



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 10598/1
<b>Permit Holder:</b>	Shire of Plantagenet
<b>Duration of Permit:</b>	From 15 March 2025 to 15 March 2037

### ADVICE NOTE

#### Revegetation offset

The revegetation offset referred to in condition 8 of this permit is intended to facilitate the *revegetation* of a total of 0.17 hectares of *native vegetation* within the Reserve 10449 (PIN 613537) and Hannan Way Reserve (PIN 1359114), Narrikup. The revegetated 0.17-hectare areas are considered to provide foraging habitat for black cockatoo species, contain native vegetation representative of the Kwongkan shrubland Threatened Ecological Community and is a significant remnant, in addition to other environmental values.

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.

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

Newman Road reserve (PIN 12696176; Lot 500 on Deposited Plan 424993), Narrikup  
 Hannan Way road reserve (PIN 11202636), Narrikup  
 Newman Road, unmade portion (PIN 11418857), Narrikup

#### 3. Clearing authorised

The permit holder must not clear more than 0.059 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

#### 4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 15 March 2030.

### **PART II – MANAGEMENT CONDITIONS**

#### 5. 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.

#### 6. 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.

#### 7. Directional clearing

The permit holder must:

- (a) conduct clearing activities in a slow, progressive manner towards adjacent remnant *native vegetation*; and
- (b) allow reasonable time for fauna present within the area being cleared to move into adjacent *native vegetation* ahead of the clearing activity.

#### 8. Offset – revegetation and rehabilitation with reference sites

The permit holder must:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil to be used in the *revegetation* in the areas cross hatched red in Figure 1 of Schedule 2;
- (b) within 24 months of the commencement of clearing and no later than 15 March 2031 at an *optimal time*, the permit holder must commence *revegetating* and *rehabilitating* the areas cross-hatched red in Figure 1 of Schedule 2 in accordance with the *Revegetation Plan* including but not limited to the following actions, by way of:
  - (i) laying the appropriate vegetative material and topsoil retained under condition 8(a);
  - (ii) deliberately *planting* tube stock and salvaged *native vegetation* that will result in similar species composition, structure and density of *native*

*vegetation* to the adjacent reference sites at 117.70358E, -34.76955S and 117.70356E, -34.76925S, recorded using a Global Positioning System (GPS) unit set to GDA2020; and

- (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- (c) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the *revegetation* site;
- (d) undertake *weed* control activities prior to *planting*, and on an ‘as needs’ basis to maintain a minimum criterion specified in Table 1 of Schedule 2;
- (e) undertake watering of the *planted* vegetation between November and March post-*planting* as required, for the duration of this permit;
- (f) establish no less than six 5 x 5 metre quadrat monitoring sites within the *revegetated* and *rehabilitated* areas (at least three quadrats for each *revegetated* and *rehabilitated* area);
- (g) engage an *environmental specialist* to undertake annual monitoring within the quadrats specified in condition 8(f) until the completion criteria detailed in Table 1 of Schedule 2 are met;
- (h) undertake *remedial action* where monitoring undertaken in accordance with condition 8(g) indicate that *revegetation* has not met the completion criteria detailed in Table 1 of Schedule 2, including:
  - (i) repeating the *revegetation* actions required under conditions 8(b)-(e);
  - (ii) annual monitoring of the additional *revegetated* and *rehabilitated* areas by an *environmental specialist*, until the completion criteria detailed in Table 1 of Schedule 2 are met; and
- (i) where an *environmental specialist* has determined that the completion criteria detailed in Table 1 of Schedule 2 have been met, that determination must be submitted to the *CEO* within three months of the determination being made by the *environmental specialist*;
- (j) where the *CEO* does not agree with the determination made under condition 8(i), the *CEO* may require the permit holder to undertake *remedial actions* in accordance with the requirements under condition 8(h); and
- (k) where the *CEO* requires the permit holder to undertake *remedial actions* in accordance with condition 8(j), the permit holder must repeat activities required under 8(b)-(i).
- (l) In any case of contingency, if the *revegetation* pursuant to condition 8(b) of this permit has not been implemented within 24 months of the commencement of clearing and no later than 15 March 2031, the permit holder must provide to the *CEO* for approval, an alternative *offset proposal* prepared in accordance with the *Western Australian Environment Offsets Policy* (2011) and *Western Australian Environmental Offsets Guidelines* (2014). The offset proposal must counterbalance the significant residual impacts of the clearing of native vegetation authorised under condition 3 of this permit that includes the impacts to suitable habitat for *black cockatoo species*, vegetation representative of Proteaceae Dominated Kwongkan Shrublands of the South East Floristic Province Threatened Ecological Community, and a significant remnant vegetation.
- (m) If it is necessary to modify the *offset proposal* approved by the *CEO* in accordance with condition 8(l), then the permit holder must provide that modified offset proposal to the *CEO* for the *CEO*’s approval, prior to implementing the modified offset proposal.

- (n) The permit holder must implement the latest version of the *offset proposal* approved by the CEO.

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

#### **9. 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	<ul 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 GDA2020, expressing the geographical coordinates in Eastings and Northings;</li> <li>(c) the date that the area was cleared;</li> <li>(d) the size of the area cleared (in hectares);</li> <li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5;</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6; and</li> <li>(g) actions taken in accordance with condition 7.</li> </ul>
2.	In relation to <i>offset management</i> pursuant to condition 8	<ul style="list-style-type: none"> <li>(a) size of the area <i>revegetated</i> and <i>rehabilitated</i>;</li> <li>(b) the date(s) on which the <i>revegetation</i> and <i>rehabilitation</i> began;</li> <li>(c) the boundaries of the areas <i>revegetated</i> and <i>rehabilitated</i> (recorded digitally as a shapefile set to GDA2020);</li> <li>(d) a list of species, including quantities, used for <i>revegetation</i> and <i>rehabilitation</i>;</li> <li>(e) a description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken, including actions taken to implement watering, hygiene protocols and <i>weed</i> control;</li> <li>(f) a copy of the <i>environmental specialist's</i> monitoring report(s) and determination;</li> <li>(g) any <i>remedial actions</i> required to be</li> </ul>

No.	Relevant matter	Specifications
		<p>undertaken;</p> <p>(h) the location and size of the <i>reference quadrats</i> in accordance with condition 8 recorded using GPS a unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees;</p> <p>(i) at least two photographs of each <i>reference quadrat</i> and the date that the <i>reference quadrat</i> baseline data is collected;</p> <p>(j) the baseline data recorded for the <i>reference quadrats</i>, including species richness, species density, bare ground cover, weed cover and vegetation condition;</p> <p>(k) at least two photographs of the areas <i>revegetated/rehabilitated</i> recorded annually;</p> <p>(l) the species composition, structure, density of the areas <i>revegetated/rehabilitated</i> annually;</p> <p>(m) a description of the extent of bare ground cover, weed cover and vegetation condition of the areas <i>revegetated/rehabilitated</i>, recorded annually;</p> <p>(n) the date completion criteria are considered to have been met by the <i>environmental specialist</i>; and</p> <p>(o) any other actions taken in accordance with condition 8.</p>

## 10. Reporting

- (a) The permit holder must provide to the *CEO*, on or before 30 June of each calendar year, a written report containing:
- (i) the records required to be kept under condition 9; and
  - (ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 30 June of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 9, where these records have not already been provided under condition 10(a).

## DEFINITIONS

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


**Table 2: Definitions**

Term	Definition
CEO	Chief Executive Officer of the department 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.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
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.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (2) years work 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 25 kilometres and the same 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.
<i>Revegetation Plan</i>	means the plan developed by the permit holder for the <i>revegetation</i> and <i>rehabilitation</i> of the offset site in accordance with condition 8 of this permit: “ <i>Shire of Plantagenet Road Expansion - Revegetation Plan - Newman Rd and Hannan Way Intersection, Narrikup – Final v.3</i> ” prepared by Bio Diverse Solution - January 2025.
offset proposal	means a documented plan that addresses the principles outlined the <i>Government of Western Australia’s Environmental Offsets Policy, September 2011</i> .
optimal time	means the period between April and July.
planting/ed	means the re-establishment of vegetation by creating soil conditions and planting seedlings of the desired species
reference quadrat/site	means a sample plot established for the purpose of data collection and monitoring vegetation characteristics, for example species composition, structure, density, foliage cover, vegetation condition (Keighery, 1994), weed species and extent, and extent of bare ground. Measurements from fixed reference quadrats or plots where biodiversity components are measured are used to set measurable completion criteria for revegetation projects
remedial action/s	means, for the purpose of this permit, any activity that is required to ensure successful re-establishment of understorey to its pre-clearing composition, structure and density, and may include a combination of soil treatments and revegetation.
rehabilitate/ed/ing/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct

Term	Definition
	seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
revegetate/ed/ing/ion	means actively managing an area containing <i>native vegetation</i> in order to improve the ecological function of that area.
weeds	means any plant – <ul style="list-style-type: none"> <li>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>(c) not indigenous to the area concerned.</li> </ul>

---

**END OF CONDITIONS**


 Digitally signed by  
 Temika Mathieson  
 Date: 2025.02.19  
 17:14:08 +08'00'

---

Temika Mathieson  
 A/MANAGER  
 NATIVE VEGETATION REGULATION

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

19 February 2025

# Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).



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



# Schedule 2

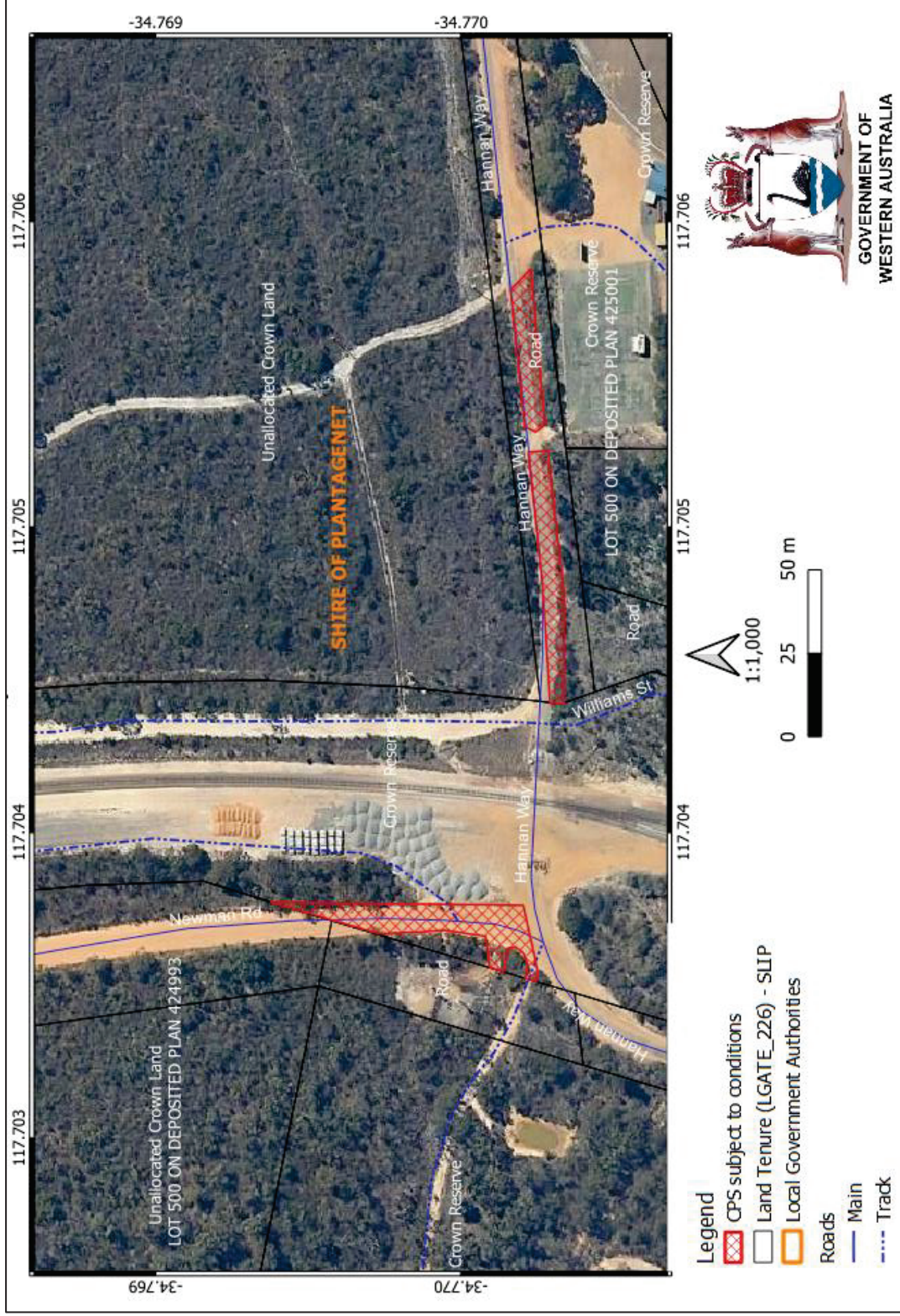


Figure 1: Map of the boundary of the area subject to *revegetation* in accordance with condition 8 of this permit.

**Table 1. Completion criteria for the *revegetation* in accordance with condition 8 of this permit.**

Aspect	Completion Criteria	Monitoring
Species richness	The <i>revegetation</i> needs to achieve at least 70 per cent of the species richness of the <i>reference sites</i> .	Annually in spring by an <i>environmental specialist</i> until this completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
Species density	The <i>revegetation</i> needs to achieve at least 70 per cent of the species density of the <i>reference sites</i> .	Annually in spring by an <i>environmental specialist</i> until this completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
Kwongkan shrubland TEC	The <i>revegetated</i> vegetation meets the key diagnostic characteristics and condition thresholds for Kwongkan shrublands TEC, as specified in the relevant Approved Conservation Advice <sup>1</sup> .	The criterion is to be assessed annually by an <i>environmental specialist</i> in spring after the vegetation establishment until this completion criterion has been met and maintained for two years.
Black cockatoo foraging habitat	The <i>revegetation</i> needs to achieve at least 70 per cent of the black cockatoo foraging species coverage of the <i>reference sites</i> .	The criterion is to be assessed annually by an <i>environmental specialist</i> in spring after the vegetation establishment until this completion criterion has been met and maintained for two years.
Percentage of weeds present	Weed coverage in the <i>revegetation</i> area is no greater than 5 per cent the baseline data at the <i>reference sites</i> .	Monitor the <i>revegetation</i> site for <i>weeds</i> by quadrats annually in spring until this completion criterion has been met and maintained for two years.
Declared weeds	No Declared Weeds under the <i>Biosecurity and Agricultural Management Act 2007</i> present	
Bare ground	The <i>revegetation</i> area has no more than 5 per cent greater than the baseline at the <i>reference sites</i> .	This criterion is to be assessed annually by an <i>environmental specialist</i> in spring after the vegetation establishment until this completion criterion has been met and maintained for two years.

<sup>1</sup> Department of Climate Change, the Environment, Energy and Water (DCCEEW) (2014). Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia. Retrieved from: <https://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf>



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 10598/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Shire of Plantagenet
<b>Application received:</b>	29 April 2024
<b>Application area:</b>	0.059 hectares (revised) of native vegetation
<b>Purpose of clearing:</b>	Road construction
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Newman Road reserve (PIN 12696176; Lot 500 on Deposited Plan 424993) Hannan Way road reserve (PIN 11202636) Newman Road, unmade portion (PIN 11418857)
<b>Location (LGA area/s):</b>	Shire of Plantagenet
<b>Localities (suburb/s):</b>	Narrikup

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within four separate areas (see Figure 1, Section 1.5).

The purpose of the proposed clearing is to realign and widen the Newman Road and Hannan Way intersection and undertake associated drainage works (Shire of Plantagenet, 2024a and 2024b). The Shire of Plantagenet (the Shire) proposes to widen an approximately 355-metre-long section of Newman Road in Narrikup, between Spencer Road and Hannan Way, by 3-4 metres (Shire of Plantagenet, 2024a). The proposed work is required to improve the safety of the road for road users (Shire of Plantagenet, 2024a).

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	19 February 2025
<b>Decision area:</b>	0.059 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix G.1), the findings of a vegetation and flora survey (see 0), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration that the purpose of the clearing is to improve road safety.

The assessment identified that the proposed clearing will result in:

- the loss of 0.059 hectares of native vegetation that provides significant foraging habitat for black cockatoo species;
- the loss of 0.047 hectares of native vegetation that is representative of the Proteaceae Dominated Kwongkan Shrublands of the South East Floristic Province Threatened Ecological Community (Kwongkan shrublands TEC);
- the loss of 0.059 hectares of native vegetation that is a significant remnant within an extensively cleared landscape;
- impacts to fauna individuals if present within the application area at the time of the clearing; and
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that some of the impacts of the proposed clearing, including impacts on fauna individuals, and the potential to facilitate the introduction of weeds and dieback, can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values through permit conditioning. However, impacts on suitable habitat for black cockatoos, Kwongkan shrublands TEC, and significant remnant vegetation remained significant even after the application of minimisation and mitigation measures and constituted a significant residual impact.

In accordance with the Government of Western Australia's *Environmental Offsets Policy (2011)* and *Environmental Offsets Guidelines (2014)*, the Delegated Officer determined that the revegetation of 0.16 hectares of native vegetation that provides foraging habitat for black cockatoo species, is commensurate with the Kwongkan shrublands TEC, and provides significant remnant vegetation within an extensively cleared landscape is required to address the above significant residual impacts (see Section 4).

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise, and reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- undertake slow, progressive, one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- implement an offset, as outlined above, to address significant residual impacts of the proposed clearing.

1.5. Site map



Figure 1 Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit. The areas cross-hatched red indicate the areas within which specific conditions apply.

## 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 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- 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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Rights in Water and Irrigation Act 1994* (RIWI Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The applicant has advised that the proposed road upgrades are required to improve the safety of Newman Road and the location of clearing could not be avoided (Shire of Plantagenet, 2024a). The applicant has committed to undertake the following avoidance and mitigation measures prior to clearing and onsite during works:

- care will be taken to only clear the minimum amount to meet construction requirements;
- where possible, clearing of trees will be avoided and replaced by pruning;
- a site walk-over involving flagging retained trees and marking the extent of works for clearing operations will occur prior to works being undertaken to ensure that the footprint is minimal and only to the extent required and approved; and
- all machines to be clean on entry to ensure no weeds or pathogens are brought onto the site from clearing operations (Shire of Plantagenet, 2024a).

The application area was revised during the assessment process, in response to DWER's request for additional efforts to avoid and/or mitigate significant environmental impacts resulting from the proposed clearing. The application area has been revised to 0.059 hectares, reduced from 0.24 hectares as proposed in the initial application (Shire of Plantagenet, 2024b).

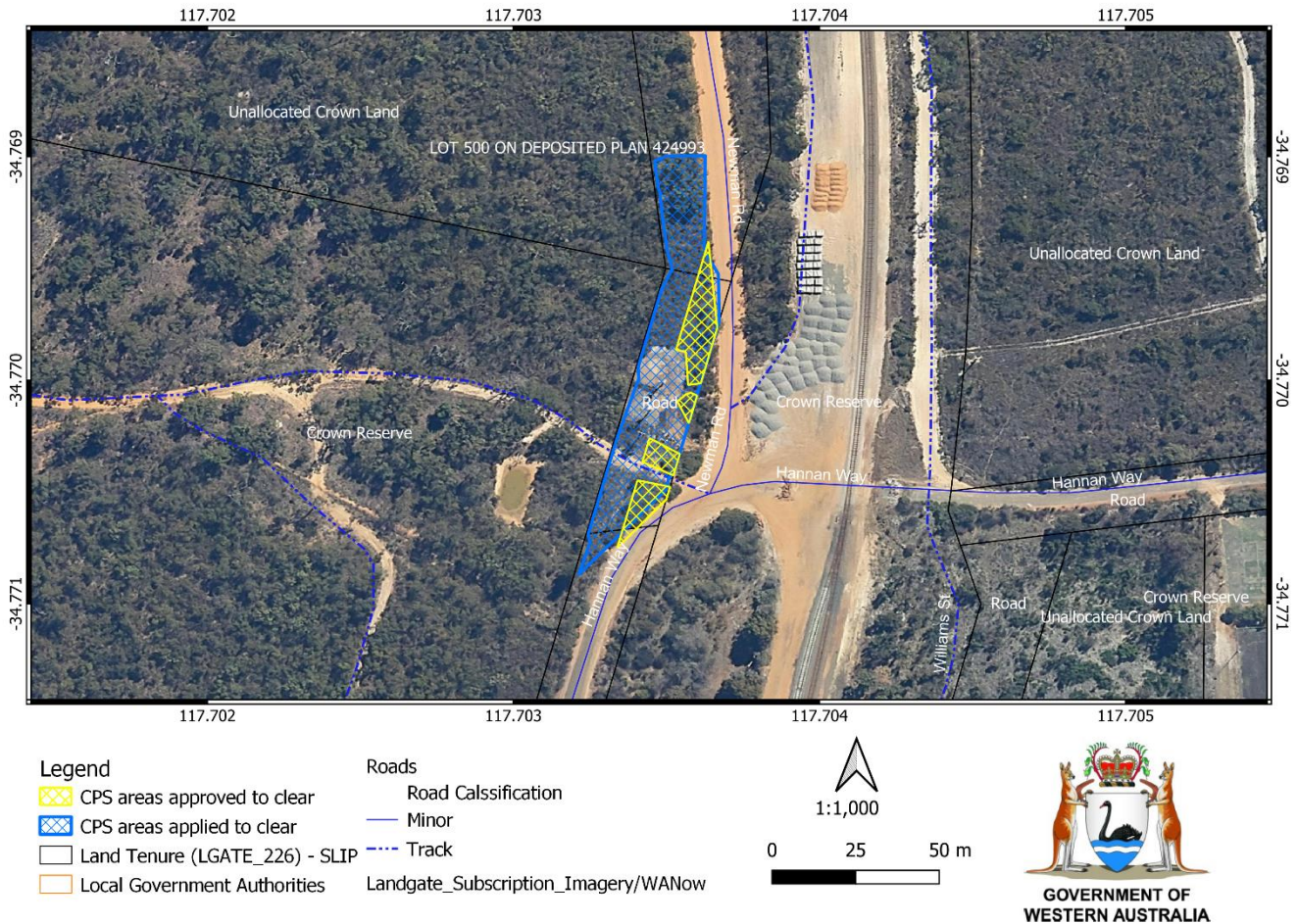


Figure 2. Map of the original application area (crosshatched blue) and the revised application area (crosshatched yellow).

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to significant foraging habitat for black cockatoos, Kwongan shrublands TEC, and significant remnant vegetation were necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* (2011) and *Environmental Offsets Guidelines* (2014), 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 are summarised in Section 4.

### 3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora, biodiversity and TEC) and significant remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

#### 3.2.1. Biological values (fauna) - Clearing Principles (a and b)

##### Assessment

The desktop assessment identified that there are 33 conservation significant fauna species recorded in the 20-kilometre radius of the application area, including 15 bird species, 11 mammal species, five invertebrate species and three fish species. Based on the analysis of suitability of habitat, distance of closest mapped records and number of known records in the local area, six fauna species have potential to occur in the application area (See Appendix B.4 for fauna analysis table), including four bird and two mammal species.

## Bird species

### **Black cockatoos**

Based on known distribution and habitat preferences, all three threatened black cockatoo (BC) species are likely to utilise the application area. Within the local area, there are 259 records of Carnaby's cockatoo (*Zanda latirostris*), 46 records of Baudin's cockatoo (*Zanda baudinii*), and 158 records of forest red-tailed black cockatoos (*Calyptorhynchus banksii naso*) (with the closest distance of approximately 0.3, 0.4, and 0.4 kilometres, respectively, from the application area). The application area is located within the mapped distribution areas of all three black cockatoo species, and it occurs in the potential breeding range of Carnaby's cockatoos. The closest black cockatoo roosting site is recorded approximately 4.2 kilometre away from the proposed clearing area.

There are three key components of BC habitat: foraging habitat; roosting habitat; and breeding habitat. Any tall trees, generally close to a riparian environment, can provide potential roosting habitat for BC (Commonwealth of Australia, 2012). A tree suitable for a BC breeding is defined as a tree with a diameter of 50 centimetres or greater at a height of 1.5 metres above the ground. BC generally forage within six kilometres of a night roost site and, while nesting, within a 12 kilometres radius of their nest site (Commonwealth of Australia, 2012). Based on the flora and vegetation surveys of the application area (Bradshaw, 2023; Bradshaw, 2022), the vegetation proposed to be cleared consists predominantly of *Hakea ferruginea* heath with emergent *Allocasuarina faseriana* (sheoak) and *Eucalyptus marginata* subsp. *marginata* (jarrah). The jarrah within the application area is noted to be less than eight metres in height and to be present in its mallee form, therefore it is not expected that the vegetation within the application area is of sufficient size to provide suitable breeding or roosting habitat.

Vegetation within the area proposed to be cleared comprises suitable foraging habitat for BC species in the form of jarrah and sheoak (Bradshaw, 2023). The proposed clearing will lead to the loss of foraging habitat for BC within the application area. According to available databases, one roost site occurs within six kilometres from the application area, meaning that the application area may support foraging by local roosting populations. Whilst it is acknowledged that the area of foraging habitat proposed to be cleared is relatively small, critical habitat for Carnaby's cockatoo includes any habitat that provides for feeding and critical habitat for Baudin's and forest red-tailed black cockatoos includes all woodlands and remnants containing jarrah in the south-west region.

In considering the definition of critical habitat for the species, the proximity of the application area to roosting sites, and the cumulative loss of vegetation in the local area (see Section 3.2.3), the proposed clearing of 0.059 hectares of foraging habitat for BC species is considered to represent a significant residual impact.

### **Peregrine falcon**

The peregrine falcon (*Falco peregrinus* - Other Specially Protected Fauna) is found Australia-wide and occurs in a range of habitats including woodlands, grasslands and coastal cliffs, usually near watercourses (DAWE, 2020). Preferred roosting and breeding habitat for the peregrine falcon includes granite outcrops and coastal cliffs, but in the absence of these habitats, the species has been known to utilise nests of other bird species or tree hollows for breeding (Marchant et al., 1993). It is considered that the habitat present within the application area may provide suitable transient foraging habitat for this species as individuals migrate through the landscape. However, noting that the peregrine falcon is a highly mobile species with a large home range that does not rely on specialised niche habitats and that the proposed clearing area is small in extent, the peregrine falcon is likely to be transient in the application area and it is unlikely that the application area represents significant habitat for the species, noting the availability of larger remnants of suitable foraging habitat within the surrounding local area.

## Mammal species

### **Quenda**

Quenda (*Isodon fusciventer* - Priority 4) are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012). This species has a wide coastal distribution from Guilderton to east of Esperance with a patchy distribution within the jarrah and karri forests and the Swan Coastal Plain. It is understood that individuals have overlapping home ranges between 1-2 hectares (DEC, 2012). This species is known from 14 records within the local area, with the closest record being approximately 7.2 kilometres from the application area. Digging evidence of quendas has been observed prevalently during a survey in 2022 which covered the fringing vegetation adjacent to the north of the application area (Bradshaw, 2022). Noting this and the existence of suitable habitat for this species within the application area, quendas are likely to utilise the application area. However, noting the small application area and surrounding remnant vegetation, the proposed clearing area is not likely to be a significant habitat for the continued survival of this species. However, the clearing activities may have direct impact on the quenda individuals if they are utilising the application area at the time of clearing. Direct impacts are likely to be mitigated through slow, progressive, one directional clearing.



### **Numbat**

The numbat (*Myrmecobius fasciatus* – Endangered) is a small insectivorous marsupial species, which mostly consumes termites (DCCEEW, 2014). The species nests in tree hollows and forage on the ground, therefore its habitat is usually associated with eucalypts that provide hollow logs and branches and areas containing termite mounds. Its home range size is from 25-50 hectares, and dispersal can be up to more than 15 kilometres (DCCEEW, 2014). There are four records of numbat within the local area and the closest record has been found approximately 0.4 kilometres from the application area. The vegetation proposed to be cleared comprises of *Eucalyptus marginata* subsp. *marginata* which can provide suitable habitat for this species. However, noting the small area proposed to be cleared and the existence of pristine adjacent remnant vegetation, the application area is unlikely to be a significant habitat for numbats.

### Conclusion

Based on the above assessment, the application area contains significant foraging habitat for BC and the proposed clearing will lead to the loss of this habitat. The proposed clearing may also impact suitable habitat for quendas, numbats and peregrine falcons, but the impact is unlikely to be significant. There is also the potential that individuals of conservation significant fauna species may occur within the application area during the clearing period, however impacts can be managed by undertaking slow, progressive, directional clearing.

For the reasons set out above, the clearing is considered to constitute a significant residual impact due to the loss of black cockatoo foraging habitat. In accordance with the Government of Western Australia's *Environmental Offsets Policy* (2011) and *Environmental Offsets Guidelines* (2014), this significant residual impact is addressed through the conditioning of environmental offset requirements, as outlined under Section 4.

### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- undertake slow, progressive one directional clearing to allow terrestrial and avian fauna to move into adjacent habitat ahead of the clearing activity;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback; and
- implement an offset consisting of the revegetation and rehabilitation of 0.16 hectares of native vegetation that provides foraging habitat for BC species within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114).

### **3.2.2. Biological values (flora and threatened ecological community) - Clearing Principles (a, c and d)**

#### Assessment

#### **Flora**

Results from the desktop assessment and an analysis of suitable soil type, vegetation type and habitat showed that there are six conservation significant flora species having potential to be present within the application area. They consist of three threatened species and three priority species (See Appendix B.3 for flora analysis table), including:

- *Conostylis misera* (T)
- *Isopogon uncinatus* (T)
- *Lambertia orbifolia* subsp. *orbifolia* (T)
- *Tricostularia davisii* (P3)
- *Banksia serra* (P4)
- *Eucalyptus buprestium x staeri* (P4)

Even though the application area and its surrounding area are considered as comprising suitable habitat and the survey has been undertaken at an optimal time (e.g. flowering period), the flora surveys did not observe most of the above flora species, except for the Priority 3 species *Tricostularia davisii* (Bradshaw, 2022 and 2023).

Among eight quadrats examined in the survey, *T. davisii* has been found in seven quadrats, in which this species has been identified as one of the abundant species in five quadrats (Bradshaw, 2023). *T. davisii* is a perennial rhizomatous geophyte species, growing in patches which make it difficult to determine specific number of individuals within the local population. Noting the frequency and abundance of this priority flora species in the survey's quadrats, it is likely that *T. davisii* is common in the area. Noting this and the small extent of the application area, the proposed clearing is unlikely to significantly impact the local population or the conservation status of this species.

#### **Threatened Ecological Communities**

The flora and vegetation survey has indicated that the vegetation type within the application area, *Hakea ferruginea* closed heath with emergent *Allocasuarina fraseriana* and Jarrah mallee, met the diagnostic criteria of the Kwongan shrublands TEC (Bradshaw, 2023). The Kwongan shrublands TEC has been identified occurring at the south and

north ends of the application area (see Figure 2) (Bradshaw, 2023). The proposed clearing will result in the loss of approximately 0.047 hectares of the Kwongkan shrublands TEC.

The Approved Conservation Advice for the Kwongkan shrublands TEC states that habitat loss is a significant threat to the community and further clearance should be prevented (DoE, 2014). Where further clearance is unavoidable, the Approved Conservation Advice notes that offsets should take into account the location of the community and quality of the patch being affected (DoE, 2014). Noting the vegetation representative of the Kwongkan shrublands TEC within the application area is in Very Good to Pristine (Keighery, 1994) condition and the proposed clearing may expose the adjacent patch of TEC to disturbance through edge effects, the proposed clearing is considered to constitute a significant residual impact.



Figure 3. Mapping of Kwongkan shrubland TEC (brown) within the application area (yellow cross-hatched) and its surroundings (Bradshaw, 2023).

### **Weeds and dieback**

Two weed species, including *Leptospermum laevigatum* and *Watsonia* sp., have been identified within the application area (Bradshaw, 2023). Even though these species have been found in low numbers during the survey, the proposed clearing may result in the spread of these weed species, which could impact on the quality of the Pristine (Keighery, 1994) condition remnant vegetation including the adjacent Kwongkan shrublands TEC.

### **Conclusion**

Based on the above assessment, the proposed clearing will result in the loss of 0.047 hectares of Kwongkan shrublands TEC which is considered a significant residual impact. The vegetation to be cleared also comprises *T. davisii*, however the impact on the local and regional population of this priority flora species is unlikely to be significant. The clearing activities may increase the risk of introduction or spread of dieback and weeds into adjacent vegetation,

leading to the impacts on the environmental values of the adjacent TEC. However, this impact can be managed through permit conditioning.

For the reasons set out above, the clearing is considered to constitute a significant residual impact due to the loss of vegetation representative of the Kwongkan shrublands TEC. In accordance with the Government of Western Australia's *Environmental Offsets Policy* (2011) and *Environmental Offsets Guidelines* (2014), this significant residual impact is addressed through the conditioning of environmental offset requirements, as outlined under Section 4.

#### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoidance and minimisation to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback to adjacent vegetation; and
- implement an offset involving the revegetation and rehabilitation of 0.16 hectares of native vegetation that is commensurate with the Kwongkan shrublands TEC within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114).

### **3.2.3. Environmental value: significant remnant vegetation - Clearing Principle (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 application area is mapped within the vegetation complex Redmond 240 which is described as open forest to woodland of *Corymbia calophylla-Eucalyptus marginata* subsp. *marginata* on uplands, woodland of *Melaleuca preissiana-Nuytsia floribunda* on lower slopes in perhumid and humid zones (Mattiske et al, 1998). This vegetation complex retains only 17.8 per cent of its pre-European extent within the Jarrah Forest IBRA bioregion. The application area is considered broadly representative of this complex and the proposed clearing will further reduce the extent of this vegetation complex.

The local area within which the application persists also retains approximately 29.6 per cent of its pre-European vegetation extent. The application area is considered significant as a remnant within the extensively cleared local area given it is broadly representative of the extensively cleared Redmon 240 complex and provides significant habitat value for BC species and Kwongkan shrublands TEC.

#### Conclusion

Based on the above assessment, the proposed clearing will result in loss of 0.059 hectares of the highly cleared vegetation complex Redmond 240. It is considered that the impacts of the proposed clearing on remnant vegetation constitutes a significant residual impact. In accordance with the Government of Western Australia's *Environmental Offsets Policy* (2011) and *Environmental Offsets Guidelines* (2014), this significant residual impact is addressed through the conditioning of environmental offset requirements, as outlined under Section 4.

#### Conditions

To address the above impacts, the following management measure will be required as conditions on the clearing permit:

- Implement an offset involving the revegetation and rehabilitation of 0.16 hectares of native vegetation that is commensurate with the Kwongkan shrublands TEC within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114).

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

The clearing permit application was advertised on DWER's website on 29 May 2024, inviting submissions from the public within a 21-day period. No submissions were received.

No Aboriginal sites of significance have been mapped within the application area. 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 offsets

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:

- the loss of 0.059 hectares of native vegetation that provides significant foraging habitat for black cockatoo species.
- the loss of 0.047 hectares of native vegetation that is representative of the Kwongkan shrublands TEC.
- the loss of 0.059 hectares of native vegetation that is a significant remnant of the highly cleared vegetation complex Redmond 240 and within an extensively cleared local area.

The Shire of Plantagenet (the Shire) proposed an environmental offset consisting of revegetation at two sites in the proximity of the application area with the total revegetation area of 0.17 hectares (Figure 4). The proposed offset sites are currently used for transport purposes. Site A (0.08 hectares) is the old Newman Road alignment within Narrikup Town Lot 25 (Crown Reserve 10449). Site B (0.09 hectares) is a decommissioned section of Hannan Way road reserve (PIN 1359114) and is under the management of the Shire of Plantagenet (Bio Diverse Solution, 2025).

After the realignment of the intersection of Newman Road and Hannan Way, these two areas will no longer be used for transport and the gravel/bitumen road base will be removed to facilitate the revegetation. The Shire has provided an Offset Revegetation Plan (Bio Diverse Solutions, 2025) which commits to revegetate the offset sites to achieve:

- a minimum of Good (Keighery, 1994) condition;
- native vegetation commensurate with the Kwongkan shrubland TEC; and
- suitable foraging habitat for all three species of black cockatoo.



Figure 4. Context map showing the locations of the application area (yellow cross-hatched) and proposed offset areas (green) (Bio Diverse Solution, 2025).

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, DWER undertook a calculation using the WA Environmental Offsets Metric calculator. The justifications for the values used in the offset calculations are provided under Appendix E. The calculation indicated that:

- To offset the loss of 0.059 hectares of native vegetation that provides significant foraging habitat for black cockatoo species, the revegetation of 0.16 hectares from a Completely Degraded to Good (Keighery, 1994) condition of native vegetation that provides suitable foraging habitat for black cockatoos is required.

- To offset the loss of 0.047 hectares of native vegetation that is representative of the Kwongkan shrublands TEC, the revegetation of 0.16 hectares from a Completely Degraded to Good (Keighery, 1994) condition of native vegetation that is representative of the Kwongkan shrublands TEC is required.
- To offset the loss of 0.059 hectares of native vegetation that is a significant remnant of the highly cleared vegetation complex Redmond 240, the revegetation of 0.13 hectares from a Completely Degraded to Good (Keighery, 1994) condition of native vegetation that is broadly representative of the vegetation Redmond Complex is required.

The Delegated Officer considers that the proposed offset adequately counterbalances the significant residual impacts listed above and is consistent with the *WA Environmental Offsets Policy* (2011) and *WA Environmental Offset Guidelines* (2014).

**End**

## Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Shapefiles of the adjusted application area.	The application area has been revised accordingly. The information is presented in <i>Avoidance and mitigation measures</i> (see Section 3.1).
A flora survey covering the application area (Bradshaw, 2023).	The findings of this survey have been considered in the assessment as presented in the <i>Detailed assessment of application</i> (see Section 3).
Revegetation Plan for the offset site.	This information is presented in <i>Suitability of offsets</i> (see Section 4) and <i>Offset calculator value justification</i> (see Appendix E).

## Appendix B. Site characteristics

### B.1. 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 C.

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It borders Newman Road and Hannan Way to its north and south; and is adjacent to remnant vegetation to its west and east. The proposed clearing area is part of a large area of vegetation.</p> <p>Spatial data indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared) retains approximately 29.6 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area is mapped within the area of Gondwana Link project which aims to reconnect and restore country across south-west Western Australia (Bush Heritage Australia, 2024).
Conservation areas	The application area is not mapped within a conservation area. The closest conservation area is a conservation covenant area ID G105757, located approximately 3.2 kilometres to the northwest of the application area.
Vegetation description	<p>Flora and vegetation surveys (Bradshaw, 2023) indicate the vegetation within the proposed clearing area consists of one vegetation unit:</p> <ul style="list-style-type: none"> <li><i>Hakea ferruginea</i> closed heath with emergent <i>Allocasuarine fraseriana</i> and Jarrah mallee.</li> </ul> <p>Representative photos are available in 0.</p> <p>This is broadly consistent with the mapped vegetation type:</p> <ul style="list-style-type: none"> <li>Redmond 240, which is described as open forest to woodland of <i>Corymbia calophylla-Eucalyptus marginata</i> subsp. <i>marginata</i> on uplands, woodland of <i>Melaleuca preissiana-Nuytsia floribunda</i> on lower slopes in perhumid and humid zones (Mattiske et al, 1998)</li> </ul> <p>The mapped vegetation type retains approximately 17.8 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	Flora and vegetation surveys (Bradshaw, 2023) indicate the vegetation within the proposed clearing area is in Pristine to Degraded (Keighery, 1994) condition.

Characteristic	Details
	<p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p> <p>Representative photos and mapping are available in 0.</p>
Climate and landform	<p>Climate: Mean maximum temperature is 20.1 degrees Celsius.  Mean minimum temperature is 9.4 degrees Celsius.</p> <p>Rainfall: Mean annual rainfall is 723.9 millimetres.  (Mount Barker station – 17 kilometres from Narrikup, BOM, 2024)</p>
Landform and soil description	<p>Landform: Broadly undulating plateau; scattered lakes and depressions (DPIRD, 2022).</p> <p>The soil is mapped as 242ReRD, yellow duplex soils and laterite on plains with Marri-Jarrah-Albany Blackbutt forest; Yellow solonetzic soils in depressions; Paperbark woodland (DPIRD, 2022).</p>
Land degradation risk	<p>The soil types within the application area are mapped as having a low risk of land degradation resulting from water erosion, salinity, flooding; as having medium risk of water logging and phosphorous export; and as having high risk of wind erosion and subsurface acidification (See Appendix B.5).</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that no wetlands or waterbodies transecting the application area. The closest waterbody is a non-perennial minor river located approximately 210 metres from the proposed clearing area.</p>
Hydrogeography	<p>Groundwater salinity within the application area is mapped as from 500 to 1000 milligrams per litre total dissolved solids.</p>
Flora	<p>A total of 105 conservation significant flora records are mapped in the local area, including 20 threatened species and 85 priority species. There are 16 flora species that occur on the same soil type and three species being present in the same vegetation type as found within the application area. The biological survey identified the priority flora <i>Tricostularia davisii</i> within the survey area (Bradshaw, 2023).</p>
Ecological communities	<p>There are no threatened/priority ecological communities mapped within the application area. However, the vegetation survey identified the Proteaceae Dominated Kwongkan Shrublands of the South East Floristic Province Threatened Ecological Community (Kwongkan shrubland TEC) within the application area.</p>
Fauna	<p>According to available databases, 33 species of conservation significant fauna species have been recorded within the combined local area, including 15 threatened fauna species, ten priority fauna species, and eight specially protected fauna species, including five migratory species. The closest record is for Carnaby's BC, approximately 300 metres to the west of the application area. The proposed clearing area is mapped within the distribution range of all three threatened BC species and within the feeding area for BCs. There are 13 roosting sites identified in the local area with the closest one recorded approximately 4.2 kilometres from the application area.</p>

## B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Jarrah Forest	19,962.1	7,188.0	36.0	2,318.6	11.6
Vegetation complex**					
Redmond 240	2,260.2	401.3	17.8	-	-
Local area					
20km radius	126,391.8	37,349.4	29.6	-	-

\*Government of Western Australia (2019b)

\*\*Government of Western Australia (2019a)

## B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in the local area	Are surveys adequate to identify? [Y, N, N/A]
<i>Banksia serra</i>	P4	Y	Y	Y	2.1	15	Y
<i>Conostylis misera</i>	T	Y	N	Y	0.4	34	Y
<i>Eucalyptus buprestium x staeri</i>	P4	Y	N	Y	0.5	1	Y
<i>Isopogon uncinatus</i>	T	Y	N	Y	0.3	3	Y
<i>Lambertia orbifolia</i> subsp. <i>orbifolia</i>	T	Y	N	N	0.4	37	Y
<i>Tricostularia davisii</i>	P3	Y	N	Y	0.5	1	Y

T: threatened, P: priority

## B.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records in the local area	Are surveys adequate to identify? [Y, N, N/A]
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	0.4	158	N
<i>Falco peregrinus</i> (peregrine falcon)	OS	Y	Y	0.4	10	N
<i>Isoodon fusciventer</i> (quenda)	P4	Y	Y	7.2	14	Y
<i>Myrmecobius fasciatus</i> (numbat)	EN	Y	Y	0.4	4	N
<i>Zanda baudinii</i> (Baudin's cockatoo)	EN	Y	Y	0.4	46	N
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	0.3	259	N



Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records in the local area	Are surveys adequate to identify? [Y, N, N/A]
--------------	---------------------	----------------------------------	---------------------------------	---	---	---

EN: endangered, VU: vulnerable, P: priority ; OS: other specially protected, CR: critically endangered

**B.5. Land degradation risk table**

Risk categories	Land Unit 242ReRD
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	M1: 10-30% of the map unit has a moderate to very high to risk
Phosphorus export risk	M1: 10-30% of the map unit has a high to extreme hazard

**Appendix C. 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></p> <p>The area proposed to be cleared contains suitable habitat for conservation significant fauna, one priority flora species, and vegetation that indicates a threatened ecological community.</p>	At variance	Yes <i>Refer to Section 3.2.1 and 3.2.2, above.</i>
<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></p> <p>The area proposed to be cleared contains suitable habitat for several conservation significant fauna species such as black cockatoos, numbat, quenda, and peregrine falcon.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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></p> <p>The area proposed to be cleared is unlikely to contain threatened flora species. No threatened flora species were recorded during the ecological survey (Bradshaw, 2023).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<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></p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
The area proposed to be cleared contains species that can indicate the Proteaceae Dominated Kwongkan Shrublands of the South East Floristic Province threatened ecological community.		
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>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>	Not likely to be at variance	No
<b>Environmental value: land and water resources</b>		
<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></p> <p>Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to be associated with a watercourse or wetland.</p>	Not likely to be at variance	No
<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></p> <p>The mapped soil is susceptible to wind erosion and subsurface acidification. Noting the small extent of the application area and the extensive remnant vegetation in the local context, the proposed clearing is not likely to have an appreciable impact on 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></p> <p>Given no water courses/wetlands/Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</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></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Given no watercourses are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.</p>	Not likely to be at variance	No

## Appendix D. 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.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

### 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 E. Offset calculator value justification

### WA Environmental Offsets Calculators Rationale for scores used in the offset calculators

#### Calculation 1 - Black cockatoo habitat

Calculation	Score (Area)	Rationale
<b>Conservation significance</b>		
Description	Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo habitat	Clearing of 0.059 hectares of native vegetation providing significant habitat for Carnaby's cockatoo, Baudin's cockatoo, forest red-tailed black cockatoo
Type of environmental value	Species (flora/fauna)	Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo are listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Endangered	Baudin's cockatoo and Carnaby's cockatoo are listed as Endangered under both the EPBC Act and BC Act. The forest red-tailed black cockatoo is listed as Vulnerable under both the EPBC Act and BC Act. The highest level of conservation significance has been utilised.
Landscape-level value impacted	yes/no	The impact is to an area of foraging habitat in hectares.
<b>Significant impact</b>		
Description	Clearing of native vegetation that provides suitable habitat for black cockatoos.	0.059 (~0.06) hectares of native vegetation that comprises significant foraging habitat for all three species of black cockatoo is proposed to be cleared for road construction.
Significant impact (hectares) / Type of feature	0.06	Based on the available information from the vegetation and flora surveys of the site (Bradshaw, 2022 & 2023), the proposed clearing area includes <i>Eucalyptus marginata</i> (jarrah) which is a primary foraging resource for all three species of black cockatoo, as well as secondary foraging resources (e.g., <i>Allocasuarina fraseriana</i> ). The extent of native vegetation that includes suitable habitat for all three species of black cockatoo that is proposed to be cleared is 0.059 hectares based on this vegetation mapping.
Quality (scale) / Number	7.00	Based on the available information from the vegetation and flora surveys of the site (Bradshaw, 2022 & 2023), the suitable habitat proposed to be cleared is in Excellent to Degraded (Keighery, 1994) condition. The application area is mapped within the predicted distribution range of all three black cockatoo species and there are records of Carnaby's cockatoo approximately 300 metres from the application area. In addition, there is a roost site recorded approximately 4.2 kilometres from the application area, indicating that the application area may support foraging by birds frequenting the area and roosting locally.
<b>Rehabilitation credit</b>		
N/A	None proposed	N/A
<b>Offset</b>		
Description	Revegetation of native vegetation that provides habitat for three threatened black cockatoo species.	The Shire has proposed to revegetate the old Newman Road alignment within the adjacent Crown Reserve 10449 and a decommissioned section of Hannay Way road reserve (PIN 1359114), utilising species that provide suitable foraging habitat for Carnaby's cockatoo in the region.

Calculation	Score (Area)	Rationale
Proposed offset (area in hectares)	0.16	The area required to be revegetated to counterbalance the significant residual impacts to native vegetation that significant provides foraging habitat for black cockatoo species by 100%.
Current quality of offset site	0.00	The proposed revegetation offset sites are currently bituminised road alignments that are devoid of native vegetation. The existing bitumen will be ripped and removed to facilitate revegetation..
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00	Given the proposed revegetation offset sites are currently devoid of native vegetation and have been used as road alignments, it is reasonable to assume no change in quality in the absence of the offset.
Future quality WITH offset (scale) / Future number WITH offset	5.00	Revegetation will be undertaken in accordance with the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025), which includes measurable completion criteria based on reference sites that provide primary foraging habitat for black cockatoo species in a Very Good to Pristine (Keighery, 1994) condition.. Therefore, with best practice revegetation methodology, it is assumed that the revegetation offsets areas will improve the quality of foraging habitat for black cockatoos to a Good (Keighery, 1994) condition.
Time until ecological benefit (years)	17.00	It is assumed that the benefits of revegetation of black cockatoo foraging habitat will be available after 15 years. This is a conservative measure based on available literature (e.g., Lee et al. (2013) who identified evidence of foraging on marri and Banksia in rehabilitated mine pit areas, ranging from 8-14 years of age) and the understanding that marri may take longer to mature and provide calorific benefit. An extra two years have been allowed to account for the delay in commencement of the revegetation (assumed to commence within 2 years of permit start date).
Confidence in offset result (%)	0.9	There is a high to moderate level of confidence that the quality of black cockatoo habitat within the revegetation offset site will improve given the revegetation will be undertaken in accordance with the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025)..
Duration of offset implementation (maximum 20 years)	20.00	It is assumed that the revegetation offset site will be maintained in perpetuity, noting the proposed closure/decommissioning of the old road alignments.
Time until offset site secured (years)	1.00	No change of vesting in the proposed revegetation sites, therefore the minimum value of 1 year is applied.
Risk of future loss WITHOUT offset (%)	30.0%	The revegetation offset is proposed within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114) which are used for e for transport purpose and there is a moderate risk of development in the future.
Risk of future loss WITH offset (%)	30.0%	Given no change in vesting is proposed, the risk of loss of the revegetation offset sites are unchanged.

## Calculation 2 - Kwongkan TEC

Calculation	Score (Area)	Rationale
<b>Conservation significance</b>		
Description	Native vegetation that is representative of the Kwongkan shrubland TEC.	The proposed clearing will impact on 0.047 hectares of native vegetation that is representative of the Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia (Kwongkan shrublands TEC).
Type of environmental value	Ecological community	The Kwongkan shrublands TEC is listed as Endangered under the EPBC Act and is considered a priority ecological community in Western Australia by DBCA.
Conservation significance of environmental value	Endangered	Kwongkan shrubland TEC is listed as endangered under the EPBC Act and is considered a Priority 3 ecological community in Western Australia by DBCA. The highest level of conservation significance has been utilised.
Landscape-level value impacted	yes/no	The impact is to an area of Kwongkan shrublands TEC in hectares.
<b>Significant impact</b>		
Description	Clearing of native vegetation that is representative of the Kwongkan shrubland TEC	Native vegetation that is representative of the Kwongkan shrublands TEC is proposed to be cleared for road construction.
Significant impact (hectares) / Type of feature	0.05	Based on the available information from the vegetation and flora surveys of the site (Bradshaw, 2022 & 2023), the area of native vegetation within the proposed clearing area that is representative of the Kwongkan shrublands TEC is 0.047 hectares.
Quality (scale) / Number	8.00	Based on the available information from the vegetation and flora surveys of the site (Bradshaw, 2022 & 2023), the area of native vegetation within the proposed clearing area that is representative of the Kwongkan shrublands TEC is in Very Good to Pristine (Keighery, 1994) condition.
<b>Rehabilitation credit</b>		
N/A	None proposed	N/A
<b>Offset</b>		
Description	Revegetation of native vegetation that is commensurate with the Kwongkan shrublands TEC.	The Shire has proposed to revegetate the old Newman Road alignment within the adjacent Crown Reserve 10449 and a decommissioned section of Hannay Way road reserve (PIN 1359114), utilising species that are commensurate with the Kwongkan shrublands TEC.
Proposed offset (area in hectares)	0.16	The area required to be revegetated to counterbalance the significant residual impacts to Kwongkan shrublands TEC by 100%.
Current quality of offset site	0.00	The proposed revegetation offset sites are currently bituminised road alignments that are devoid of native vegetation. The existing bitumen will be ripped and removed to facilitate revegetation.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00	Given the proposed revegetation offset sites are currently devoid of native vegetation and have been used as road alignments, it is reasonable to assume no change in quality in the absence of the offset.
Future quality WITH offset (scale) / Future number WITH offset	5.00	Revegetation will be undertaken in accordance with the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025), which includes measurable completion criteria based on reference sites that represent Kwongkan TEC in an Excellent to Pristine (Keighery, 1994)

Calculation	Score (Area)	Rationale
		condition.. Therefore, with best practice revegetation methodology, it is assumed that the revegetation offsets areas establish native vegetation that is commensurate with the Kwongkan shrublands TEC to a Good (Keighery, 1994) condition.
Time until ecological benefit (years)	12.00	Given the proteaceous nature of the species required to be revegetated to resemble the Kwongkan shrublands TEC and the starting condition of the revegetation offset area, it is assumed that vegetation commensurate with the Kwongkan shrublands TEC in Good (Keighery, 1994) condition will be achieved within 10 years. An extra two years have been allowed to account for the delay in commencement of the revegetation (assumed to commence within 2 years of permit start date).
Confidence in offset result (%)	0.8	There is a high to moderate level of confidence that the quality of native vegetation commensurate with the Kwongkan shrublands TEC within the revegetation offset site will improve given the revegetation will be undertaken in accordance with the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025)..
Duration of offset implementation (maximum 20 years)	20.00	It is assumed that the revegetation offset site will be maintained in perpetuity, noting the proposed closure/decommissioning of the road alignment.
Time until offset site secured (years)	1.00	No change of vesting in the proposed revegetation sites, therefore the minimum value of 1 year is applied.
Risk of future loss WITHOUT offset (%)	30.0%	The revegetation offset is proposed within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114) which are used for transport purpose and there is a moderate risk of development in the future.
Risk of future loss WITH offset (%)	30.0%	Given no change in vesting is proposed, the risk of loss of the revegetation offset sites are unchanged.

### Calculation 3. Extensively cleared vegetation

Calculation	Score (Area)	Rationale
<b>Conservation significance</b>		
Description	Significant remnant of an extensively cleared vegetation complex	The proposed clearing will impact on significant remnant of an extensively cleared vegetation complex.
Type of environmental value	Vegetation/habitat	Significant remnant of an extensively cleared vegetation complex.
Conservation significance of environmental value	Terrestrial native vegetation complex <30% extent remaining in the bioregion	The application contains vegetation mapped within the extensively cleared Redmond Complex, which retains approximately 17.8 percent of its original vegetation extent in the Jarrah Forest IBRA bioregion. The local area retains 29.6 per cent of its pre-European vegetation extent.
Landscape-level value impacted	yes/no	The impact is to an area of the mapped vegetation complex in hectares.
<b>Significant impact</b>		
Description	Significant remnant of an extensively cleared vegetation complex	Native vegetation that is significant as a remnant within a vegetation complex that has been extensively cleared is proposed to be cleared for road construction.
Significant impact (hectares) / Type of feature	0.06	The entire application area (0.059 hectares) is mapped within the Redmond Complex and the vegetation within the application area is broadly representative of this community. Therefore, this vegetation constitutes significant remnant vegetation in an extensively cleared landscape.
Quality (scale) / Number	7.00	Based on the available information from the vegetation and flora surveys of the site (Bradshaw, 2022 & 2023), native vegetation within the proposed clearing area is in Degraded to Pristine (Keighery, 1994) condition, with the majority of the application area in Very Good (Keighery, 1994) or better condition. The vegetation within the proposed clearing area also contains habitat for black cockatoo species and vegetation representative of the Kwongkan shrublands TEC and therefore, is significant as a remnant of native vegetation.
<b>Rehabilitation credit</b>		
N/A	None proposed	N/A
<b>Offset</b>		
Description	Revegetation of native vegetation that is significant as a remnant within an extensively cleared vegetation complex	The Shire has proposed to revegetate the old Newman Road alignment within the adjacent Crown Reserve 10449 and a decommissioned section of Hannay Way road reserve (PIN 1359114), utilising species that are commensurate with the Kwongkan shrublands TEC, provide habitat for black cockatoo species and are broadly representative of the Redmond Complex.
Proposed offset (area in hectares)	0.13	The area required to be revegetated to counterbalance the significant residual impacts to native vegetation that is significant as a remnant within an extensively cleared landscape by 100%.
Current quality of offset site	0.00	The proposed revegetation offset sites are currently bituminised road alignments that are devoid of native vegetation. The existing bitumen will be ripped and removed to facilitate revegetation.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00	Given the proposed revegetation offset sites are currently devoid of native vegetation and have been used as road alignments, it is reasonable to assume no change in quality in the absence of the offset.



Calculation	Score (Area)	Rationale
Future quality WITH offset (scale) / Future number WITH offset	5.00	Revegetation will be undertaken in accordance with the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025), which includes measurable completion criteria based on reference sites in an Excellent to Pristine (Keighery, 1994) condition. Therefore, with best practice revegetation methodology, it is assumed that the revegetation offsets areas establish native vegetation within an extensively cleared landscape to a Good (Keighery, 1994) condition.
Time until ecological benefit (years)	12.00	Given the proteaceous nature of the species required to be revegetated and the starting condition of the revegetation offset area, it is assumed that the benefits of revegetation will be available within 10 years. An extra two years have been allowed to account for the delay in commencement of the revegetation (assumed to commence within 2 years of permit start date).
Confidence in offset result (%)	0.9	There is a high level of confidence that the quality of native vegetation within the revegetation offset site will improve given the revegetation will be undertaken in accordance with the the Shire of Plantagenet Road Expansion Revegetation Plan (Bio Diverse Solutions, 2025).
Duration of offset implementation (maximum 20 years)	20.00	It is assumed that the revegetation offset site will be maintained in perpetuity, noting the proposed closure /decommissioning of the road alignments.
Time until offset site secured (years)	1.00	No change of vesting in the proposed revegetation sites, therefore the minimum value of 1 year is applied.
Risk of future loss WITHOUT offset (%)	30.0%	The revegetation offset is proposed within Crown Reserve 10449 and Hannan Way road reserve (PIN 1359114) which are used for transport purpose and there is a moderate risk of development in the future.
Risk of future loss WITH offset (%)	30.0%	Given no change in vesting is proposed, the risk of loss of the revegetation offset sites are unchanged.

**Appendix F. Biological survey information excerpts**





Figure F.1. Representative photos of vegetation within the proposed clearing area (Bradshaw, 2023).

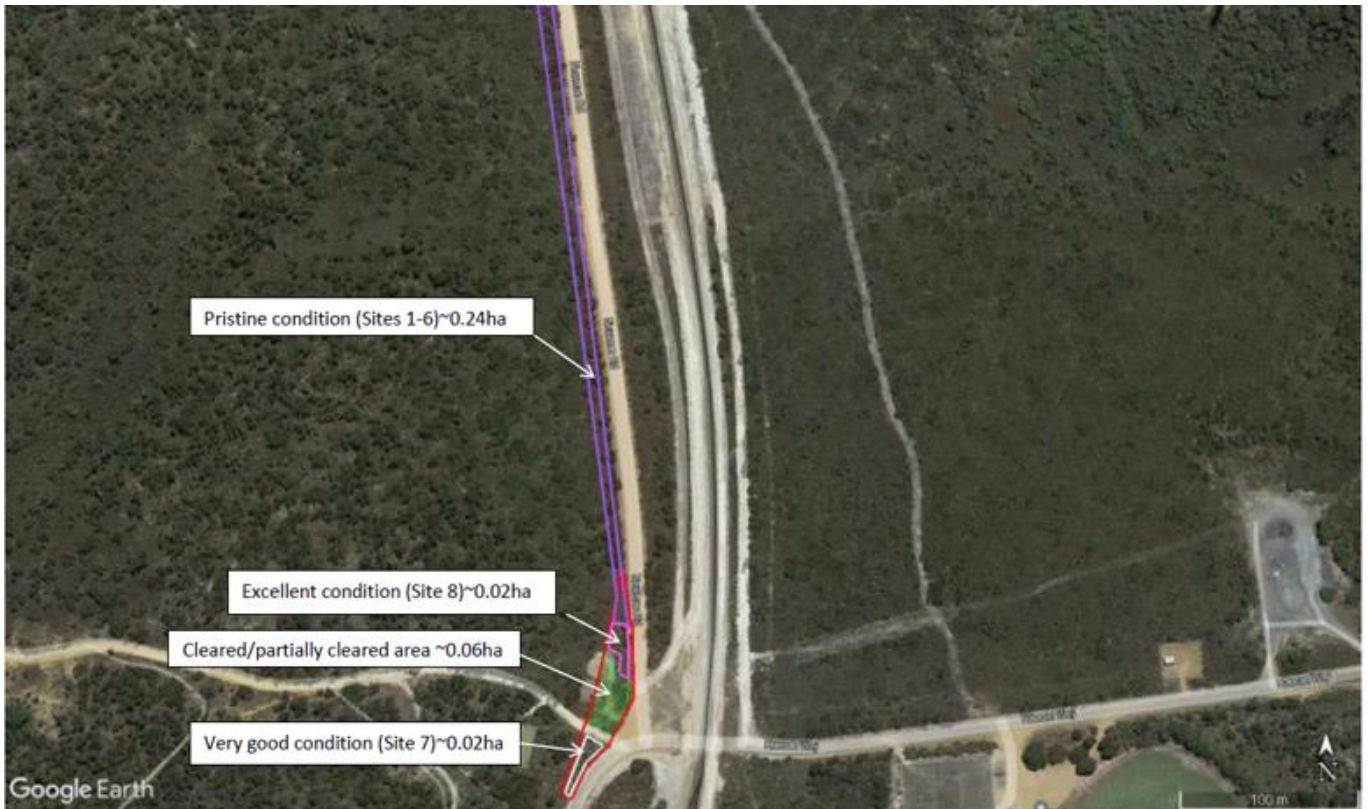


Figure 7: Vegetation condition map. Target area for proposed excision outlined in red (~0.15ha). Cleared/partially cleared area shaded in green

Figure F.2. Vegetation condition mapping (Bradshaw, 2023).  
Site 1, 7, and 8 representing vegetation within the application area.

## Appendix G. Sources of information

### G.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)

- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

#### 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)

## G.2. References

- Bio Diverse Solution (2025) *Shire of Plantagenet Road Expansion – Revegetation Plan – Newman Rd and Hannan Way Intersections, Narrikup – Final v.3*. Received 6 January 2025 (DWER Ref: DWERDT1074110).
- Bradshaw, W. (2022) *Vegetation survey – Newman Rd, Narrikup - Plantagenet Shire proposed road widening – Vegetation survey*, received 29 April 2024 (IBSA number: IBSA-2024-0385).
- Bradshaw, W. (2023) *Vegetation survey – Newman Rd/Hannan Way, Narrikup - Plantagenet Shire proposed road realignment – supporting the clearing permit application CPS 10598/1*, received 15 October 2024 (IBSA number: IBSA-2024-0154).
- Bureau of Meteorology (BOM) (2024). *Climate statistics for Australian locations – Mount Barker station*. Available from: [http://www.bom.gov.au/climate/averages/tables/cw\\_009581.shtml](http://www.bom.gov.au/climate/averages/tables/cw_009581.shtml) (Accessed in July 2024)
- Bush Heritage Australia (2024). *Gondwana Link*. Available from: <https://www.bushheritage.org.au/who-we-are/partners/regional-partnerships/gondwana-link>
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Commonwealth of Australia (2012) *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso**. Department of Sustainability, Environment, Water, Population and Communities (now the Department of Agriculture, Water and Environment), Canberra

- Department of Agriculture, Water and the Environment (DAWE) (2020) *The Peregrine Falcon (Falco peregrinus)*. Canberra, Australia. Available from: <https://www.environment.gov.au/resource/peregrine-falconfalcopegrinus>
- Department of Climate Change, the Environment, Energy and Water (DCCEEW) (2014). *Approved Conservation Advice for Myrmecobius fasciatus (numbat)*. Retrieved from: <https://www.environment.gov.au/biodiversity/threatened/species/pubs/294-conservation-advice.pdf>.
- Department of the Environment (2014). *Approved Conservation Advice for Proteaceae Dominated Kwongan Shrublands of the southeast coastal floristic province of Western Australia*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf>.
- Department of Environment and Conservation (DEC) (2012) *Fauna profiles: Quenda, Isoodon obesulus fusciventer*. Department of Environment and Conservation, Western Australia. Retrieved from: [https://www.dpaw.wa.gov.au/images/documents/conservation-management/pestsdiseases/quenda\\_2012.pdf](https://www.dpaw.wa.gov.au/images/documents/conservation-management/pestsdiseases/quenda_2012.pdf)
- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf).
- Department of Primary Industries and Regional Development (DPIRD) (2022). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed November 2024).
- Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: [https://dwer.wa.gov.au/sites/default/files/Procedure\\_Native\\_vegetation\\_clearing\\_permits\\_v1.PDF](https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF).
- Environmental Protection Authority (EPA) (2016) *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: [http://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey\\_Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf).
- Government of Western Australia (2019a) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Government of Western Australia (2019b) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Lee, J.G.H., Finn, H., Calver, M. (2013) *Feeding activity of threatened black cockatoos in mine-site rehabilitation in the jarrah forest of south-western Australia*. Australian Journal of Zoology. DOI: 10.1071/ZO12101.
- Marchant, S., Higgins, P.J., Ambrose, S.J., & Steele, W.K. (2006) *Handbook of Australian, New Zealand & Antarctic birds*. Oxford University Press, USA
- Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia*. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Shire of Plantagenet (2024a) *Clearing permit application CPS 10598/1*, received 29 April 2024 (DWER Ref: DWERDT940319).
- Shire of Plantagenet (2024b) *Response to the request for further information for the clearing permit application CPS 10598/1*, received 22 July 2024 (DWER Ref: DWERDT981235).