GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	8932/1
Permit Holder:	Shire of Capel
Duration of Permit:	5 November 2021 – 5 November 2031

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

PART I –CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of road widening.

2. **Land on which clearing is to be done**
   Payne Street reserve (PIN 1314733), Boyanup

3. **Area of Clearing**
   The Permit Holder must not clear more than 0.68 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8932/1a and Plan 8932/1b.

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 5 November 2026.

PART II –MANAGEMENT CONDITIONS

7. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

8. Weed and dieback management

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

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no 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 to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

10. Fauna management – clearing not authorised

Prior to undertaking any clearing authorised under this Permit, the Permit Holder must demarcate the *black cockatoo habitat trees* described in Table 1 containing hollows identified during the Fauna survey (Natural Area Holdings Pty Ltd, 2020) and ensure that clearing of these trees does not occur (areas cross-hatched red on attached Plan 8932/1a and Plan 8932/1b):

Table 1: Trees not authorised to be cleared

Tree ID	Species	Latitude	Longitude
1	*Corymbia calophylla* (Marri)	6293922.675	380218.711
2	*Corymbia calophylla* (Marri)	6294086.403	380628.829
3	*Corymbia calophylla* (Marri)	6294089.222	380641.100
4	*Corymbia calophylla* (Marri)	6294254.374	381067.353

11. Offset – Lot 150 on Deposited Plan 29857 - 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 *offset site* 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) Conduct *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 *offset site* outside of the *offset site* boundary 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 the *offset site* 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 *offset site* is at least 50 per cent of the species that have been planted.	The species in the *offset site* will be counted twice annually by an environmental specialist in spring and autumn for a minimum of three years after the last year plants were established
2	Vegetation structure – Tuart (*Eucalyptus gomphocephala*) woodland	Vegetation in the *offset site* to be broadly representative of Tuart-Jarrah-Marri vegetation structure present in the surrounding area	Structure of *offset site* to consists of species occurring within the surrounding area	Structure to be assessed twice annually by an environmental specialist in spring and autumn for a minimum of three years after the last year plants were established
3	Percentage of weeds present.	• Reduction of more than 70 per cent of population density of *Ehrharta calycina* (Perennial Veldt Grass) • Reduction of 90 per cent of *Trachyandra divaricata* (False Onion Weed) population	The *offset site* should have no more than 30 per cent cover of Perennial Veld Grass and no more than 10 per cent of False Onion Weed.	Monitor *offset site* for weeds by quadrats twice annually by an environmental specialist in spring and autumn for a minimum of three years after the last year plants were established.
4	Survival rate to be achieved.	If after *planting* a survival rate of at least 65 per cent is not achieved, infill *planting* must occur. The survival rate includes: • 75 per cent of trees (overstorey), • 55 percent of shrubs; and • 75 per cent of herbs (understorey).	The *offset site* 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 *offset site* will be monitored twice annually by an environmental specialist 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: • one tree (overstorey) per 10 m^2, • two shrubs per 5 m^2; and • one herb per 2 m^2	The *offset site* contains a minimum of 10,000 native plant stems established per hectare.	Stem density to be assessed twice annually by an environmental specialist 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^2	The *offset site* has no more than 30 m^2 of bare ground	The patch size of bare ground to be assessed twice annually by an environmental specialist 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 of the *offset site* to be in good condition with no obvious damage that will enable the entry of fauna, including rabbits and/or kangaroos into the *offset site.*	N/A	Condition of the gates and fence in the *offset site* 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 11(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 11(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 11(l), until the completion criteria, outlined in condition 11(l) of this Permit are met.

PART III - RECORD KEEPING AND REPORTING

12. Records to be kept

The Permit Holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (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 and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) the direction of clearing; (f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 7 of this Permit; (g) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 8 of this Permit; (h) actions taken in accordance with condition 10 of this Permit.
2.	In relation to the *revegetation* and *rehabilitation* areas pursuant to	(a) the location of any areas *revegetated* and *rehabilitated*, 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;

No.	Relevant matter	Specifications
	condition 11 of this Permit	(b) the date the fence and firebreak were installed and evidence of maintenance; (c) the date rubbish was removed from the *offset site*; (d) *Pest animal* and *weed* control measures undertaken in the *offset site*; (e) a description of the *revegetation* and *rehabilitation* activities undertaken within the *offset site*; (f) the size of the area *revegetated* and *rehabilitated* (in hectares); (g) the species composition, structure and density of the *offset site*; (h) the assessment of the *offset site* against criteria outlined in condition 11(l); (i) any remedial actions undertaken in accordance with condition 11(m); and (j) a copy of the *environmental specialist's* report.

13. 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 12 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 5 August 2031, the Permit Holder must provide to the *CEO* a written report of records required under condition 12 of this Permit, where these records have not already been provided under condition 13(a) of this Permit.

DEFINITIONS
In this permit, the terms in Table 3 have the meanings defined. The following meanings are given to terms used in this Permit:

Table 3: Definitions

Term	Definition
CEO	Chief Executive Officer of the *department* responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
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 *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Dieback	means the effect of *Phytophthora* 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 *CEO* as a suitable environmental specialist.
EP Act	*Environmental Protection Act 1986* (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	the area cross-hatched green on Plan 8932/1c.
Optimal time	means the period from April to June for undertaking *planting* and *seeding.*
Pest animal	animals that are known to impact the survival of revegetation/rehabilitation 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.
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 *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
Rehabilitation area	means the area cross-hatched green on attached Plan 8932/1c
Revegetate/ed/ion	means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to

Term	Definition
	pre-clearing vegetation types in that area.
Revegetation plan	means a plan developed by the Permit Holder for the *revegetation* and *rehabilitation* of a site in accordance with condition 11 of this Permit. "*Shire of Capel – Offset Site Revegetation Plan – Weld Road and Payne Street* (Natural Area, 2020)"
Weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

13 October 2021

Plan 8932/1a

Legend

- CPS areas approved to clear
- CPS subject to conditions - Fauna management
- Land Tenure
- Local Government Authorities

Road Centrelines

- Main Roads
- Local Rd - Sealed

N

0 50 100 150 m

1:1500

MGA Zone 51
Geocentric Datum of Australia 1994

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Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 8932/1b

Legend

- CPS areas approved to clear
- CPS subject to conditions - Fauna management
- Land Tenure
- Local Government Authorities

Road Centrelines

- Local Rd - Sealed

N

0 50 100 150 m

1:1500

MGA Zone 51
Geocentric Datum of Australia 1994

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Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 8932/1c

Legend

- CPS subject to conditions - Offset
- Land Tenure
- Local Government Authorities
- Image

N

0 25 50 m

1:2000

MGA Zone 50
Geocentric Datum of Australia 1994

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Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8932/1
Permit type:	Purpose permit
Applicant name:	Shire of Capel (hereafter referred to as the Shire)
Application received:	3 June 2020
Application area:	1.5 hectares of native vegetation within a 3.147 hectare clearing footprint
Revised area:	0.68 hectares
Purpose of clearing:	Widening and maintenance of existing road carriageway
Method of clearing:	Mechanical
Property:	Payne Street reserve (PIN 1314733)
Location (LGA area/s):	Shire of Capel
Localities (suburb/s):	Boyanup

1.2. Description of clearing activities

The vegetation applied to be cleared is contained within a single contiguous area (see Figure 1a and 1b, Section 1.5). The application is to clear vegetation, including trees, to enable widening of the existing street.

The Shire has revised the application during the assessment process in response to the Department of Water and Environmental Regulation's (DWER) correspondence outlining the impacts identified during the assessment of the application. The changes included:

- reduction in the amount of clearing from 1.5 hectares to 0.68 hectares to avoid and minimise the clearing impacts (see Section 3.1 for further details)
- retention of approximately 63 (or 70 per cent) habitat trees within the broader Payne Street reserve.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	13 October 2021
Decision area:	0.68 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the DWER on 3 June 2020. DWER advertised the application for public comments. 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 site characteristics (see Appendix A),
- 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 3.3)

- the findings of biological surveys of the application area, as well as the offset area (Natural Areas Holdings Pty Ltd (Natural Area, 2020a),
- relevant datasets available at the time of the assessment (see Appendix F)
- revegetation management plan prepared for the revegetation of the offset site (Natural Area, 2020b)
- a mix of plant species endorsed by the Department of Biodiversity, Conservation and Attractions for the revegetation of the offset site (Shire of Capel, 2021)
- Minister for Environment's (the Minister) appeal determination on grant of Shire's Clearing Permit CPS 8933/1 which included revegetation of the same offset site.

Based on the findings of the assessment, the Delegated Officer determined that the proposed clearing will result in the loss of 0.68 hectares of native vegetation considered significant as a 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 *Environment Protection and Biodiversity Protection Act 1999* (EPBC Act) Offsets calculator, the Delegated Officer determined that the revegetation of 1.08 hectares containing the dominant species of the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community (Tuart Woodland) threatened ecological community (TEC) as listed in Approved Conservation Advice for this TEC would be adequately proportionate to the significance of the environmental values being impacted.

It was also determined that 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.

The Delegated Officer noted that the survey conducted by Natural Area (2020a) identified four black cockatoo habitat trees with hollows. To mitigate any potential impacts on black cockatoo breeding and roosting, the Shire is required to avoid clearing of these trees (as conditioned on the clearing permit).

Given the application area is adjacent to native vegetation that contains suitable habitat for fauna, it has been determined that 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, flora and fauna management and weed and dieback management practices will mitigate any potential impacts.

1.5. Site map

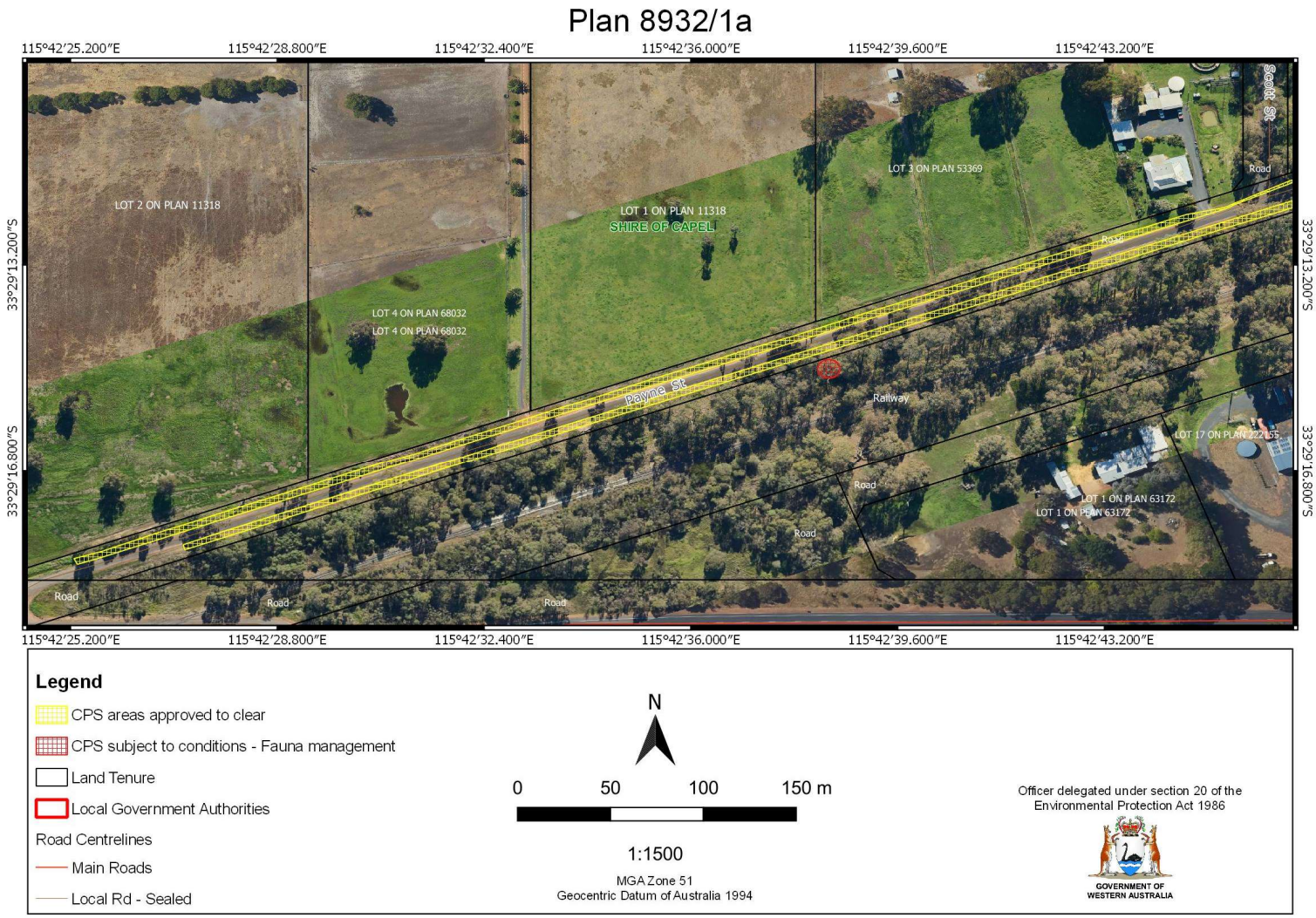

Figure 1a - The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit. The areas cross-hatched red indicate areas for which a fauna management condition applies

Plan 8932/1b

Figure 1b - The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit. The areas cross-hatched red indicate areas for which a fauna management condition applies.

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:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- EPBC Act
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment were:

- The Offset Policy

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)
- *Environmental Offsets Guidelines* (August 2014)
- 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. DWER determined that 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 preliminary assessment of the proposed clearing, the Shire reduced the amount of clearing from 1.5 hectares to 0.68 hectares and retained 63 (or 70 per cent) habitat trees within the Payne Street reserve.

After consideration of the additional avoidance and mitigation measures, the Delegated Officer determined that an offset was necessary to counterbalance the significant residual impacts to the native vegetation considered significant as a remnant in an extensively cleared landscape. In accordance with the Offset Policy and the *WA 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 (priority flora and 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, a total of 19 conservation significant species have been recorded within the local 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)
- *Phascogale tapoatafa* subsp *wambenger* (southern brush-tailed phascogale)
- *Pseudocheirus occidentalis* (western ringtail possum)
- *Setonix brachyurus* (quokka).

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)* (DSEWPaC, 2012). Based on the DBCA datasets, within the local area six records for forest red-tailed black cockatoo, three records for Baudin's black cockatoo and 26 records of 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). For forest red-tailed black cockatoos, marri 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).

The proposed clearing will not impact on breeding or roosting habitat for black cockatoos. Natural Area (2020a) identified 27 habitat trees (with a diameter at breast height greater than 500 millimetres) within the application area. None of these trees contained a hollow. Four trees located outside the application area were identified to contain hollows (Natural Area, 2020a). An additional 175 breeding trees with no hollows were identified within the Payne Street reserve. No evidence of roosting was recorded during the survey (Natural Area, 2020a).

The application area represents suitable foraging habitat for all three black cockatoo species. Suitable foraging species identified were *Eucalyptus marginata* and *Corymbia calophylla*. No foraging evidence from these three species was recorded during the fauna survey (Natural Area, 2020a).

Although the application area provides suitable foraging habitat for black cockatoos, it is not considered significant. The EPBC Act referral guidelines for three black cockatoo species states that a high risk of significant impact involves clearing of more than one hectare of quality foraging habitat (Commonwealth of Australia, 2012). The application is to clear up to 0.68 hectares of suitable foraging habitat along a linear footprint. The 6-kilometre buffer of the closest roosting site, which is located approximately 1.9 kilometre from the application area, comprises of approximately 16,000 hectares of mapped suitable foraging habitat, with the majority of this extent located within Boyanup State Forest (Figure 2). The closest confirmed breeding site, located approximately eight kilometres from the application area, is also located in the proximity of approximately 10,000 hectares of native vegetation in the Boyanup State Forest. The abundance of vegetation in this conservation area is more likely to provide better quality foraging habitat which supports breeding and roosting than the vegetation present within the application area.

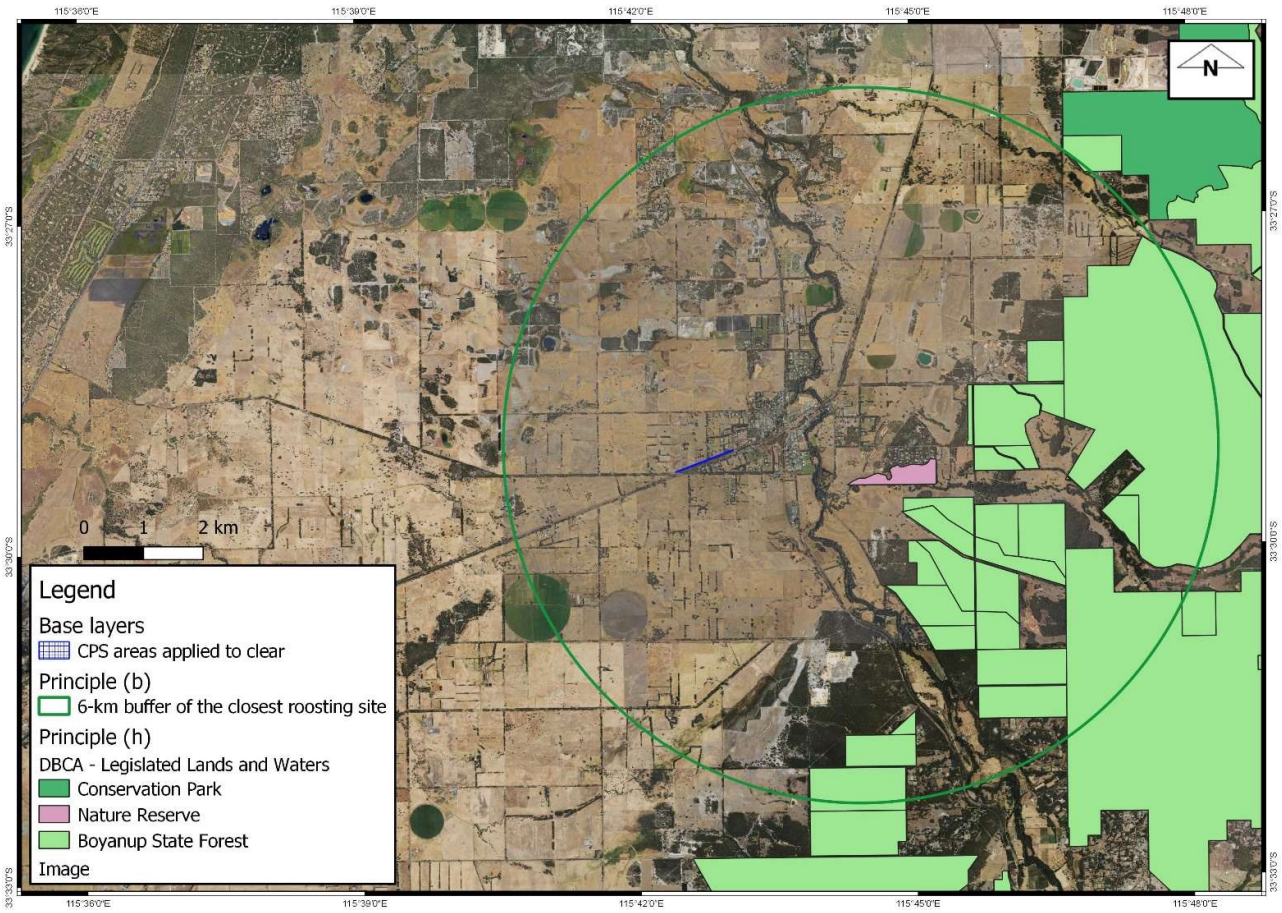

Figure 2 - Extent of conservation areas within a 6-kilometre buffer of the closest mapped roosting site

To mitigate the impact to black cockatoo foraging habitat, the Shire has committed to retaining approximately 58 per cent of high quality foraging habitat within the Payne Street reserve. In addition, the revegetation required under the clearing permit conditions will re-establish black cockatoo habitat.

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; however, western ringtail possums may be subject to individual harm should they be present at the time of clearing.

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). The survey recorded four trees with hollows. Although these hollows were not considered suitable for black cockatoos, they may be suitable for phascogale that is known to occupy smaller hollows. No southern brush-tailed phascogale have been recorded within the application area. Noting the presence of suitable habitat and hollows of sufficient size in the close proximity of the application area, the brush-tailed phascogale may be subject to individual harm should they be present at the time of clearing.

The fauna survey indicates that the vegetation present potentially represents habitat for quokka. Given the linear nature of the vegetation, in an otherwise cleared environment with no contiguous vegetation adjacent, it is unlikely to represent significant habitat for this species. However, individuals of quokka may be subject to individual harm should they be present at the time of clearing.

Ecological linkage

The application area occurs along a mapped South West Regional Ecological Linkage which supports movement of fauna. The vegetation within the application area is within 50 metres of this mapped ecological linkage, the centreline of which occurs within the adjacent Railway Reserve. The vegetation within the application area likely supports this linkage.

To minimise the impacts to this linkage, the Shire has reduced the application area by approximately 55 per cent and committed to retaining approximately 70 per cent of habitat trees within the existing street reserve. Taking this into consideration, the viability of the linkage function will be maintained for the dispersal of fauna to nearby conservation areas. The proposed clearing will not fragment the mapped ecological linkage, although it may create a wider barrier for fauna movement across the landscape.

Outcome:

Based on the findings of the assessment, the Delegated Officer determined that the proposed clearing will impact on suitable foraging habitat for black cockatoos, southern brush-tailed phascogale, western ringtail possum and quokka. Whilst not considered significant habitat for these species, 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. Additionally, the Shire will be required to avoid clearing of the four trees with hollows located within the adjacent roadside vegetation (as conditioned on the clearing permit).

3.2.2. Environmental value: biological values (flora) – Clearing Principles (a)

Assessment:

The flora and vegetation survey recorded the presence of two P4 flora species, namely *Grevillea olivacea* and *Grevillea pimeleoides* within the proposed clearing area (Natural Area 2020a).

Grevillea olivacea is known from 28 other records north of Perth and within coastal dunes and limestone rocks. Given the known range and habitat of this species, Natural Area (2020a) concluded that the individual identified in the application area was likely planted and did not represent a natural occurrence of this species. Therefore, the recorded population was not considered be a significant population.

Grevillea pimeleoides is known from 42 records to the east of Perth, within the Jarrah Forest on gravelly soils over granite and rocky hillsides. Given the known range and habitat of the species, Natural Area (2020a) noted that the species was likely planted within the application area. This record does not represent a natural occurrence of this species and is not considered be a significant population.

Additional information on these two species was sought to ensure that the proposed clearing is not likely to have significant impacts to priority flora. Natural Area (2021) confirmed that these two taxa do not occur naturally in the botanical region and were planted on the road verge. Natural Area (2021) further stated it was highly likely that the identified species were nursery cultivars as they were clearly planted and additional plantings were located in the surrounding area.

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 any native priority flora species. No clearing permit conditions are necessary in relation to this matter.

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

Assessment:

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The extent of mapped native vegetation in the local area (10 km radius) is at approximately 36 per cent, which is consistent with the national objectives.

Vegetation within the application area is within the Guildford Complex which has been extensively cleared. Within the local area, this complex has approximately 6.57% of its pre-European extent remaining.

Under this principle, the importance of the native vegetation in a regional and local context is considered. While the remnant vegetation extents for the local area is above 30 per cent vegetation threshold outlined above, the application area is surrounded by land cleared for agricultural purposes. Additionally, the application area is adjacent to Boyanup Road West road reserve which has been extensively cleared. Noting this, the application area is considered to occur within an area that has undergone extensive clearing.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the application area forms part of a significant remnant in an area that has been extensively cleared. Taking into account the Shire's avoidance, minimisation and mitigation measures, the Delegated Officer determined that the loss of 0.68 hectares of significant remnant of native vegetation 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.

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

Assessment:

A Conservation Category Wetland (Palusplain UFI: 14501) is located 570 metres east of the proposed clearing area. Given the separation distance between this wetland and the application area, as well as the extent and shape of the application area, the proposed clearing is unlikely to cause deterioration in the quality of surface water in the mapped wetland.

A Multiple Use Wetland (MUW) is recorded within the application 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 0.68 hectares scattered along an approximately 1.1-kilometre linear footprint and that approximately 70 per cent of deep-rooted vegetation will remain within the Payne Street 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

No registered Aboriginal sites of significance have been mapped within the application area. The nearest Aboriginal Heritage Place is Registered Site 'Preston River' located approximately 1.2 km east of 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.

The offset condition was developed with reference to the Shire's Clearing Permit CPS 8933/1, the decision of which was appealed. Both permits require the Shire to revegetate the same property. The Minister considered that the offset conditions of clearing permit CPS 8933/1 were appropriate and will result in:

- re-establishment of black cockatoo habitat
- improvement of ecological linkage values; and
- restoration of vegetation which is commensurate with the Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain ecological community (Tuart Woodlands TEC).

The Minister's decision can be viewed at https://www.appealsconvenor.wa.gov.au/Appeal?id=31738.

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:

- loss of 0.68 hectares of significant remnant of native vegetation within an extensively cleared landscape.

To counterbalance the above impact, 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) which is vested with the DBCA for the purpose of conservation. The offset site is located approximately 32.5 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 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.

To maximise the revegetation success, the Shire commissioned Natural Area to prepare a comprehensive revegetation plan in accordance with DWER's Guide to Preparing Revegetation Plan for Clearing Permits. The revegetation plan was deemed adequate as:

- an appropriate reference site has been nominated
- sufficient baseline data in relation to the nominated reference site has been collected
- SMART (Specific, Measurable, Achievable, Realistic, and Time-bound) completion criteria were established based on the nominated reference site and the soil type, landscape position and site history of the proposed revegetation area
- appropriate revegetation techniques were proposed
- the identified species list was appropriate for the required outcomes
- appropriate monitoring and contingency actions were proposed.

An adequate species list to achieve the revegetation goals was developed in consultation with DBCA. The Shire has committed to planting 53 native species, of which minimum of 26 species will be present within the offset site at the completion (Shire of Capel, 2021). This exceeds the minimum of species described in the Approved Conservation Advice for the Tuart woodland TEC which requires at least 12 understorey species for remnant in very high condition. Of the 53 species proposed to be planted, 27 is listed within a revegetation catalogue (Apace Aid Inc, 2019) for Guildford vegetation complex, including *Corymbia calophylla, Eucalyptus marginata* and *E. rudis*.

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 the following area (see Figure 3) 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. The offset site comprises:

- 1.08 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.

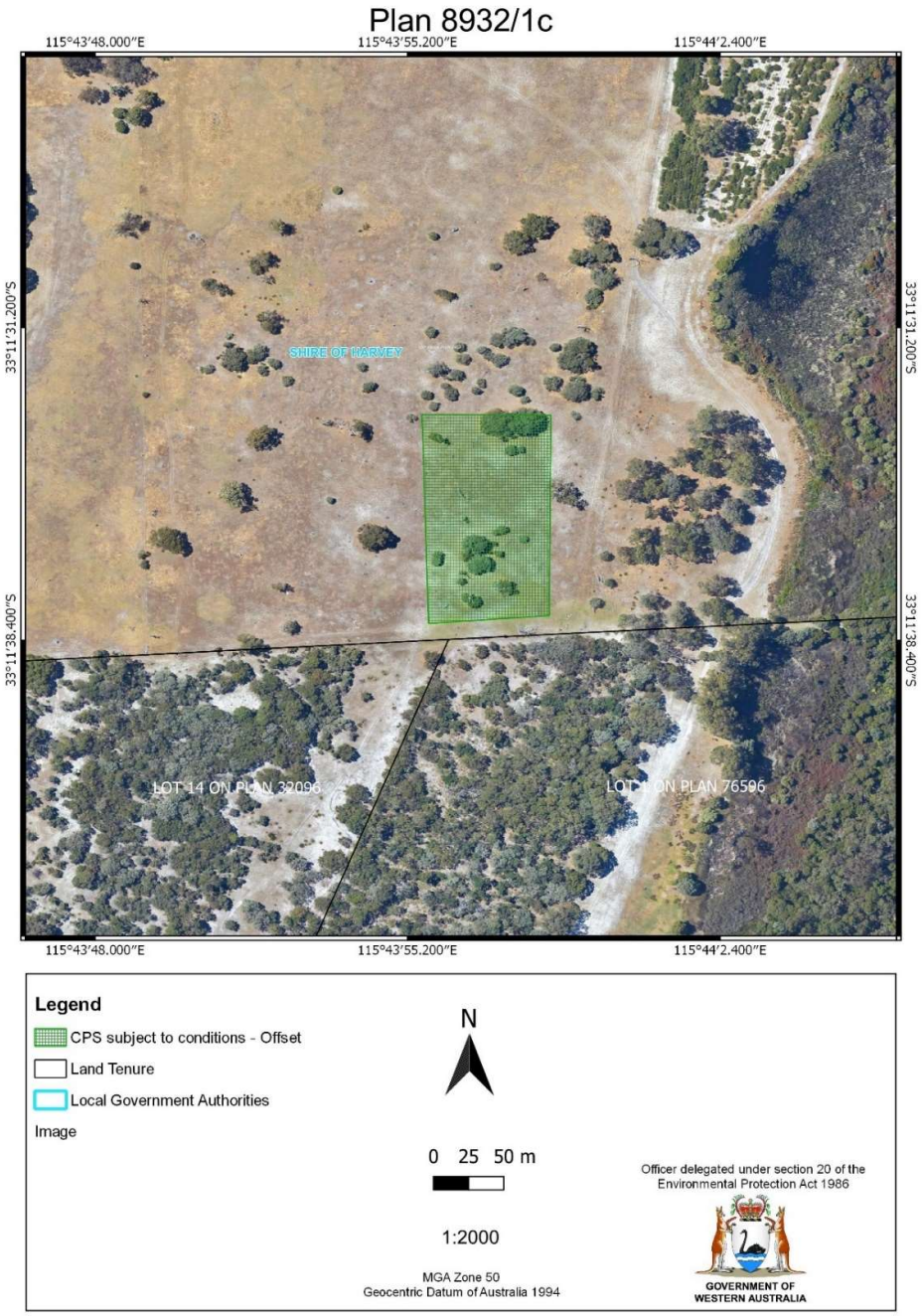

Figure 3 - The area cross-hatched green indicates the area which will be revegetated in accordance with the offset conditions on the permit

It is acknowledged that the application area occurs within the Swan Coastal Plain Guildford vegetation complex. This complex is dominated by marri, wandoo and jarrah trees which typically occupy alluvial soils (APACE, 2019). The proposed offset site occurs on aeolian soils, in which case it is considered unlikely that the offset site could be revegetated to contain vegetation representative of the Guildford complex.

WA Environmental Offsets Policy (2011) 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.

The Delegated Officer considered that revegetation of a portion of the offset site which would at completion contain key species of the Tuart Woodland TEC, is likely to achieve more benefical environmental outcomes. Such revegetation would not only re-establish significant remnant vegetation, but also black cockatoo habitat and improve ecological linkage values. Furthemore, it would restore vegetation containing the dominant species of Tuart Woodland TEC which has historically been extensively cleared and is likely to be completley lost if it is not protected and restored (Threatened Species Scientific Committee (TSSC), 2019). The Delegated Officer considers that this adequately counterbalances the significant residual impacts of the proposed clearing and simultaneously provides additional environmental benefits.

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.

3. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area is part of an isolated patch of native vegetation. It is surrounded by predominantly cleared land and residential properties in all directions. The proposed clearing area is a small, isolated remnant in a highly cleared landscape. Spatial data indicates the local area (10-kilometre radius of the proposed clearing area) retains approximately 36 per cent of the original native vegetation cover.
Vegetation description	A vegetation survey conducted by Natural Area (2020a) indicates the vegetation within the proposed clearing area consists predominantly of: • Marri Woodland vegetation community, comprised of *Corymbia calophylla* (Marri), a middle story of *Xanthorrhoea* species and a weedy understory of introduced grasses. The small area of *Viminaria juncea* Shrubland vegetation community is comprised of *Viminaria juncea* (Swishbush) over *Melaleuca viminea* and an understorey of *Chorizandra enodis* and mixed native sedges. This is consistent with the Guildford vegetation complex which has been mapped within the application area (Heddle, 1980): • Guildford Complex - a mixture of open forest to tall open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) and woodland of *Eucalyptus wandoo* (Wandoo) (with rare occurrences of *Eucalyptus lane-poolei* (Salmon White Gum)). Minor components include *Eucalyptus rudis* (Flooded Gum) - *Melaleuca rhaphiophylla* (Swamp Paperbark). Representative photos and full survey descriptions and mapping are available in Appendix E.
Vegetation condition	A vegetation survey conducted by Natural Area (2020a) indicates the vegetation within the application area is in good and completely degraded (Keighery, 1994) condition. The full Keighery condition rating scale is provided in Appendix C, below.
Soil description	The soil within the application area is mapped as the following subsystems (Department of Primary Industries and Regional Development (DPIRD), 2021): • 213Pj__P1b Pinjarra, P1b Phase - Flat to very gently undulating plain with deep acidic mottled yellow duplex soils. Moderately deep pale sand to loamy sand over clay: imperfectly drained and moderately susceptible to salinity in limited areas. • 213Pj__B1 Pinjarra, 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 m; banksia dominant. • 213Pj__B2 Pinjarra, B2 Phase - Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 metres. • 213PjSWP6a Pinjarra, P6a Phase - Very gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils associated with major current river systems and larger streams. Acidic red and yellow duplex soils, less common.

<table>
<tr><th>Site characteristic</th><th>Details</th></tr>
<tr><td>Land degradation risk</td><td>
<table>
<tr><th rowspan="2">Aspect</th><th colspan="2">Pinjarra, P1b Phase</th><th colspan="2">Pinjarra, B1 Phase</th></tr>
<tr><td>Risk</td><td>Hazard Rating</td><td>Risk</td><td>Hazard Rating</td></tr>
<tr><td>Salinity</td><td>0%</td><td>High - Extreme</td><td>0%</td><td>moderate hazard</td></tr>
<tr><td>Water Erosion</td><td>0%</td><td>Very High - Extreme</td><td>0%</td><td>Very High - Extreme</td></tr>
<tr><td>Wind Erosion</td><td>55%</td><td>High - Extreme</td><td>100%</td><td>high to extreme hazard</td></tr>
<tr><td>Waterlogging</td><td>75%</td><td>Moderate - Very High</td><td>20%</td><td>Moderate - Very High</td></tr>
<tr><td>Flood Risk</td><td>0%</td><td>moderate to high hazard</td><td>0%</td><td>moderate to high hazard</td></tr>
<tr><td>Phosphorus Export Risk</td><td>5%</td><td>High - Extreme</td><td>70%</td><td>High - Extreme</td></tr>
<tr><th rowspan="2">Aspect</th><th colspan="2">Pinjarra, B2 Phase</th><th colspan="2">Pinjarra P6a Phase</th></tr>
<tr><td>Risk</td><td>Hazard Rating</td><td>Risk</td><td>Hazard Rating</td></tr>
<tr><td>Salinity</td><td>0%</td><td>moderate hazard</td><td>0%</td><td>moderate hazard</td></tr>
<tr><td>Water Erosion</td><td>0%</td><td>Very High - Extreme</td><td>0%</td><td>Very High - Extreme</td></tr>
<tr><td>Wind Erosion</td><td>100%</td><td>high to extreme hazard</td><td>5%</td><td>very high to extreme hazard</td></tr>
<tr><td>Waterlogging</td><td>5%</td><td>Moderate - Very High</td><td>20%</td><td>Moderate - Very High</td></tr>
<tr><td>Flood Risk</td><td>0%</td><td>moderate to high hazard</td><td>0%</td><td>moderate to high hazard</td></tr>
<tr><td>Phosphorus Export Risk</td><td>85%</td><td>high to extreme hazard</td><td>20%</td><td>High - Extreme</td></tr>
</table>
</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment identified the application area occurs within a Multiple Use wetland (Unique feature identifier (UFI) 15809).

The closest significant wetland to the application area is a Conservation Category Wetland (UFI 14501), which occurs 575 m east of the application area.</td></tr>
<tr><td>Conservation areas</td><td>There are no Bush Forever sites or DBCA managed lands within the proposed clearing area.

The nearest conservation areas to the application area is Nature Reserve R 49857, located 1.55km east of the application area. This land is classified under the CALM Act 1984 and is vested with the Conservation Commission of WA.</td></tr>
<tr><td>Climate and landform</td><td>The Boyanup climate is typically Mediterranean, with dry, hot summers and cool, wet winters average annual rainfall is 726.1mm, with the majority falling between May and September (BOM, 2020, Bunbury, Station ID 009965):
average maximum temperatures range from 19.4 °C in winter to 31.4 °C in summer
average minimum temperatures range from 4.6 °C in winter to 13.0 °C in summer.</td></tr>
</table>

4. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (see Appendix H), 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 (km)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
Flora					
Acacia drummondii subsp. *affinis* (P4)	9.12	Y	Y	-	Y
Acacia semitrullata (P4)	4.22	Y	Y	-	Y
Andersonia gracilis (T, EN)	No record in local area	Y	Y	-	Y
Banksia nivea subsp. *uliginosa* (T)	No record in local area	Y	Y	-	Y
Banksia squarrosa subsp. *argillacea* (T)	No record in local area	Y	Y	-	Y
Caladenia huegelii (T, EN)	9.45	Y	Y	-	Y
Caustis sp. *Boyanup* (P3)	3.92	Y	Y	-	Y
Chamaescilla gibsonii (P3)	9.73	Y	Y	-	Y
Chamelaucium sp. S Coastal Plain (T, VU)	No record in local area	Y	Y	-	Y
Cyathochaeta teretifolia (P3)	3.66	Y	Y	-	Y
Darwinia whicherensis (T, EN)	3.91	Y	Y	-	Y
Daviesia elongata (T, VU)	9.19	Y	Y	-	Y
Drakaea elastica (T, EN)	3.22	Y	Y	-	Y
Drakaea micrantha (T, VU)	7.03	Y	Y	-	Y
Eleocharis keigheryi (T, VU)	3.46	Y	Y	-	Y
Franklandia triaristata (P4)	3.81	Y	Y	-	Y
Gastrolobium papilio (T, EN)	No record in local area	Y	Y	-	Y
Gastrolobium whicherense (P2)	6.9	Y	Y	-	Y
Gastrolobium sp. *Yoongarillup* (P1)	6.8	Y	Y	-	Y
Grevillea bronwenae (P3)	7.2	Y	Y	-	Y
Grevillea maccutcheonii T	No record in local area	Y	Y	-	Y
Isopogon formosus subsp. *dasylepis* (P3)	7.54	Y	Y	-	Y
Jacksonia gracillima (P3)	8.44	Y	Y	-	Y
Leucopogon sp. Busselton (P2)	7.5	Y	Y	-	Y
Lasiopetalum membranaceum (P3)	8.4	Y	Y	-	Y
Lomandra whicherensis (P2)	4.47	Y	Y	-	Y
Petrocorp corymbose (P3)	No record in local area	Y	Y	-	Y
Platytheca anasima (P2)	8.07	Y	Y	-	Y
Pultenaea skinneri (P4)	0.075	Y	Y	-	Y
Schoenus loliaceus (P2)	9.21	Y	Y	-	Y
Synaphea hians (P3)	7.29	Y	Y	-	Y
Synaphea odocoileops (P1)	7.51	Y	Y	-	Y
Synaphea petiolaris subsp. *simplex* (P3)	8.81	Y	Y	-	Y
Synaphea polypodioides (P3)	5.99	Y	Y	-	Y
Synaphea sp. Fairbridge Farm (T, CR)	No record in local area	Y	Y	-	Y
Synaphea sp. Pinjarra Plain (T, EN)	5.6	Y	Y	-	Y
Synaphea sp. Serpentine (T, CR)	7.52	Y	Y	-	Y
Synaphea stenoloba (T, EN)	6.20	Y	Y	-	Y
Thelymitra variegata (P2)	0.16	Y	Y	-	Y
Trithuria australis (P4)	6.62	Y	Y	-	Y
Verticordia attenuate (P3)	8.23	Y	Y	-	Y
Fauna					
Calyptorhynchus banksii naso (T, VU)	2.3	-	-	Y	Y
Calyptorhynchus baudinii (T, EN)	4.7	-	-	Y	Y
Calyptorhynchus latirostris (T, EN)	6.7	-	-	Y	Y
Phascogale tapoatafa subsp. wambenger (CD)	0.78	-	-	Y	N
Pseudocheirus occidentalis (T, CR)	0.77	-	-	Y	Y
Setonix brachyurus (T, VU)	8.16	-	-	Y	N

5. 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 Pinjarra System (SWA)	1,501,221.93	579,813.47	38.62	222,916.97	17.98	16.88
Vegetation complex						
Guildford Complex 32	90,513.13	4,607.91	5.09	287.49	0.32	6.57

Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The Flora survey identified two planted P4 flora species. Considering that the understorey in the application area is weed-dominated and in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition and that the Flora survey (Natural Area, 2020a) did not identify any native threatened or priority flora species, the application area is not likely to provide suitable habitat for native conservation significant flora. The application area does not comprise significant habitat for fauna and vegetation in the application area is not representative of a threatened or priority ecological community recorded in the local area.	Not likely to be at variance	Yes Refer to Section 3.2.2 above.
Principle (b): *"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."* Assessment: The proposed clearing area contains suitable habitat for forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Carnaby's cockatoo (*C. latirostris*) and Baudin's cockatoo (*C. baudinii*), and suitable habitat for *Phascogale tapoatafa* subsp. *wambenger* (southern Brush-tailed Phascogale), *Pseudocheirus occidentalis* (western ringtail possum) and *Setonix brachyurus* (quokka). Noting the shape and extent of the proposed clearing, lack of hollow bearing trees, its location in close proximity to patches of remnant vegetation in DBCA managed tenure and the sparse weed-dominated understorey, the vegetation proposed to be cleared is not likely to comprise a significant habitat for these or other native fauna.	Not likely to be at variance	Yes, Refer to Section 3.2.1 above.
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The proposed clearing area is unlikely to contain any flora species listed as threatened under the BC Act based on the results of the flora survey (Natural Area 2020a).	Not likely to be at variance	No
Principle (d): *"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."* Assessment: The proposed clearing area does not contain species composition indicative of a threatened ecological community (TEC) listed by the Western Australian Minister for Environment.	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. However, the mapped vegetation complex within	Is at variance	Yes Refer to Section 3.2.3 above.

Assessment against the Clearing Principles	Variance level	Is further consideration required?
the application area has been extensively cleared. On this basis, the application area is considered significant as a remnant of native vegetation.		
Principle (h): *"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."* Assessment: Given the distance to the nearest conservation area (1.55 kilometres), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental values: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given the clearing area occurs within a mapped Multiple Use Wetland, the proposed 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.	Is at variance	Yes, Refer to Section 3.2.4 above.
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Some sub-systems mapped in the application area have increased risks of wind erosion. Noting the extent of the proposed clearing which is scattered along a larger, linear footprint, and that the Shire will retain a number of large trees, the proposed clearing is not likely to cause appreciable land degradation.	Not likely to be at variance	No
Principle (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."* Assessment: Noting the extent of the proposed clearing which is scattered along a larger, linear footprint, the proposed clearing is not likely to cause deterioration in the quality of surface of underground water.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The proposed clearing is not likely to cause, or exacerbate, the incidence of flooding. It is anticipated construction along Payne Street will improve surface drainage and reduce the occurrence of flooding within the road reserve.	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
IUCN Criteria	The IUCN criteria for the value being impacted	**0.0%** - Afforded to significant remnant of native vegetation in an extensively cleared landscape. There is no statutory listing for the loss of a significant remnant.
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	**0.68** hectare loss of a significant remnant within an extensively cleared landscape and vegetation representative of Guildford complex, of which approximately 5 per cent remains.
Quality of impacted area (habitat/community)	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.	**3** - impacted area is predominantly in a good to completely degraded condition. However, the vegetation is considered significant as a remnant in an extensively cleared landscape. There is 5% of the Guildford Complex remaining with only 0.5% is in conservation estate. The vegetation provides black cockatoo foraging habitat and approximately 90% of the application area is commensurate with the Guildford vegetation complex.
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	**20 -** The offset site is vested with DBCA for the purpose of conservation. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	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	**10** - It is assumed that the environmental values obtained from revegetation will not be evident until 10 years post revegetating.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	The required area for post-consideration of mitigation area is shown below: **1.08** ha required to address impacts to significant remnant of native vegetation
Start quality (habitat/community)	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	**1** - A quality score of (1) (Completely degraded to Degraded) has been assigned based upon the revegetation management plan prepared by Natural Area (2020a).
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	**1** - It is assumed that the area would maintain its Completely Degraded to Degraded condition if no revegetation occurs.
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	**4** - It is assumed that the revegetation area could improve the vegetation condition to a Good condition.

Risk of loss (%) without offset (habitat/community)	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	**10%** - 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 a low risk of loss as the site is managed by DBCA.
Risk of loss (%) with offset (habitat/community)	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	**10%** - 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.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	**90%** - 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.
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	**70%** - 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.
% of impact offset	% 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)	**100%** - Reverse-calculated using the 'what if' function to achieve 100% offset based on assumptions.

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

Application area survey

The Shire of Capel commissioned Natural Area to undertake a detailed flora and vegetation survey and a level 1 fauna survey along a 1.4-kilometre section of the road verge along Payne Street. The total size of the survey area was approximately 3.4 hectares which encompassed the application area (Figure 3).

Figure 4 - Survey area

Two vegetation types were identified and described in the survey area:

- Marri Woodland which comprised of woodland of *Corymbia calophylla* (Marri), a middle story of *Xanthorrhoea* species and a weedy understory of introduced grasses; and
- *Viminaria juncea* (Swishbush) Shrubland which was comprised of *Viminaria juncea* (Swishbush) over *Melaleuca viminea* and an understory of *Chorizandra enodis* and mixed native sedges.

Key findings

Conservation significant flora

No naturally occurring threatened or priority species were recorded during the on-ground 2019 spring survey, with the P4 listed *Grevillea olivacea* and the *Grevillea pimeleoides* both having been planted outside their normal location. While the P4 listed *Aponogeton hexatepalus* and the *Pultenaea skinneri* were located within 100 metres of the survey site, all other conservation significant flora species were recorded at least 500 metres from the site.

TEC

No threatened ecological communities were recorded within the survey area.

Fauna species

The survey recorded 18 different species from two groups (mammals and birds). Two of the species were introduced (red fox and rabbit). No conservation significant fauna species were observed during the survey. No evidence of use by black cockatoo or indications of the presence of Western Ringtail Possum were recorded during the survey.

Black cockatoo habitat

A total of 191 marri trees were identified within the survey site. Despite the high number of trees recorded within the site, there were no evidence of roosting, feeding or use of hollows being used by black cockatoos for nesting.

Limitations

The survey was carried out in spring, the optimal time to survey native vegetation in the Swan Coastal Plain Region of Western Australia. However, certain limitations for the survey works still exist, including:

- database searches only provide an indication of what flora species may be present, with on ground surveys required to confirm those present
- the differing databases are reliant on information submitted via various reporting mechanisms, so all records of a flora species or ecological community in a specified area may not be complete
- on-ground surveys indicate species present at the time of the assessment, with species flowering at different times not always able to be identified
- not all species flower every year.

Despite these limitations, Natural Area was confident that 80 – 90 per cent of flora species were identified.

Photograph of the vegetation within the survey area

Figure 5 - Marri woodland in the application area

Offset site survey

The vegetation type within the Lot 150 was described as tuart, marri and jarrah woodland over a sparse middle storey of peppermint and grass trees, with an understorey than consists of weedy grasses, primarily perennial veldt and other herbs. The current vegetation condition of the area proposed to be revegetated is completely degraded (Keighery, 1994) with sparse native overstorey and middle species remaining and no native understorey. The area has been parkland cleared with evidence of logging with numerous jarrah stumps remaining, and signs of soil compaction due to previous grazing by cattle (Natural Area, 2020b).

Appendix F – References and databases

1. GIS datasets

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

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

Restricted GIS Databases used:

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

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