GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9742/1
Permit Holder:	Shire of Manjimup
Duration of Permit:	From 14 January 2023 to 14 January 2028

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road construction and hazard reduction.

2. Land on which clearing is to be done

Old Vasse Road reserve (PIN 11243111), Yeagarup

3. Clearing authorised

The permit holder must not clear more than 0.45 hectares of *native vegetation* within the areas cross-hatched yellow in Figure 1 of Schedule 1.

4. Clearing not authorised

The permit holder shall not clear trees other than the 24 trees at the locations specified in Table 1.

Table 1: Locations of trees authorised to clear

Tree number	Easting	Northing
1	402844	6183696
2	402829	6183732
3	402794	6183902
4	402761	6183987
5	402741	6184033

6	402730	6184053
7	402725	6184057
8	402724	6184059
9	402720	6184065
10	402702	6184085
11	402692	6184117
12	402676	6184152
13	402671	6184155
14	402631	6184215
15	402627	6184222
16	402626	6184225
17	402625	6184229
18	402575	6184317
19	402547	6184350
20	402493	6182237
21	402406	6184562
22	402400	6184554
23	402398	6184556
24	402393	6184577

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;

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared; and

(d) at least once in each 12-month period, the permit holder must remove or kill any *weeds* growing within areas cleared under this permit.

7. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner from the cleared road verge toward adjacent vegetation to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

8. Vegetation management – watercourse or wetland

The Permit Holder shall not clear *riparian vegetation* of any *watercourse* or *wetland*.

9. Offset – Lot 13916 on Deposited Plan 38045

(a) Prior to 14 January 2024, the permit holder shall provide to the *CEO* a copy of the executed change in purpose of the area hatched red on Figure 1 of Schedule 2 within Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499), Quinninup, from 'Gravel and Parkland Rehabilitation' to 'Conservation', including the 1.6 hectare offset site hatched red on Figure 1 of Schedule 3.

(b) In the event that the change in purpose of Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499) is not achieved in accordance with Condition 9(a) the permit holder must provide to the *CEO* an alternative offset proposal prepared in accordance with the Government of Western Australia's *WA Environmental Offsets Policy* (September 2011) and *WA Environmental Offsets Guidelines* (August 2014).

PART III - RECORD KEEPING AND REPORTING

10. 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 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 that clearing was undertaken; (f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance

No.	Relevant matter	Specifications
		with condition 5; (g) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 6; and (h) actions taken in accordance with condition 8.
2.	In relation to the offset pursuant to condition 9	(a) actions taken to execute a change in purpose of the area hatched red on Figure 1 of Schedule 2 within Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499) in accordance with condition 9.

11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 3 have the meanings defined.

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.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of *Phytophthora* species on native vegetation.
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.
EP Act	*Environmental Protection Act 1986* (WA)
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.
riparian vegetation	has the meaning given to it in Regulation 3 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.
watercourse	has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914*.
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

Term	Definition
	ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
wetland	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

END OF CONDITIONS

Meenu Vitarana
Manager
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

21 December 2022

Schedule 1

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

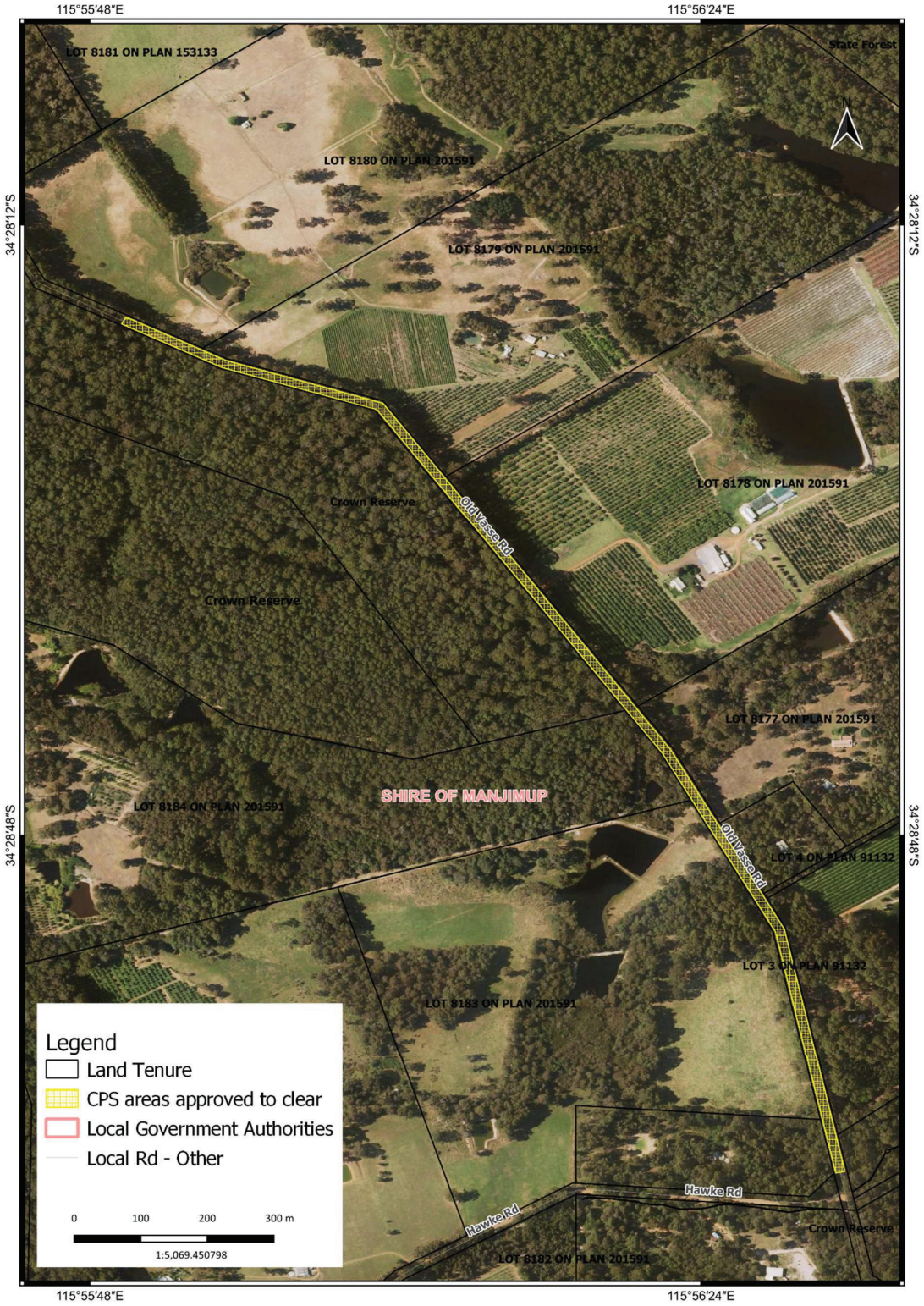

Figure 1: Map of the boundary of the area within which clearing may occur

Schedule 2

The portion of Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499) to be effected with a change of purpose from 'Gravel and Parkland Rehabilitation' to 'Conservation' is shown in the map below (Figure 1)

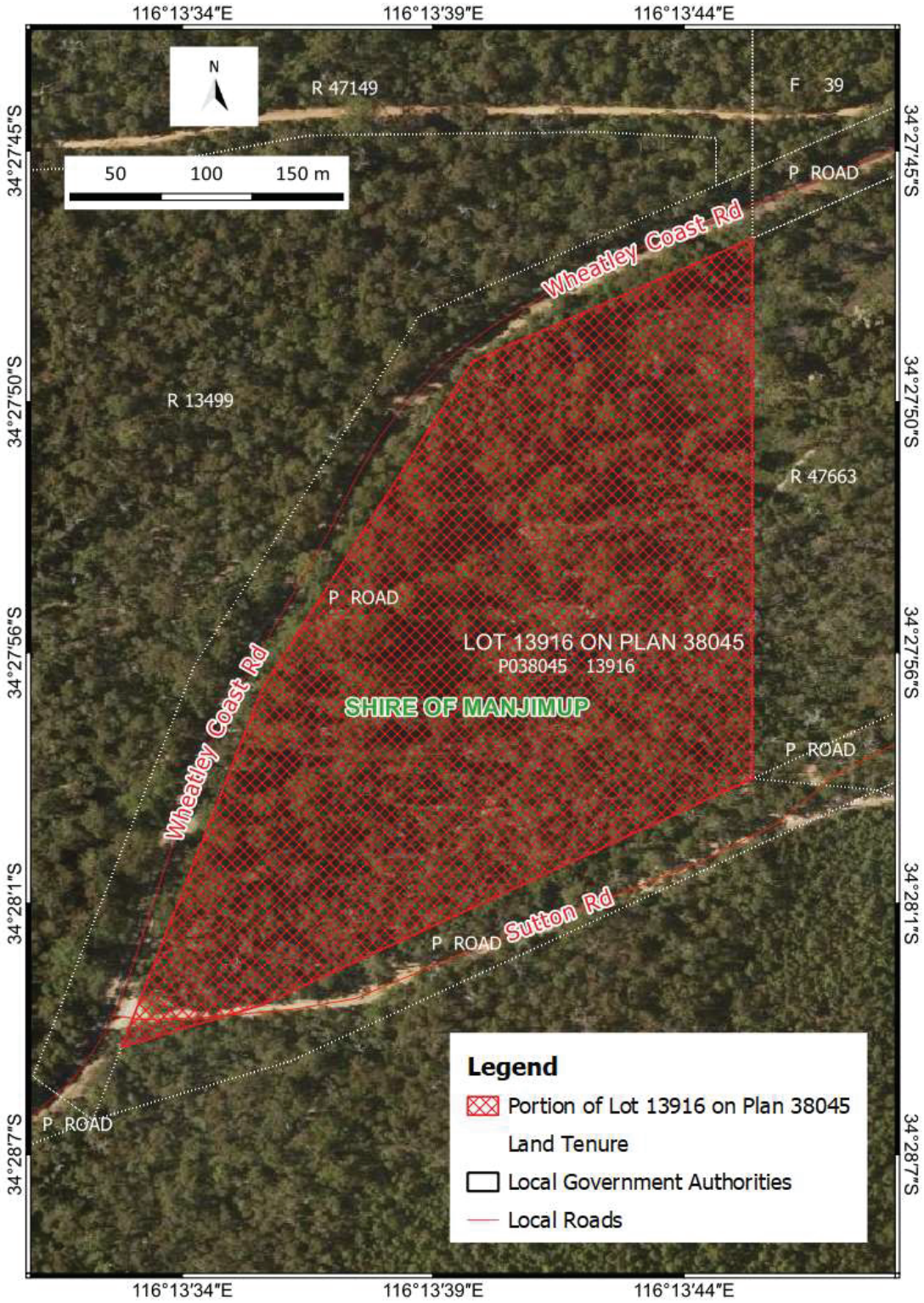

Figure 1: Portion of Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499)

Schedule 3

The boundary of the CPS 9742/1 offset area under condition 9 is shown in the map below (Figure 1)

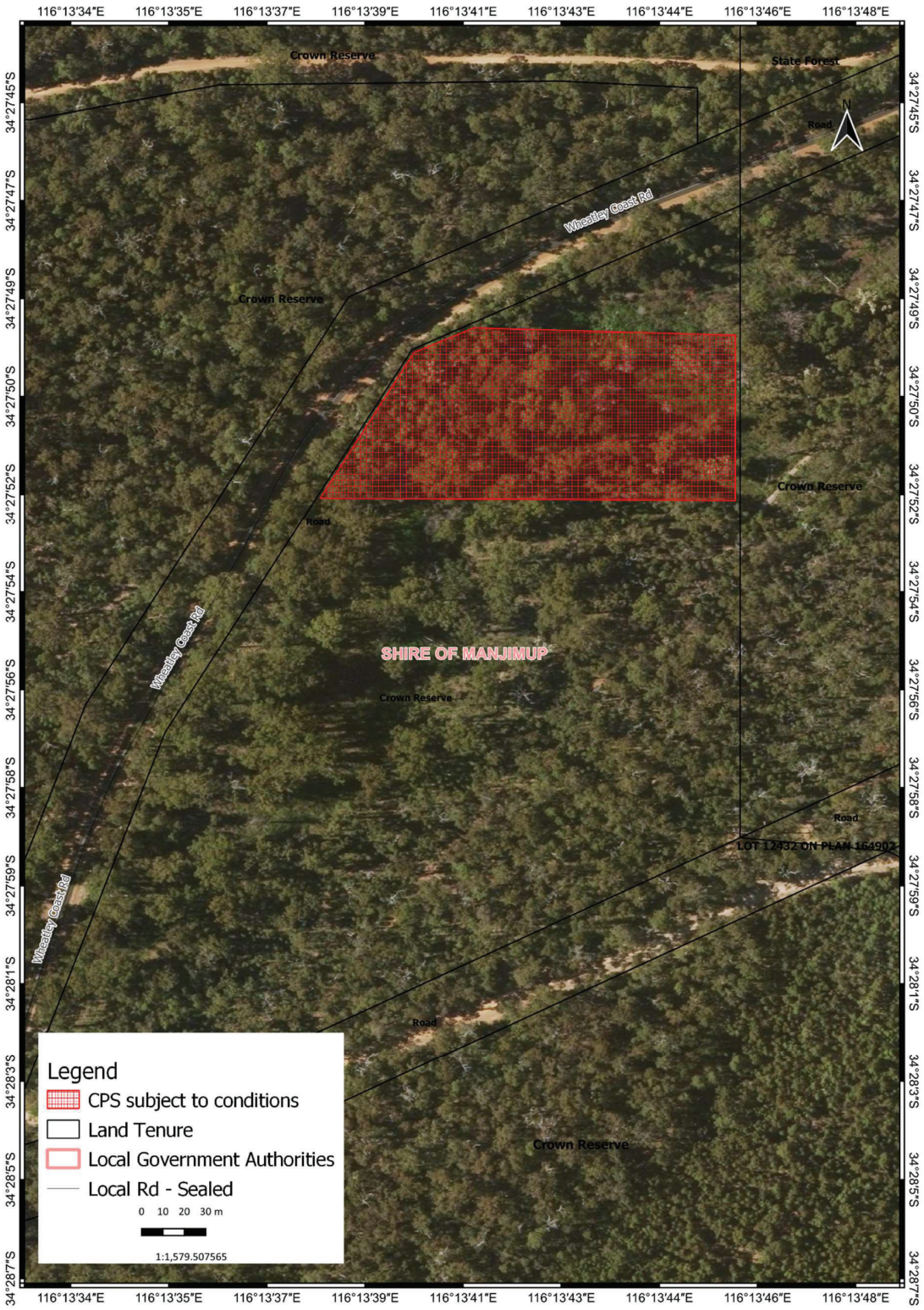

Figure 1: CPS 9742/1 offset area

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 9742/1
Permit type:	Purpose permit
Applicant name:	Shire of Manjimup
Application received:	18 May 2022
Application area:	0.45 hectares of native vegetation
Purpose of clearing:	Road construction and hazard reduction
Method of clearing:	Mechanical
Property:	Old Vasse Road Reserve (PIN 11243111)
Location (LGA area/s):	Shire of Manjimup
Localities (suburb/s):	Yeagarup

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area along the eastern and western sides of Old Vasse Road (see Figure 1, Section 1.5). The application area comprises 0.45 hectares, including 24 trees with some additional areas of understorey, within a 2.8 hectare footprint.

The applicant advised that Old Vasse Road is part of the Restricted Access Vehicle (RAV) network and does not currently meet requirements for heavy vehicles, noting that the existing road formation does not allow RAV vehicles to navigate horizontal curves without encroaching onto the opposite side of the road (Shire of Manjimup, 2022b). To allow for the road to meet requirements, the finished road design will comprise a 6 metre wide seal (the road is currently unsealed) with a 1 metre wide shoulder and 1.5 metre wide standard table drain on each side, to a total road width (including drainage) of 11 metres (Shire of Manjimup, 2022b).

The application was revised during the assessment process following a request to avoid and/or minimise the clearing (see Section 3.1 for further details). The initial application proposed clearing of 35 trees within the clearing footprint, whereas the granted permit only permits the clearing of 24 trees.

1.3. Decision on application

Decision:	Granted
Decision date:	21 December 2022
Decision area:	0.45 hectares of native vegetation inclusive of 24 trees 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 four submissions were received. Consideration of matters raised in the public submissions is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see 0), relevant datasets (see Appendix H.1), the findings of a fauna habitat survey, the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the necessity of the clearing to improve road safety (discussed further in Section 3.1).

The assessment identified that the proposed clearing:

- will remove approximately 0.45 hectares of habitat for western ringtail possums
- will remove approximately 0.23 hectares of foraging habitat for all three black cockatoo species
- will remove 23 potential black cockatoo breeding habitat trees and suitable black cockatoo roosting habitat
- is unlikely to result in significant impacts to other conservation significant fauna
- is unlikely to result in impacts to conservation significant flora species
- is likely to result in impacts to the adjacent Warren National Park through the spread of weeds and dieback.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the above impacts can be minimised and managed to unlikely lead to an unacceptable risk to environmental values and that the applicant has suitably demonstrated avoidance and minimisation measures, including the provision of an offset for black cockatoo foraging habitat and western ringtail possum habitat (see Section 4).

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

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- undertake clearing in a slow, progressive manner from the cleared road verge toward adjacent vegetation to allow fauna to move into adjacent native vegetation ahead of the clearing activity
- not undertake any clearing of riparian vegetation
- provide an offset to counterbalance impacts to black cockatoo foraging habitat and western ringtail possum habitat (refer to Section 4 for further details).

1.5. Site map

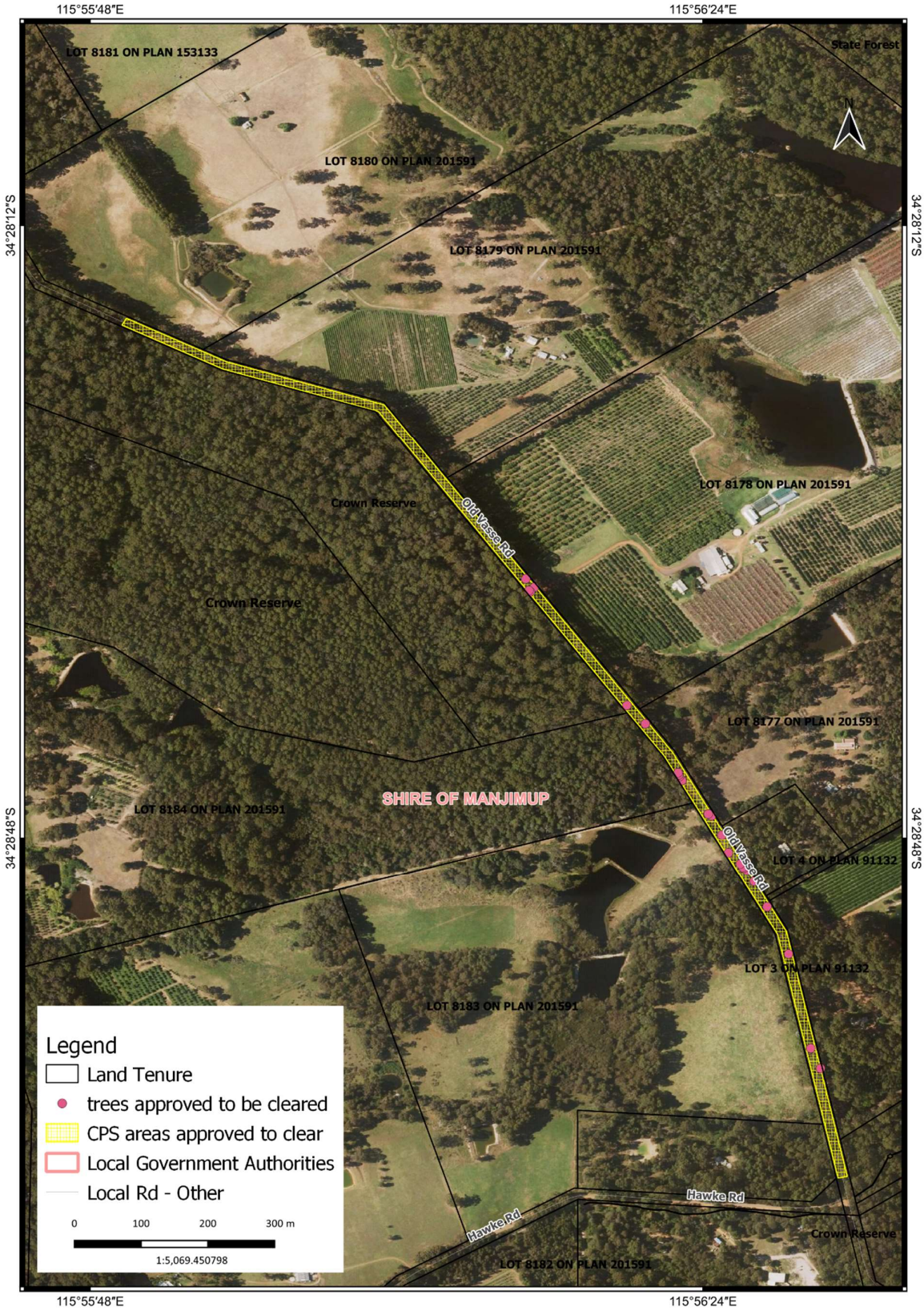

Figure 1. Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit. The pink bullets indicate the locations of trees that are authorised to be cleared under the granted clearing permit - no other trees within the application area are permitted to be cleared.

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)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC 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 – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has provided the following to demonstrate consideration of avoidance and mitigation measures:

- When applying for the clearing the applicant advised that the "road alignment has been designed to minimise vegetation clearing" (Shire of Manjimup, 2022a)
- Following requests from DWER to consider further avoidance and mitigation measures, the applicant applied the following measures:
    - Modification of the road design to avoid clearing of some trees, and in doing so was able to reduce the amount of trees being cleared from 35 to 24. The applicant has stated that further "changes would decrease road safety significantly" (Shire of Manjimup, 2022b)
    - Proposal to cede an area of 1.6 hectares of native vegetation containing habitat for western ringtail possums and foraging habitat for black cockatoos to the conservation estate to offset impacts to these species. The nature and suitability of the offset provided are summarised in Section 4.

The applicant advised that Old Vasse Road is part of the Restricted Access Vehicle (RAV) network and does not currently meet requirements for heavy vehicles, noting that the existing road formation does not allow RAV vehicles to navigate horizontal curves without encroaching onto the opposite side of the road (Shire of Manjimup, 2022b). Old Vasse Road is recognised as part of the regional road network in the South West Regional Blueprint, which sets out several priorities and actions, including that 'Old Vasse Road is sealed' to meet the objectives 'Regional road network supports effective tourism routes through the region' and 'Freight routes from Scott River, Warren Blackwood and other agricultural sectors meet requirements for export of food' (South West Development Commission and Regional Development Australia – South West, 2014). It is noted that Old Vasse Road is currently unsealed. The applicant has also stated that "trees feature prominently as impacted hazards in run-off road crashes and account for a large proportion of fatalities" (Shire of Manjimup, 2022b).

Taking into account the above avoidance and mitigation measures, as well as the necessity of the road safety works requiring the proposed clearing, the Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see 0) 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 risk of impacts of the proposed clearing to biological values (fauna and flora), conservation areas and land resources required further consideration. 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

Noting the habitat requirements, distribution of recorded species within the local area and vegetation type and condition present within the application area, it was considered that vegetation within the application area may comprise suitable habitat for the following conservation significant fauna species:

- *Pseudocheirus occidentalis* (western ringtail possum) (CR)
- *Bettongia penicillata* subsp. *ogilbyi* (woylie)
- *Zanda baudinii* (Baudin's black cockatoo) (EN)
- *Zanda latirostris* (Carnaby's cockatoo) (EN)
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (VU)
- *Setonix brachyurus* (quokka) (VU)
- *Hydromys chrysogaster* (rakali, water rat) (P4)
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) (P4)
- *Tyto novaehollandiae novaehollandiae* (Masked owl) (P4)
- *Phascogale tapoatafa wambenger* (southwestern brush-tailed phascogale, wambenger) (CD)
- *Falco peregrinus* (Peregrine falcon) (OS)

Western ringtail possum

The application area is outside, but relatively close to, the Southern Forest Management zone for the western ringtail possum (WRP), and as such WRP could be managed with the same priority as afforded to this management zone (DPAW, 2017a). Populations of WRP in the southern forest management zone include karri (*Eucalyptus diversicolor*) forests from Northcliffe to west of Manjimup (DPAW, 2017a). Habitat critical to the survival of the WRP comprises forests with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history) that are intensively fox baited and have low incidents of fragmentation (DPAW, 2017a). Dense midstorey and/or canopy vegetation providing sufficient connectivity for arboreal travel is an important determinant of WRP habitat quality where introduced predators are present (Jones et al., 1994). WRP utilise tree hollows as diurnal resting sites (DPAW, 2017a).

None of the trees proposed to be cleared were found to contain hollows suitable for use by WRP (Harewood, 2022). However, noting that the application area is adjacent to large areas of good quality vegetation likely to have limited anthropogenic disturbance (i.e. Warren National Park), is within one kilometre of a western ringtail possum record, and contains karri and marri trees often in association with a dense midstorey, it is considered likely that vegetation within the application area is suitable for WRPs. To mitigate impacts to WRP, the applicant has committed to providing an offset for WRP habitat, which will entail changing the purpose of one of its reserves within a former gravel pit from gravel pit to "conservation" (refer to Section 4 for further details).

Black cockatoo species

The application area is within both the known ranges and known breeding ranges of Baudin's cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo (Department of Agriculture, Water and Environment (DAWE), 2022 and Department of Environment and Conservation (DEC), 2008a). All of these species nest in hollows of live or dead Eucalypt trees, including marri, jarrah and blackbutt (red-tailed black cockatoos) (DAWE, 2022). For most species of trees, suitable nest hollows are only found in trees with a diameter at breast height (DBH) of at least 50 centimetres, with a DBH of 30 centimetres or greater considered suitable to develop a nest hollow in the future (DAWE, 2022). Of the 24 trees proposed to be cleared, Harewood (2022) recorded 14 karri trees and one dead tree with a DBH of greater than 50 centimetres, none of which contained hollows. As such, while no currently suitable breeding habitat is proposed to be cleared, potential breeding habitat is proposed to be cleared. An offset committed to by the applicant is likely to mitigate impacts to potential black cockatoo breeding habitat, as the offset area contains trees likely provide breeding habitat in the future (refer to Section 4 for further details).

It is also considered that although no known roosting trees are present within the application area, the application area would likely contain trees suitable for black cockatoo roosting, given the presence of suitable species and that the application area is close to riparian areas (DAWE, 2022). An offset committed to the applicant is likely to mitigate impacts to black cockatoo roosting habitat, as the offset area contains trees likely to provide roosting habitat (refer to Section 4 for further details).

Marri trees present within the application area are also likely to provide foraging habitat for black cockatoo species (DAWE, 2022). Karri trees may also provide low to moderate foraging habitat for forest red-tailed black cockatoo (DAWE, 2022). Black cockatoos are known to forage within 20 kilometres of night roost sites (DAWE, 2022), and the application area is within 20 kilometres of one known roost sites for white tailed black cockatoos (which could comprise either Carnaby's and/or Baudin's cockatoos), 18.5 kilometres east. Black cockatoos will also forage in areas up to 12 km from their nest during the breeding season, although it is noted that no known breeding trees are recorded within 20 kilometres of the application area. Noting the relative absence of black cockatoo habitat information in the south-west region of Western Australia, the presence of unrecorded breeding trees and roost trees within the vicinity of the application area cannot be ruled out. It is also noted that waterbodies able to be used for drinking are within one kilometre of the application area, further increasing the likelihood that vegetation within the application area would comprise suitable foraging habitat for black cockatoo species (DAWE, 2022). Noting the above, the proposed clearing will impact approximately 0.23 hectares (attributing a canopy area of 0.01 hectares for each live tree proposed to be cleared) of foraging habitat for all three black cockatoo species. The applicant has committed to offsetting impacts to black cockatoo foraging habitat (refer to Section 4 for further details).

Other fauna

While the application area may provide suitable habitat for the following conservation significant species, the impacts are not likely to be significant.

- **Woylie** inhabit tall eucalypt forest and woodland, dense myrtaceous shrubland and kwongan or mallee heath, including within the Upper Warren region (Yeatman and Groom, 2012). However, noting the vegetation is within a road reserve, predator control is unlikely to be sufficient to sustain populations of woylie, and as such they are considered unlikely to utilise this vegetation.
- **Quokka** most commonly inhabit jarrah, marri and karri forests or riparian habitats with sedge understorey in the southwest of Western Australia (DEC, 2013). While quokka may utilise the application area, it is noted that no clearing of riparian vegetation will occur as a condition of this permit. The clearing of the non-riparian vegetation within the application area is not considered to have a significant impact upon this species, noting the presence of extensive native vegetation in the vicinity of the application area within lands managed by DBCA for conservation, which is likely to be in better condition than that within the application area.
- **Rakali** live in burrows on low banks of rivers, lakes, wetlands, estuaries and coast (DWER, 2020). Intact riparian vegetation and associated bank stability is critical to their survival. Watercourses intersecting the application area are not perennial and as such it is considered unlikely that rakali would utilise these for habitat. Furthermore, no clearing of riparian vegetation will occur as a condition of this permit. As such the proposed clearing is unlikely to impact upon habitat for rakali.
- **Masked owl** inhabit forests, woodlands, timbered waterways and open country on the fringe of these areas and usually roosts in vertical hollows in large trees. The main requirements are tall trees with suitable hollows for nesting and roosting and adjacent areas for foraging (Birdlife Australia, 2020). Noting that none of the trees proposed to be cleared contain hollows of any size (Harewood, 2022) the clearing is unlikely to significantly impact the masked owl.
- **Quenda** inhabit dense scrubby, often swampy, vegetation with dense cover and adjacent forest and woodland (DPAW, 2012a). While quenda may utilise the application area, it is noted that no clearing of riparian vegetation will occur as a condition of this permit. The clearing of the non-riparian vegetation within the application area is not considered to have a significant impact upon this species, noting the presence of extensive native vegetation in the vicinity of the application area within lands managed by DBCA for conservation, which is likely to be in better condition than that within the application area.
- **Southwestern brush-tailed phascogale** inhabit dry sclerophyll forests and open woodlands that contain hollow bearing trees but a sparse groundcover (DEC, 2012b), including karri forest (Bradshaw, 2015). While southwestern brush-tailed phascogale may utilise the application area, noting that none of the trees proposed to be cleared contain hollows of any size (Harewood, 2022) the clearing is unlikely to significantly impact this species, noting the presence of extensive native vegetation in the vicinity of the application area within lands managed by DBCA for conservation, which is likely to be in better condition than that within the application area.
- **Peregrine falcon** are found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland

cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats and as such the proposed clearing is unlikely to significantly impact this species.

Conclusion

Based on the above assessment, the proposed clearing;

- Will remove approximately 0.45 hectares of habitat for western ringtail possums
- Will remove approximately 0.23 hectares of foraging habitat for all three black cockatoo species
- Will remove 23 potential black cockatoo breeding habitat trees and suitable black cockatoo roosting habitat
- Is unlikely to result in significant impacts to other conservation significant fauna.

The applicant has committed to offsetting the above impacts to western ringtail possums and black cockatoos (refer to Section 4).

Conditions

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

- Clearing must occur in a slow, progressive manner from the cleared road verge toward adjacent vegetation to allow fauna to move into adjacent native vegetation ahead of the clearing activity
- provide an offset to counterbalance impacts to black cockatoo foraging habitat and western ringtail possum habitat (refer to Section 4 for further details)
- Clearing of riparian vegetation is not permitted

3.2.2. Biological values (flora) - Clearing Principles (a) and (c)

Assessment

Noting the habitat requirements, distribution of recorded species within the local area and vegetation type and condition present within the application area, it was considered that the application area may contain suitable habitat for the following conservation significant flora species:

- *Caladenia harringtoniae* (Threatened)
- *Inocybe redolens* (Priority 2)

Caladenia harringtoniae usually inhabits paperbark (*Melaleuca* sp.) and flooded gum (*Eucalyptus rudis*) seasonally inundated swamps and flats, but it may also be found along creeklines in jarrah and karri forest (Hoffman & Brown, 1992). As no clearing of riparian vegetation is permitted under this permit, it is considered unlikely that the proposed clearing will impact this species.

Fungi species *Inocybe redolens* has only been recorded once in Western Australia: within soil associated with karri (Western Australian Herbarium, 1998-). Noting the application area is consists of roadside vegetation subject to disturbance, the likelihood of this species occurring is low. Given the above, and the extent of the clearing, it is considered unlikely that the proposed clearing would significantly impact this species.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in impacts to conservation significant flora species.

Conditions

No flora management conditions required.

3.2.3. Conservation areas - Clearing Principle (h)

Assessment

A portion of the application area is immediately east of the Warren National Park. The proposed clearing has the potential to impact Warren National Park through the introduction of weeds and/or dieback disease. Management conditions on the permit are considered adequate to prevent the spread of weeds and dieback to Warren National Park.

Noting that the cleared areas will be replaced with a hard road surface and that the road design includes drainage, it is considered that there are unlikely to be significant impacts from water erosion to the adjacent Warren National Park.

Conclusion

Based on the above assessment, the proposed clearing is likely to result in impacts to the adjacent Warren National Park through the spread of weeds and dieback. For the reasons set out above, it is considered that these impacts can be managed through a condition on the permit to manage the spread of weeds and dieback.

Conditions

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

- Weed and dieback management conditions

3.3. Relevant planning instruments and other matters

The application area is zoned "Local Roads" under the Shire of Manjimup's Local Planning Scheme. The proposed clearing for road upgrades is therefore consistent with the Local Planning Scheme.

The application area is located within the Warren River Water Reserve, a clearing control catchment gazetted under the *Country Areas Water Supply Act 1947* (CAWS Act). This catchment has however been subject to CAWS Act native vegetation clearing controls since December 1978 to prevent salinisation of water resources. DWER records show no CAWS Act compensation history for the subject lands. DWER records show no CAWS Act clearing licence applications have been approved the relevant section of Vasse Hwy (PIN 11243111). Old Vasse Rd is located within Zone D, a low salinity risk part of the catchment, where DWER CAWS Act Policy and Guidelines for the "Granting of Licences to Clear Indigenous Vegetation" provide for the grant of a licence for any purpose subject to greater than 10% of the property owner's land holding remaining under native vegetation (DWER, 2022). It is clear that lands under Shire of Manjimup tenure are greater than 10 per cent vegetated and furthermore the clearing is considered to be essential government works and hazard reduction, which is also allowed for under the guidelines (DWER, 2022). Accordingly, DWER has no objection or conditions relating to the proposed clearing (DWER, 2022).

The application area is located within the Warren River and Tributaries Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Noting that the applicant has committed to a condition on the permit that no clearing of riparian vegetation (associated with two minor non-perennial watercourses intersecting the application area) will occur, a permit to disturb bed and banks under the RIWI Act is not required to undertake this clearing.

While the Department acknowledges that the clearing of native vegetation contributes to climate change, it is not considered reasonable to attribute a particular climate change impact to this particular proposal. The Department encourages permit holders to seek opportunities to avoid and minimise the impacts of clearing where possible. The State Government published the State Climate Policy in November 2020, which considers the impacts of clearing on climate change and opportunities to sequester carbon.

The Department acknowledges that Old Vasse Road is part of the Karri Explorer Tourist Route (DBCA, 2019), is likely to be used by tourists to access Warren National Park and the Bicentennial Tree, and the vegetation within this road has high visual amenity. While noting the value of the vegetation in this regard, it is considered that the clearing of 24 trees along the length of the clearing footprint will not significantly compromise the visual and tourism amenity of the road when considering the remaining vegetation both within the road reserve adjacent properties.

Several Aboriginal sites of significance have been mapped within the local 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

To offset impacts to black cockatoo foraging habitat and western ringtail possum habitat (refer to Section 3.1.1 for further details) the applicant has proposed to change the purpose of Lot 13916 on Deposited Plan 38045 (being a portion of Crown Reserve 13499) in Quinninup from 'Gravel and Parkland Rehabilitation' to 'Conservation'. This is intended to remove the land from access for gravel extraction and provide security of tenure and ensure the protection of the values of the site for the benefit of fauna. The permit holder proposes that 1.6 hectares of the 9.66 hectare offset site be attributed to the 0.45 hectares of clearing (Figure 2).

The proposed offset has been assessed against the WA State Government's Environmental Offsets Policy and Environmental Offsets Guidelines (Government of Western Australia, 2014), and informed by the draft WA environmental offsets metric (DWER, 2021) and associated draft procedure for environmental offsets metric inputs (DWER, 2022). The justification for the values used in the offset calculation is provided in Appendix F.

The Delegated Officer considers that this adequately counterbalances the significant residual impacts listed above.

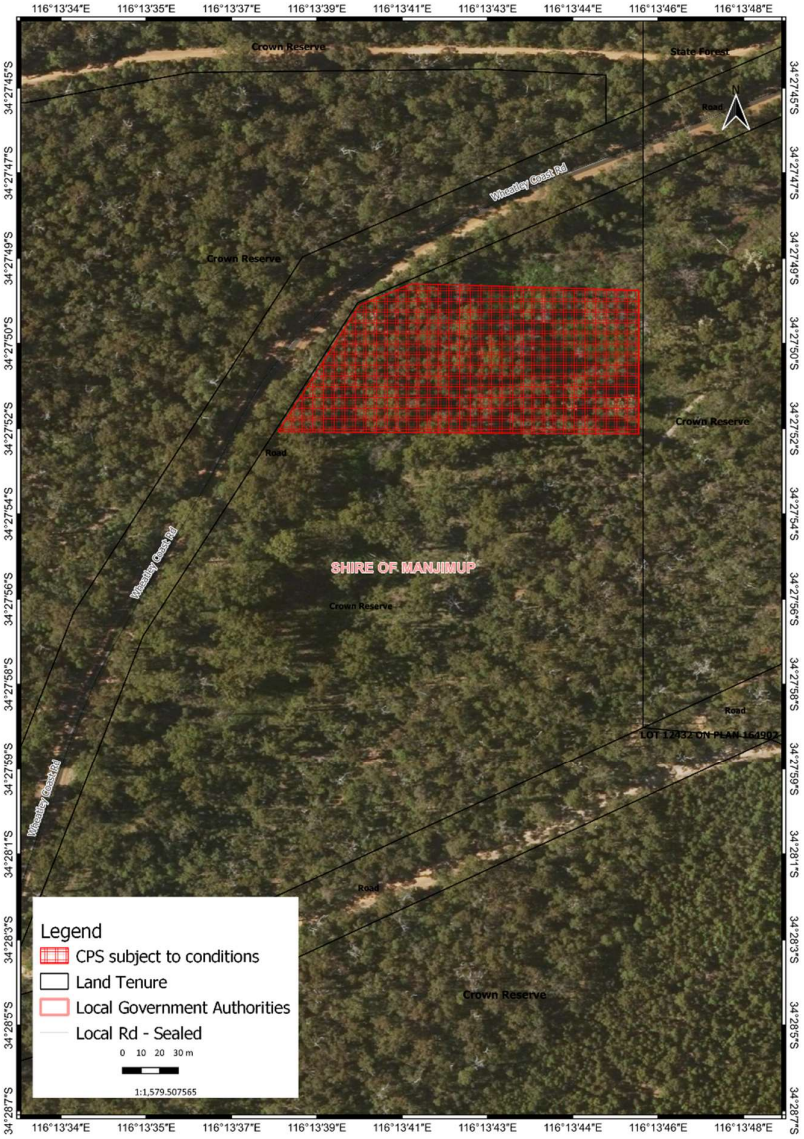

Figure 2. Proposed offset area for this application, 1.6 hectares of the 9.66 hectare Lot 13916 on Deposited Plan 38045

End

Appendix A. Additional information provided by applicant

The applicant provided the following additional information during the course of the assessment if this clearing permit.

Summary of comments	Consideration of comment
Applicant provided black cockatoo habitat assessment (Harewood, 2022)	Findings discussed in Table C.1. and results considered in Section 3.2.1
Applicant reduced number of trees to be cleared from 35 to 24	Discussed in Section 1.2 and Section 3.1
Applicant provided offset area and further justification regarding the extent and necessity of the clearing (Shire of Manjimup, 2022b)	Offset considered in Section 4. Extent of clearing discussed in Section 1.2 and necessity of clearing considered in Section 3.1

Appendix B. Details of public submissions

Four submissions were received regarding this clearing permit application. These are summarised as follows.

Summary of comments	Consideration of comment
Inadequacy of application • Noted that the applicant has not provided an address in their application form and assuming this would make the application invalid	DWER has obtained all the relevant information from the applicant to accept their clearing permit application during the validation of the application.
Concern regarding lack of road design • From dealings with the applicant, they have indicated that they have no road plans	Road designs have been provided to DWER, and these plans correspond with the proposed clearing. It is the responsibility of the applicant to ensure that roads are adequately planned. Information provided regarding the necessity of the proposed roadworks (and therefore the proposed clearing) is outlined in Section 3.1.
Necessity of the clearing to improve road safety • This is a safe part of the road • There have been no accidents along this section of road • If increased safety is required the speed limit should be reduced • There is no need to clear native vegetation along Old Vasse Road for road safety purposes	Considerations regarding the necessity of the clearing to improve road safety are considered in Section 3.1. Speed limits are a matter for local government and Main Roads WA and are outside the remit of this assessment. The Old Vasse Road EMP states that the permit holder received blackspot funding in 2006 to construct a "sealed pavement width of 7m with 11m formation" along the 9 km length of Old Vasse Road that would "enable a 60 km/hr speed limit to be placed on the road and reduce the amount of accidents associated with loss of control incidents" (Opus International Consultants PCA Limited, 2008). The Main Roads WA (WRWA) website states that MRWA is "responsible for speed zones on all roads", and that "requests for change in speed zones on local roads need to be submitted to the local government, who will assess the request and submit it to us if they agree with the change" (MRWA, 2020).

Summary of comments	Consideration of comment
Extent of clearing • Submitter observations of previous clearing of road verges is that no tree or bush is left standing	The extent of the proposed clearing is described in Section 1.1 and depicted in Figure 1. It is noted that, within the 2.8 hectare clearing footprint, this permit only permits the clearing of 24 trees (locations depicted in Figure 1) and some clearing of understorey to a total maximum area of 0.45 hectares. As such, a substantial amount of vegetation (including trees) will remain within the road verge.
Impacts to fauna • Clearing of any amount of the road verge will disturb the integrity of the neighbouring bush for fauna who live there or pass through it, and as such this integrity is essential to the physical and sentient well-being of this fauna • Forest provides comfort, protection, shelter and food for fauna and impacts to this will be devastating for fauna species • Large trees are to be protected because it is only in their old age and senescence that the hollows and flaws become large enough to provide the nesting hollows so desperately necessary if our wildlife (e.g. possums, birds and insects) is to survive • Fauna needs vegetation not only for its physical attributes, but the sense of familiarity and security given by the system as a whole • Habitat for threatened and endangered fauna species should be preserved	Impacts of the clearing on conservation significant fauna species and ecological linkage values, and mitigation measures to address these impacts, are considered in Section 3.2.1. Impacts to the neighbouring Warren National Park are considered in Section 3.2.3.
Impacts to Warren National Park • Sections of this application run along the Warren National Park, a major tourism attraction.	Impacts to the neighbouring Warren National Park are considered in Section 3.2.3. Impacts to tourism values are considered under Section 3.3.
Potential erosion resulting from clearing • Clearing leaves the soil bare and therefore vulnerable to erosion by water, wind and vehicle disturbance • This will turn a previously stable area into an unstable one which will require further work and remediation again and again in future years. • Bitumenizing is not a solution to this, as with the real and present threat of heat waves and fire, roadways will become even more impassable when bitumen - becomes soft and sticky.	The impacts of the clearing on land degradation resulting from erosion have been considered in Appendix D. It is not within the remit of this clearing permit to consider the viability of the future land use (i.e. whether bitumen roads will be fit for purpose now and in the future).
Old Vasse Road submitted for conservation listing • The vegetation along Old Vasse Road has been submitted for Road Conservation protection and listing and therefore needs to stay as is	Impacts of the clearing upon flora and vegetation are considered in Section 3.2.2. Roads can be nominated as “Flora Roads” under the Roadside Conservation Committee Flora Roads program, which encourages road managers to protect and conserve roadside vegetation of high conservation value. Roadside vegetation within the portion of Old Vasse within the application area was identified as being of Medium High to High conservation value (Roadside

Summary of comments	Consideration of comment
	Conservation Committee, 2005), however is not currently listed as a Flora Road (DPAW, 2013).
Climate change • The clearing proposed will contribute hundreds of tonnes of excess carbon emissions, and will result in reduced carbon capture. • Forests perform transpiration, which creates cooler microclimates and enhanced moisture retention to keep bush wetter and less vulnerable to fire in a drying climate.	The impacts of the clearing on climate change are considered in Section 3.3
Tourism, visual amenity and social value of the road • Old Vasse Road is of great scenic value, and is part of the Karri Forest Explorer and the gateway to the Warren National Park and the Bicentennial Tree lookout. As such it is a significant tourist route and a key part of the attraction to the area • Country roads such as Old Vasse Road provide a closeness to nature (the sense nature is enfolding you) and provide hope to humans • In general forests make the local area a tourist destination • The Old Vasse Road is an historic road that was the original road of the area and dates back to the 1840s	The impacts of the clearing on tourism and visual amenity are considered in Section 3.3. The age of the road is not considered to be a relevant consideration in the assessment of the proposed clearing.
Appeal against CPS 9333/1 • There is still an existing appeal against another application CPS 9333/1) by the Shire along Old Vasse Road that has not been finalised	This appeal has now been finalised and an amended permit granted. This assessment has considered matters raised during the appeals process for CPS 9333/1.
Previous dealings between submitters and applicant • The community has had many meetings in the past 20 years to discuss a variety of road related issues and it was always a 'no removal of roadside trees' decision with whatever issues we discussed • The local community has fought for many years to preserve the ambience and beauty of the area	We acknowledge the submitter's comments, however this is beyond the scope of this assessment. It is encouraged to continue to liaise with the applicant on this matter. The department continues to liaise with applicants to ensure appropriate avoidance and mitigation measures are undertaken by applicants to minimise the clearing of roadside trees.

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. The northern portion of the application area is surrounded by native vegetation to the southwest and agricultural land to the northeast, and the southern portion of the application area is surrounded by native vegetation to the east and agricultural land with interspersed native vegetation to the west. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 69 per cent of the original native vegetation cover.
Ecological linkage	The application area is approximately 630 metres west of an axis line identified in the South West Regional Ecological Linkages (Molloy et al., 2009). Vegetation within the application area is part of a local ecological linkage associated with Old Vasse Road and adjacent vegetation. An assessment of roadside conservation values within the Shire of Manjimup (Roadside Conservation Committee, 2005) determined that roadside vegetation within along Old Vasse road within the application area had a conservation value of Medium High to High.
Conservation areas	The northern portion of the application area is immediately east of the Warren National Park.
Vegetation description	Photographs supplied by the applicant indicates the vegetation within the proposed clearing area consists of *Eucalyptus diversicolor* (karri) and *Corymbia calophylla* (marri) trees, with a variably dense midstorey and understorey of species such as *Agonis flexuosa* (peppermint), myrtaceous shrubs and *Pteridium esculentum* (bracken). Representative photos are available in Appendix G. This is consistent with the mapped vegetation types: • Crowea Crb (68), which is described as Tall open forest of *Corymbia calophylla-Eucalyptus diversicolor* on upper slopes with *Allocasuarina decussata-Banksia grandis* on upper slopes in hyperhumid and perhumid zones; • Yanmah YN1 (321), which is described as Mixture of tall open forest of Eucalyptus diversicolor and tall open forest of *Corymbia calophylla-Eucalyptus patens-Eucalyptus marginata* subsp. *marginata* over *Agonis flexuosa* and *Agonis juniperina* on valleys in perhumid and humid zones; • Crowea, CRd (69), which is described as Open forest to tall open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on uplands in hyperhumid and perhumid zones. • Angove, A (1), which is described as Open forest of *Eucalyptus marginata* subsp. *marginata-Banksia ilicifolia-Nuytsia floribunda* with some *Eucalyptus diversicolor* on gently sloping sandy terrain in hyperhumid and perhumid zones (Mattiske and Havel, 1998). The mapped vegetation types retain approximately 86, 82, 78 and 88 per cent of their original extents respectively (Government of Western Australia, 2019b).
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Good to Very Good (Keighery, 1994) condition, described as: • 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.

Characteristic	Details
	• 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 The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos are available in Appendix G.
Climate	Rainfall: 1300 mm Evapotranspiration: 900 mm
Topography	Topography ranges from 160 m AHD at the southern extent to 145 m AHD at the northern extent of the application area.
Soil description	The soil is mapped as: • Crowea (Pimelia), brown duplex Phase (254PvCRb), described as brown gravelly duplex soils and red earths; karri-marri forest; • Yanmah Subsystem (Pimelia) (254PvYN), described as shallow (5-20 m) minor valleys, usually U-shaped with gentle sideslopes (3-10%) and broad swampy floors. Soils are loamy gravels, sandy gravels and deep sands with non-saline wet soils on the valley floors. • Crowea (Pimelia), sandy duplex Phase (254PvCRd), described as Sandy yellow duplex soils; marri-jarrah forest; and • Angove Subsystem (Pimelia) (254PvAN), described as gently sloping sandy terrain; slight dissections. Humus podzols on broad crests; Kangaroo Grass sedgeland, Teatree heath. Sandy yellow duplex soils in shallow dissections; Jarrah woodland.
Land degradation risk	Soils within the application area have high risks of wind erosion and subsurface acidification, and moderate risks of water erosion, water logging and phosphorus export (refer to Table C.5 below).
Surface water	The application area intersects two minor non-perennial watercourses in the Warren River catchment. Several dams are within properties adjacent to the proposed clearing area. The closest mapped natural wetland to the application area is 5 km to the west, however it is noted that no wetland mapping is available for the vicinity of the application area. Aerial imagery and photography does not indicate that a wetland is likely to be present within or close to the application area. The application area is in the Warren River and Tributaries Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914.*
Groundwater	Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers (grantioid lithology) Groundwater salinity: 500-1000 mg/L The application area is within Zone D of the Warren River Water Reserve catchment, under which clearing is controlled under the *Country Areas Water Supply Act 1947.*
Flora	There are records of two threatened and seven priority flora species within the local area, the closest of which to the application area is Priority 3 species *Poa billardierei* located 2.5 km south of the application area.
Ecological communities	No threatened or priority ecological communities have been recorded within the local area.
Fauna	There are records of nine threatened, seven priority, one migratory, one conservation dependent and one other specially protected fauna species within the local area, the closest of which, *Calyptorhynchus latirostris* (Carnaby's cockatoo), has been recorded approximately 320 metres northwest of the application area.

Characteristic	Details
	There is one breeding record (for white tailed black cockatoos, 17.7 km northwest) and one roosting record (for white tailed black cockatoos, 18.5 km southeast in 2013) for black tailed cockatoo species recorded within a 20 km radius of the application area. A habitat tree assessment (Harewood, 2022), examining the 24 trees proposed to be cleared, found that there were 14 karri trees with a DBH of greater than 50 cm, three karri trees with a DBH of less than 50 cm, six marri trees with a DBH of less than 50 cm and one dead tree with a DBH of greater than 50 cm. However, none of these trees contained hollows suitable for black cockatoo breeding.

C.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*					
Warren	833,985.56	659,432.21	79.07	558,485.38	66.97
Vegetation complex					
Mattiske vegetation complex 68**	52,753.26	45,425.07	86.11	43,135.87	81.77
Mattiske vegetation complex 321**	23,494.22	19,229.71	81.85	18,180.49	77.38
Mattiske vegetation complex 69**	1,904.36	1,488.57	78.17	1,365.44	71.70
Mattiske vegetation complex 1**	39,698.49	34,737.44	87.50	31,437.22	79.19
Local area					
10km radius	35,351.81	24,537.45	69.40	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

C.3. Fauna analysis table

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

Species name	Conservation status	Suitable habitat features?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Bettongia penicillata ogilbyi	CR	N	9.1	9.1	NA
Cacatua pastinator pastinator	EN	Y	7	7	NA
Calidris ferruginea	CR	N	6.3	6.3	NA
Calyptorhynchus banksii naso	VU	Y	3.9	3.9	Y
Elapognathus minor	P2	N	7.7	7.7	NA
Falco peregrinus	OS	Y	10	10	NA
Geotria australis	P3	N	4.1	4.1	NA
Hydromys chrysogaster	P4	Y	2.9	2.9	NA

Species name	Conservation status	Suitable habitat features?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Isoodon fusciventer	P4	Y	6.1	6.1	NA
Ixobrychus flavicollis australis (southwest subpop.)	P2	N	8.6	8.6	NA
Oxyura australis	P4	N	8.3	8.3	NA
Phascogale tapoatafa wambenger	CD	Y	5.6	5.6	NA
Pseudocheirus occidentalis	CR	Y	0.63	0.63	NA
Setonix brachyurus	VU	Y	2.8	2.8	NA
Tyto novaehollandiae novaehollandiae	P4	Y	9.1	9.1	NA
Westralunio carteri	VU	N	2.2	2.2	NA
Zanda baudinii	EN	Y	2.8	2.8	Y
Zanda latirostris	EN	Y	0.32	0.32	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

* An additional 15 records of Calyptorhynchus sp. 'white-tailed black cockatoo' were recorded within the local area, which may comprise either of these species.

C.4. Flora analysis table

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

Species name	Conservation status	Same mapped soil type?	Same mapped vegetation type?	Suitable habitat features?	Distance of closest record to application area (km)	Number of records within local area	Number of known records (total)	Are surveys adequate to identify?
Actinotus repens	P3	N	N	N	5.5	1	33	NA
Amanita fibrillopes	P3	N	Y	Y	5.1	1	34	NA
Amanita kalamundae	P3	N	N	Y	8.1	1	22	NA
Caladenia harringtoniae	T	Y	Y	Y	7.6	3	40	NA
Commersonia apella	T	N	N	N	9	2	10	NA
Inocybe redolens	P2	Y	Y	Y	7.3	1	1	NA
Poa billardierei	P3	N	N	N	2.5	1	15	NA
Pultenaea pinifolia	P3	N	N	N	5.6	3	44	NA
Rorippa cygnorum	P2	N	N	N	3.8	1	15	NA

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

C.5. Land degradation risk table

Risk categories	*Crowea (Pimelia), brown duplex Phase (254PvCRb)*
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	L2: 3-10% 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	L1: <3% 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

Risk categories	***Yanmah Subsystem (Pimelia) (254PvYN)***
Wind erosion	H2: >70% of the map unit has a high to extreme hazard
Water erosion	M1: 10-30% 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	L2: 3-10% of the map unit has a moderate to very high to risk
Phosphorus export risk	M2: 30-50% of the map unit has a high to extreme hazard

Risk categories	***Crowea (Pimelia), sandy duplex Phase (254PvCRd)***
Wind erosion	H2: >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	L1: <3% 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

Risk categories	***Angove Subsystem (Pimelia) (254PvAN),***
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	L2: 3-10% 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	M2: 30-50% of the map unit has a moderate to very high to risk
Phosphorus export risk	M1: 30-50% of the map unit has a high to extreme hazard

Appendix D. 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 area proposed to be cleared contains significant habitat for the western ringtail possum and black cockatoo species, however is unlikely to contain vegetation of a high diversity or contain conservation significant flora or ecological communities.	At variance	Yes *Refer to Sections 3.2.1 and 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."*	At variance	Yes *Refer to Section 3.2.1, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Assessment: The area proposed to be cleared contains foraging and potential breeding and roosting habitat for black cockatoo species and habitat for western ringtail possum.		
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	No *Refer to Section 3.2.2, above.*
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 area proposed to be cleared does not contain species indicative of a threatened ecological community.	Not likely to be at variance	No
Environmental value: 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 extents of the mapped vegetation type and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia. Although vegetation within the application area is part of a local ecological linkage associated with Old Vasse Road and adjacent vegetation, noting the specific trees proposed to be cleared and the extent of understorey vegetation proposed to be cleared, the proposed clearing is unlikely to compromise this ecological linkage.	Not likely to be at variance	No
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: The proposed clearing is likely to have an impact on the environmental values of the adjacent Warren National Park through the spread of weeds and dieback.	At variance	Yes *Refer to Section 3.2.3, above.*
Environmental value: 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: The application area intersects two minor non-perennial watercourses in the Warren River catchment. However, a condition on the clearing permit will ensure that there are no impacts to riparian vegetation.	At variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Soils within the application area have high risks of wind erosion and subsurface acidification, and moderate risks of water erosion and phosphorus export. However, noting the extent of the application area and that the majority of the cleared areas are expected to be replaced by a hard road surface or drainage, the proposed clearing is not likely to have an appreciable impact on 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: The application area intersects two minor non-perennial watercourses in the Warren River catchment. However, a condition on the clearing permit will ensure that there are no impacts to riparian vegetation.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Noting this and the extent of the clearing, the proposed clearing is unlikely to impact surface or ground water quality.		
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 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. Noting the extent of clearing, the proposed clearing is unlikely to contribute to waterlogging, and a condition to be placed on the permit prohibiting the clearing of riparian vegetation further reduces the risk of waterlogging.	Not likely to be at variance	No

Appendix E. 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 (1994).

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 F. Offset calculator value justification

Table F-1. Rationale for values used for offset calculator for black cockatoo foraging habitat offset.

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Black cockatoo foraging habitat and future breeding habitat		
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		Carnaby's and Baudin's cockatoo are listed as threatened fauna species under the Commonwealth EPBC Act and state BC Act. Forest red-tailed black cockatoo is listed as vulnerable fauna under the Commonwealth EPBC Act and state BC Act
Landscape-level value impacted	yes/no		
Significant impact			
Description	Clearing of 23 trees (karri and marri)		Marri trees within the application area provide foraging habitat and all trees provide future breeding habitat for Baudin's cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo.
Significant impact (hectares) / Type of feature	0.23		23 lives trees are estimated to have a canopy cover of 0.23 ha (0.01 ha per tree)
Quality (scale) / Number	4.00		Vegetation is in Good to Very Good condition. However, Harewood (2022) has noted that there are no hollows in the trees proposed to be cleared, however they are of a suitable size to create future breeding habitat for all three black cockatoo species.
Rehabilitation credit			
Description	0		
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	0		Change purpose of Lot 13916 (portion of Reserve 13499) from current purpose (gravel extraction) to conservation.
Proposed offset (area in hectares)	0.78		Area required to 100% offset residual impacts.
Current quality of offset site / Start number (of type of feature)	8.00		Very Good to Excellent condition vegetation within the known habitat range for WRP.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Condition of habitat not expected to change without further management actions
Future quality WITH offset (scale) / Future number WITH offset	8.00		Condition of habitat not expected to change without further management actions
Time until ecological benefit (years)	1.00		Property is already vegetated so will have immediate ecological benefit.
Confidence in offset result (%)	0.9		High confidence that the fencing will be undertaken and improve quality of vegetation and foraging habitat
Duration of offset implementation (maximum 20 years)	20.00		As the offset site will be transferred to the conservation estate, the maximum duration of 20 years is applied.
Time until offset site secured (years)	1.00		Expecting one year to confirm change of purpose of site with DPLH.
Risk of future loss WITHOUT offset (%)	20.0%		The lot is currently purposed for gravel extraction.
Risk of future loss WITH offset (%)	5.0%		As the offset site will be transferred to the conservation estate, the risk of loss is very low.
Offset ratio (Conservation area only)	N/A		
Landscape level values of offset?	N/A	N/A	

Table F-2. Rationale for values used for offset calculator for western ringtail possum habitat offset.

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Western ringtail possum habitat		
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - critically endangered		Western ringatil possums are listed as critically endanagered species under the Commonwealth EPBC Act and state BC Act.
Landscape-level value impacted	yes/no		
Significant impact			
Description	Clearing of 0.45 ha of vegetation (including karri, marri and peppermint)		Clearing area contains karri and marri forest, with peppermint trees in the midstorey in some areas, and good canopy connectivity. WRP inhabit this vegetation type in the southern forest management zone.
Significant impact (hectares) / Type of feature	0.45		
Quality (scale) / Number	4.00		Vegetation is in Good to Very Good condition. However, Harewood (2022) has noted that there are no hollows in the trees proposed to be cleared.
Rehabilitation credit			
Description	0		
Proposed rehabilitation (area in hectares)	0.00		
Current quality of rehabilitation site / Start number (of type of feature)	0.00		
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00		
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00		
Time until ecological benefit (years)	0.00		
Confidence in rehabilitation result (%)	0		
Offset			
Description	0		Change purpose of Lot 13916 (portion of Reserve 13499) from current purpose (gravel extraction) to conservation.
Proposed offset (area in hectares)	1.60		Area required to 100% offset residual impacts.
Current quality of offset site / Start number (of type of feature)	8.00		Very Good to Excellent condition vegetation within the known habitat range for WRP.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00		Condition of habitat not expected to change without further management actions
Future quality WITH offset (scale) / Future number WITH offset	8.00		Condition of habitat not expected to change without further management actions
Time until ecological benefit (years)	1.00		Property is already vegetated so will have immediate ecological benefit.
Confidence in offset result (%)	0.9		High confidence that the fencing will be undertaken and improve quality of vegetation and foraging habitat
Duration of offset implementation (maximum 20 years)	20.00		As the offset site will be transferred to the conservation estate, the maximum duration of 20 years is applied.
Time until offset site secured (years)	1.00		Expecting one year to confirm change of purpose of site with DPLH.
Risk of future loss WITHOUT offset (%)	20.0%		The lot is currently purposed for gravel extraction.
Risk of future loss WITH offset (%)	5.0%		As the offset site will be transferred to the conservation estate, the risk of loss is very low.
Offset ratio (Conservation area only)	N/A		
Landscape level values of offset?	N/A	N/A	

Appendix G. Biological survey information excerpts and photographs of the vegetation

Table G-1. Summary of tree observations (Harewood, 2022)

Wpt	Side of Road	Number of Possible Hollows	Status	Comments
1	East	0	No hollows observed	Large sized (DBH >50cm) karri tree.
2	East	0	No hollows observed	Large sized (DBH >50cm) karri tree, with snapped off/rotten trunk. Chimney type hollow collapsed/too shallow.
3	East	0	No hollows observed	Small sized (DBH<50cm) marri tree.
4	West	0	No hollows observed	Medium sized (DBH >50cm) karri tree.
5	East	0	No hollows observed	Medium sized (DBH >50cm) karri tree.
6	East	0	No hollows observed	Small sized (DBH <50cm) marri tree.
7	East	0	No hollows observed	Small sized (DBH <50cm) marri tree.
8	East	0	No hollows observed	Small sized (DBH <50cm) marri tree.
9	East	0	No hollows observed	Large sized (DBH >50cm) karri tree.
10	West	0	No hollows observed	Small sized (DBH <50cm) karri tree.
11	East	0	No hollows observed	Large/medium sized (DBH >50cm) karri tree.
12	East	0	No hollows observed	Small sized (DBH <50cm) marri tree.
13	East	0	No hollows observed	Small sized (DBH <50cm) marri tree.
14	West	0	No hollows observed	Medium sized (DBH >50cm) dead tree.
15	West	0	No hollows observed	Medium sized (DBH >50cm) karri tree.
16	West	0	No hollows observed	Small sized (DBH <50cm) karri tree.
17	West	0	No hollows observed	Small sized (DBH <50cm) karri tree.
18	East	0	No hollows observed	Large sized (DBH >50cm) karri tree.
19	West	0	No hollows observed	Large sized (DBH >50cm) karri tree.
20	East	0	No hollows observed	Two Trees – one large sized (DBH >50cm) karri tree and one small (DBH <50cm) karri tree close by.
21	East	0	No hollows observed	Large/medium sized (DBH >50cm) karri tree.
22	West	0	No hollows observed	Large/medium sized (DBH >50cm) karri tree.
23	West	0	No hollows observed	Large/medium sized (DBH >50cm) karri tree.
24	East	0	No hollows observed	Large sized (DBH >50cm) karri tree.

Figure G-1 – Two of the karri trees proposed to be removed within the application area

Figure G-2 – Two of the marri trees proposed to be removed within the application area

Appendix H. Sources of information

H.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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)
- 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)
- Offsets Register – Offsets (DWER-078)
- 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
- South West Regional Ecological Linkages

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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