *Agonis flexuosa* within the application area unlikely to be of a sufficient size to support dreys.

## Appendix F – References

### 1. GIS datasets

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

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