



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6895/1
Permit Holder:	Commissioner of Main Roads Western Australia
Duration of Permit:	From 17 June 2016 to 17 June 2021

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 gravel extraction.

2. Land on which clearing is to be done

LOT 104 ON DEPOSITED PLAN 39530, BRAMLEY

3. Area of Clearing

The Permit Holder shall not clear more than 5.1 hectares of native vegetation within the area cross-hatched yellow on attached Plan 6895/1.

4. Application

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

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the project 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 project activities under the *Main Roads Act 1930* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise etc 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.

7. Fauna Management (western ringtail possum)

While undertaking any activity authorised under condition 1 of this permit:

- (a) a *fauna specialist* must be on site at the time of clearing to identify western ringtail possums (*Pseudocheirus occidentalis*); and
- (b) where western ringtail possums are identified within condition 8(a) the *fauna specialist* must remove and relocate the fauna.

8. Weed control

- (a) 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*:
 - (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (ii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared;
 - (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;
 - (iv) only move soils in *dry conditions*; and
 - (v) where *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable *soil disease status*.
- (b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.
- (c) Prior to leaving the area(s) cross-hatched red on attached Plan 6895/1, the Permit Holder must clean earth-moving machinery of soil and vegetation.

9. Environmental Management Plan

- (a) The Permit Holder must implement and adhere to the document *Main Roads Western Australia West's Gravel Pit – Pit Management Plan (PMP)*; Document No: B16#8178, received by the Department of Environment Regulation on 17 May 2016.
- (b) If it is necessary to modify the Environmental Management Plan referred to under 9(a) of this Permit, the Permit Holder must provide a modified Environmental Management Plan to the CEO for the CEO's approval prior to implementing the modified Environmental Management Plan.
- (c) The Permit Holder shall implement the latest version of the Environmental Management Plan approved by the CEO.

10. Offsets

- (a) Within three months of the commencement date of this Permit, the Permit Holder must submit to the CEO for approval an *offset proposal* to address residual impacts including, but not limited to:
 - (i) clearing of 5.1 hectares of black cockatoo habitat including three *black cockatoo habitat trees*, suitable for Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*); and
 - (ii) clearing of 5.1 hectares of western ringtail possum (*Pseudocheirus occidentalis*) habitat.
- (b) The Permit Holder must implement the *offset proposal* approved under condition 10(a) of this Permit.
- (c) The implementation of the approved *offset proposal* must be completed by 17 June 2021.
- (d) If it is necessary to modify the *offset proposal* approved under condition 10(a) of this Permit, the Permit Holder must submit the modified *offset proposal* to the CEO for the CEO's approval prior to implementing the modified *offset proposal*.
- (e) A modified *offset proposal* must not be implemented until approved by the CEO.
- (f) An approved modified *offset proposal* supersedes any previous *offset proposal*.

PART III – RECORD KEEPING AND REPORTING

11. Records must be kept

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the date that the area was cleared;
 - (iii) the size of the area cleared (in hectares); and
 - (iv) the purpose for which clearing was undertaken.
- (b) In relation to the revegetation and rehabilitation of areas pursuant to condition 9 of this Permit:
 - (i) 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;
 - (ii) a description of the revegetation and rehabilitation activities undertaken; and
 - (iii) the size of the area revegetated and rehabilitated (in hectares).
- (c) In relation to the *offset* of areas pursuant to condition 10 of this Permit:
 - (i) the location of any area of *offsets* 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;
 - (ii) a description of the *offset* activities undertaken; and
 - (iii) the size of the *offset* area (in hectares).

12. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 11 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding 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 21 February 2021, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(a) of this Permit.

DEFINITIONS

black cockatoo habitat tree(s) means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater;

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

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

fauna specialist means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*;

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

impacts means any impact of clearing on environmental values;

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;

offset proposal/s means an *offset* provided by the Permit Holder in accordance with condition 10 of this permit;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

project activity/ies means those activities described in condition [#](a) of this Permit;

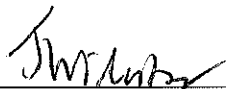
rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

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 pre-clearing vegetation types in that area;

soil disease status means soil types either infested, not infested, uninterpretable or not interpreted with a pathogen;

weed/s means any plant –

- (a) that is a declared pest under section 22 of the Biosecurity and Agriculture Management Act 2007; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



James Widenbar
A/ SENIOR MANAGER
CLEARING REGULATION
DEPARTMENT OF ENVIRONMENT REGULATION

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

26 May 2016

Plan 6895/1




Legend

-  Areas approved to clear
 -  Roads
 -  LGA
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:2,856

MGA 94
Geocentric Datum of Australia 1994

 Date 26/5/2016
James Widenbar

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 6895/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Commissioner of Main Roads Western Australia

1.3. Property details

Property: LOT 104 ON DEPOSITED PLAN 39530, BRAMLEY
Local Government Authority: AUGUSTA-MARGARET RIVER, SHIRE OF
DER Region: GREATER SWAN
DPaW District: BLACKWOOD
Localities: BRAMLEY

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.1		Mechanical Removal	Extractive industry

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 26 May 2016
Reasons for Decision: The applicant has applied to clear 5.1 hectares of native vegetation for the purpose of extractive industry.

The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act), and it has concluded that the proposed clearing is at variance to principles (b), may be at variance to principles (a), (g), (h) and (i), and is not likely to be or is not at variance to the remaining principles.

On 17 December 2015 the project was determined not a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999*.

An assessment determined that the proposed clearing will lead to the loss of 5.1 hectares of native vegetation that includes:

- 5.1 hectares of foraging habitat and 348 potential nesting trees for Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo; and
- 5.1 hectares of non-core habitat for the wesetern ringtail possum.

The Delegated Officer noted that the application area comprises supporting habitat to a regional ecological linkage that connects with Bramley National Park and Keenan State Forest, and includes significant habitat for fauna including conservation significant fauna species. The Delegated Officer also noted the mapped salinity and wind erosion risks associated with the application area.

To mitigate the potential impacts identified above, the clearing permit will include conditions for fauna management, offsets, dieback and weed control, and requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation.

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 51I(2)(b) of the EP Act, in order to mitigate the significant environment impacts described above the Permit Holder is required to provide an offset within three months of the clearing permit commencement date for approval by DER and subsequent implementation by the Permit Holder.

These factors were taken into consideration by the Delegated Officer in the decision to grant a clearing permit.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Mapped Beard vegetation	The proposed	Excellent; Vegetation	The condition and description of the vegetation

association 3 is described as medium forest; jarrah-marri (Shepherd et al., 2001).

Mapped Mattiske vegetation complex C2 is described as open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla*-*Banksia grandis* on lateritic uplands in perhumid and humid zones (Mattiske and Havel, 1998).

clearing is for 5.1 hectares of native vegetation within Lot 104 on Deposited Plan 39530, Bramley, for the purpose of gravel extraction.

structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

To

Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

were determined by a site inspection undertaken by Department of Environment Regulation officers (DER, 2016) and a Level 1 flora assessment (GHD, 2015a).

The vegetation under application is comprised of a *Eucalyptus marginata* and *Corymbia calophylla* forest with isolated *Banksia grandis* over a medium mixed shrubland of *Acacia* sp., *Bossiaea linophylla*, *Podocarpus drouynianus*, and *Dasyogon hookeri* over a mixed, open low shrubland of *Tremandra stelligera*, *Hibbertia hypericoides* and *Operularia* sp. (DER, 2016; GHD, 2015a).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposed clearing may be at variance to this Principle

The applicant proposes to clear 5.1 hectares of native vegetation within Lot 104 on Deposited Plan 39530, Bramley, for the purpose of gravel extraction.

The application area is mapped as Beard vegetation association 3, described as medium forest; jarrah-marri (Shepherd et al., 2001), and as Mattiske vegetation complex C2, described as open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla*-*Banksia grandis* on lateritic uplands in perhumid and humid zones (Mattiske and Havel, 1998). The vegetation under application is comprised of *Eucalyptus marginata* and *Corymbia calophylla* forest with isolated *Banksia grandis* over medium mixed shrubland of *Acacia* sp., *Bossiaea linophylla*, *Podocarpus drouynianus*, and *Dasyogon hookeri* over mixed, open low shrubland of *Tremandra stelligera*, *Hibbertia hypericoides* and *Operularia* sp. (DER, 2016; GHD, 2015a), and is in very good (Keighery, 1994) to excellent (Keighery, 1994) condition (DER, 2016; GHD, 2015a).

The local area (defined as a 10 kilometre radius around the application area) retains approximately 35 per cent of its pre-European native vegetation extent.

A biological survey, incorporating a level 1 flora and fauna survey, was undertaken by GHD (2015) within Lot 104 and adjacent Lot 2944 over a total area of 19.25 hectares which includes the application area. The field component of the biological survey was undertaken on 5 and 6 November 2014, and included a two-night survey for nocturnal fauna. A subsequent environmental impact assessment was undertaken within a portion of the surveyed area which included 5.91 hectares of native vegetation on Lot 104 (GHD, 2015b); the project area encompasses the application area.

Thirty priority flora species and four rare flora species have been recorded within the local area. No priority or rare flora species were recorded within the surveyed area during the biological survey (GHD, 2015a), however noting the timing of the survey (November 2014) some annual species (such as orchids) may not have been present and other species may not have been flowering. The biological survey included an assessment of the likelihood of conservation significant flora occurring within the surveyed area, based on the range and habitat requirements of each species and the habitats present within the surveyed area (GHD, 2015a). That assessment concluded that 16 conservation significant flora, including at least two species listed as threatened under the *Wildlife Conservation Act 1950* (WC Act), could possibly occur within the surveyed area, but noted that based on the common and widespread mapped vegetation types and the absence of poorly-represented habitat types the likelihood of rare or priority flora occurring within the surveyed area is limited (GHD, 2015a). The subsequent environmental impact assessment (GHD, 2015b) concluded that the occurrence of rare or priority flora within the project area is unlikely. On this basis it is considered that the application area is unlikely to include or be necessary for the continued existence of rare or priority flora.

According to available databases, no known threatened ecological communities (TECs) or priority ecological communities (PECs) have been mapped within the local area. No State or Commonwealth listed TECs were recorded within the surveyed area during the biological survey (GHD, 2015a; GHD, 2015b). On this basis it is considered that the vegetation under application is unlikely to comprise or be necessary for the maintenance of a TEC or a PEC.

Thirty one fauna species of conservation significance have been recorded within the local area (Parks and Wildlife 2007-). Based on the vegetation types present within the application area, it is considered that the application area may contain suitable habitat for the following conservation significant fauna listed under the *Wildlife Conservation Act 1950*:

- Fauna rare or likely to become extinct: Carnaby's cockatoo (*Calyptorhynchus latirostris*; endangered); Baudin's cockatoo (*Calyptorhynchus baudinii*; endangered); forest red-tailed black cockatoo (*Calyptorhynchus banksia naso*; vulnerable); western ringtail possum (*Pseudocheirus occidentalis*; endangered); chuditch (*Dasyurus geoffroyi*; vulnerable); and south-western brush tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*; vulnerable);
- Other specially protected fauna: Australian peregrine falcon (*Falco peregrinus* subsp. *macropus*);

- Priority fauna: masked owl (*Tyto novaehollandiae* subsp. *novaehollandiae*; P3); western brush wallaby (*Macropus irma*; P4); and southern brown bandicoot (*Isoodon obesulus* subsp. *fusciventer*; P4); and
- Migratory birds protected under an international agreement: rainbow bee-eater (*Merops ornatus*).

During the biological survey (GHD, 2015a) and subsequent environmental impact assessment (GHD, 2015b), a total of 348 potential black cockatoo habitat trees were identified within the project area. Forest red-tailed black cockatoo and Baudin's cockatoo were observed within the project area, and Carnaby's cockatoos are known to utilise the area (GHD, 2015a). Six forest red-tailed black cockatoos were observed roosting within the project area during the biological survey (GHD, 2015a; GHD, 2015b). Based on the condition of the vegetation and the presence of foraging, roosting and breeding habitat within the application area, and the proximity to a SWREL linkage with conservation areas, it is considered that the proposed clearing is likely to impact significant habitat for the three species of black cockatoo.

During the biological survey (GHD, 2015a), a female western ringtail possum with pouch young was observed adjacent to the project area (GHD, 2015b). This observation was located approximately 60 metres from the application area and is connected via dense blue gums (*Eucalyptus globulus*). Given the condition of the vegetation and the presence of jarrah and marri within the application area, including several trees with large hollows, and noting the small home range of individuals, it is considered that the vegetation under application is likely to comprise significant habitat for western ringtail possum.

The application area is located within vegetation identified under the South West Regional Ecological Linkages (SWREL) project as having a proximity value of 1b (Molloy et al., 2009). SWREL linkages provide important corridors for the dispersal of native fauna and may include significant breeding and foraging habitat for local fauna. Areas with a proximity value of 1b are generally located within 200 metres of a linkage and provide supporting habitat to the linkage. It is considered that the proposed clearing may contribute to degradation of the quality of the linkage and biodiversity within the local area.

Noting the extent of native vegetation within the local area, the condition of the vegetation under application, and that the application area is likely to include significant habitat for fauna including species of conservation significance, it is considered that the vegetation under application may be necessary for the maintenance of biodiversity within the local area.

Given the above, the proposed clearing may be at variance to this principle.

If granted, the clearing permit will include conditions for fauna management, offsets, dieback and weed control, and requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation, to mitigate these impacts.

Methodology

References:

DER (2016)
 GHD (2015a)
 GHD (2015b)
 Keighery (1994)
 Matiske and Havel (1998)
 Molloy et al. (2009)
 Parks and Wildlife (2007-)
 Shepherd et al. (2001)

GIS Databases:

- SAC BioDatasets - accessed March 2016

(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 indigenous to Western Australia.

Comments

Proposed clearing is at variance to this Principle

The application area is mapped as Beard vegetation association 3, described as medium forest; jarrah-marri (Shepherd et al., 2001), and as Matiske vegetation complex C2, described as open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla*-*Banksia grandis* on lateritic uplands in perhumid and humid zones (Matiske and Havel, 1998). The vegetation under application is comprised of *Eucalyptus marginata* and *Corymbia calophylla* forest with isolated *Banksia grandis* over medium mixed shrubland of *Acacia* sp., *Bossiaea linophylla*, *Podocarpus drouynianus*, and *Dasypogon hookeri* over mixed, open low shrubland of *Tremandra stelligera*, *Hibbertia hypericoides* and *Operularia* sp. (DER, 2016; GHD, 2015a), and is in very good (Keighery, 1994) to excellent (Keighery, 1994) condition (DER, 2016; GHD, 2015a).

The local area (10 kilometre radius) retains approximately 35 per cent of its pre-European vegetation extent.

The application area is connected (via a 40 metre section of blue gum plantation) to a small creek line and other remnant corridors linking to the Bramley National Park and Keenan State Forest, and fauna are likely to utilise this corridor as a local linkage (GHD, 2015b).

The application area is located within vegetation identified under the South West Regional Ecological Linkages (SWREL) project as having a proximity value of 1b (Molloy et al., 2009). SWREL linkages provide important

corridors for the dispersal of native fauna and may include significant breeding and foraging habitat for local fauna. Areas with a proximity value of 1b are generally located within 200 metres of a linkage and provide supporting habitat to the linkage. It is considered that the proposed clearing may contribute to degradation of the quality of the linkage.

A biological survey, incorporating a level 1 fauna survey, was undertaken by GHD (2015) within Lot 104 and adjacent Lot 2944 over a total area of 19.25 hectares which includes the application area. The field component of the biological survey was undertaken on 5 and 6 November 2014, and included a two-night survey for nocturnal fauna. A subsequent environmental impact assessment was undertaken within a portion of the surveyed area which included 5.91 hectares of native vegetation on Lot 104 (GHD, 2015b); the project area encompasses the application area.

Thirty one fauna species of conservation significance have been mapped within the local area (Parks and Wildlife, 2007-). Based on the vegetation type present, it is considered that the application area may provide suitable habitat for the following conservation significant fauna listed under the *Wildlife Conservation Act 1950*:

- Fauna rare or likely to become extinct: Carnaby's cockatoo (*Calyptorhynchus latirostris*; endangered); Baudin's cockatoo (*Calyptorhynchus baudinii*; endangered); forest red-tailed black cockatoo (*Calyptorhynchus banksia naso*; vulnerable); western ringtail possum (*Pseudocheirus occidentalis*; endangered); chuditch (*Dasyurus geoffroyi*; vulnerable); and south-western brush tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*; vulnerable);
- Other specially protected fauna: Australian peregrine falcon (*Falco peregrinus* subsp. *macropus*);
- Priority fauna: masked owl (*Tyto novaehollandiae* subsp. *novaehollandiae*; P3); western brush wallaby (*Macropus irma*; P4); and southern brown bandicoot (*Isodon obesulus* subsp. *fusciventer*; P4); and
- Migratory birds protected under an international agreement: rainbow bee-eater (*Merops ornatus*).

Carnaby's cockatoos were once abundant in Western Australia, however since the late 1940s the species has suffered a 30 per cent contraction in range, a 50 per cent decline in population and, between 1968 and 1990, disappeared from more than a third of its breeding range (Saunders, 1990; Saunders and Ingram, 1998; Shah, 2006; Garnett et al., 2011). The Carnaby's cockatoo recovery plan (Parks and Wildlife, 2013) summarises habitat critical to the survival for this species as:

- the eucalypt woodlands that provides nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
- in the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

Carnaby's cockatoo forages on the seeds, nuts and flowers of a large variety of plants including proteaceous and *Eucalyptus* species, *Allocasuarina*, *Corymbia calophylla*, and a range of introduced species (Valentine and Stock, 2008). Baudin's cockatoos forage in eucalypt woodlands and proteaceous woodland and heath, and forest red-tailed black cockatoos forage in Jarrah and Marri woodlands (Commonwealth of Australia, 2012). Based on the vegetation types within the application area, it is considered that the vegetation under application is likely to be utilised as foraging habitat by all three species.

Breeding habitat for black cockatoos includes trees of species known to support breeding which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). For Carnaby's cockatoo the entrance to hollows must have a minimum diameter of at least 100 millimetres to be suitable (DEC, 2010). During the biological survey (GHD, 2015a) and subsequent environmental impact assessment (GHD, 2015b), a total of 348 potential black cockatoo habitat trees (trees with a diameter greater than 500 millimetres) were identified within the project area (GHD, 2015a). Three habitat trees contain hollows suitable for use by black cockatoos, one of which showed evidence of use (GHD, 2015a). An additional habitat tree which showed evidence of use was identified adjacent to the application area (GHD, 2015a).

Forest red-tailed black cockatoo and Baudin's cockatoo were observed within the project area, and Carnaby's cockatoos are known to utilise the area (GHD, 2015b). Six forest red-tailed black cockatoos were observed roosting within the project area during the biological survey (GHD, 2015a; GHD, 2015b). Based on the condition of the vegetation and the presence of foraging, roosting and breeding habitat within the application area, and the proximity to a SWREL linkage with conservation areas, it is considered that the proposed clearing is likely to impact significant habitat for the three species of black cockatoo.

The western ringtail possum occurs in mature peppermint woodlands and jarrah and marri forests and woodlands (Parks and Wildlife, 2014), and feeds almost exclusively on peppermint, marri and jarrah (Jones et al., 1994). Hollows in trees provide important diurnal resting sites for this species, making up more than 70 per cent of the resting sites used by the western ringtail possum in the Jarrah Forest (Parks and Wildlife, 2014). The home range of the western ringtail possum is considered small, on average less than five hectares (Jones, 2001). This species has been observed utilising blue gum plantations, including constructing dreys (Parks and Wildlife, 2014). During the biological survey (GHD, 2015a), a female western ringtail possum with pouch young was observed adjacent to the project area. This observation was located approximately 60 metres from the application area and is connected via dense blue gums (*Eucalyptus globulus*). Given the condition of the vegetation and the presence of jarrah and marri within the application area, including several trees with large hollows, and noting the small home range of individuals, it is considered that the vegetation under application is likely to comprise significant habitat for western ringtail possum.

The chuditch, southern brush-tailed phascogale, western brush wallaby and southern brown bandicoot all occur in eucalypt forests and woodlands (DEC, 2012a-e). The peregrine falcon, masked owl and rainbow bee-eater are mobile avian species. Given the condition of the vegetation within the application area and the presence of good quality ground cover and logs, it is considered that the application area is likely to include suitable habitat for these species.

On the basis that the application area comprises supporting habitat to a regional ecological linkage that connects with Bramley National Park and Keenan State Forest, and includes habitat for conservation significant fauna species, and noting the extent of vegetation within the local area, it is considered that the proposed clearing is likely to comprise or be necessary for the maintenance of significant habitat for indigenous fauna.

Given the above, the proposed clearing is at variance to this principle.

The applicant's environmental impact assessment report (GHD, 2015b) and gravel pit revegetation strategy (MRWA, 2016) outline management measures in respect to minimising impacts to fauna, including:

- woody debris including large logs, hollow-bearing logs and limbs from felled trees should be stored for re-establishment following extraction;
- prior to the commencement of clearing and during clearing activities the project area should be searched for fauna (including trees and ground searched), and any fauna relocated into adjacent vegetated areas;
- clearing activities should avoid peak breeding times of threatened species;
- clearing should be undertaken from degraded areas towards better quality bushland on one front, to enable fauna to move out of the project area; and
- any native fauna disturbed during clearing should be allowed to make its own way to adjacent vegetated areas, and any injured fauna should be taken to a designated veterinary clinic or registered wildlife carer.

If granted, the clearing permit will include conditions for fauna management, offsets, and requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation, to mitigate these impacts.

To counterbalance the significant residual impacts the proposed clearing will have on black cockatoo and western ringtail possum habitat, the applicant will be required to provide an offset within three months of the clearing permit commencement date for approval by DER and subsequent implementation by the Permit Holder.

Methodology

References:

Commonwealth of Australia (2012)
DEC (2010)
DEC (2012a)
DEC (2012b)
DEC (2012c)
DEC (2012d)
DEC (2012e)
Garnett et al. (2011)
GHD (2015a)
GHD (2015b)
Jones et al. (1994)
Molloy et al. (2009)
MRWA (2016)
Parks and Wildlife (2007-)
Parks and Wildlife (2013)
Parks and Wildlife (2014)
Saunders (1990)
Saunders and Ingram (1998)
Shah (2006)
Valentine and Stock (2008)

GIS Databases:

- Virtual mosaic

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposed clearing is not likely to be at variance to this Principle

Four rare flora species have been mapped within the local area (10 kilometre radius).

A biological survey, incorporating a level 1 flora survey, was undertaken by GHD (2015a) within Lot 104 and adjacent Lot 2944 over a total area of 19.25 hectares which includes the application area. The field component of the biological survey was undertaken on 5 and 6 November 2014. A subsequent environmental impact assessment was undertaken within a portion of the surveyed area which included 5.91 hectares of native vegetation on Lot 104 (GHD, 2015b); the project area encompasses the application area.

No rare flora species were recorded within the surveyed area during the biological survey (GHD, 2015a), however noting the timing of the survey (November 2014) some annual species (such as orchids) may not have been present and other species may not have been flowering. The biological survey included an assessment of the likelihood of conservation significant flora occurring within the surveyed area, based on the range and habitat requirements of each species and the habitats present within the surveyed area (GHD, 2015a). That assessment concluded that at least two species listed as threatened under the *Wildlife Conservation Act 1950* (WC Act) could possibly occur within the surveyed area, but noted that based on the common and widespread mapped vegetation types and the absence of poorly-represented habitat types the likelihood of rare flora occurring within the surveyed area is limited (GHD, 2015a). The subsequent environmental impact assessment (GHD, 2015b) concluded that the occurrence of rare flora within the project area is unlikely.

On this basis it is considered that the vegetation under application is unlikely to include or be necessary for the continued existence of rare or priority flora.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
GHD (2015a)
GHD (2015b)

GIS Databases:
- SAC BioDatasets - accessed March 2016

(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.

Comments Proposed clearing is not likely to be at variance to this Principle

According to available databases, no known threatened ecological communities (TEC) have been mapped within the local area (10 kilometre radius).

A biological survey, incorporating a level 1 flora survey, was undertaken by GHD (2015a) within Lot 104 and adjacent Lot 2944 over a total area of 19.25 hectares which includes the application area. The field component of the biological survey was undertaken on 5 and 6 November 2014. No State or Commonwealth listed TECs were recorded within the surveyed area during the biological survey (GHD, 2015a; GHD, 2015b).

On this basis it is considered that the vegetation under application is unlikely to comprise or be necessary for the maintenance of a TEC.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
GHD (2015a)
GHD (2015b)

GIS Databases:
- SAC BioDatasets - accessed March 2016

(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.

Comments Proposed clearing is not likely to be at variance to this Principle

The local area (10 kilometre radius) retains approximately 35 per cent of its pre-European vegetation extent.

The application area is located within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion retains approximately 54 per cent of its pre-European vegetation extent (Government of Western Australia, 2014).

The vegetation under application is mapped as Beard vegetation association 3, which retains approximately 68 per cent of its pre-European extent within the Jarrah Forest IBRA bioregion (Government of Western Australia, 2014), and as Mattiske vegetation complex C2, which retains approximately 33 per cent of its pre-European vegetation extent (Parks and Wildlife, 2015).

The application area is located within the Shire of Augusta-Margaret River, which retains approximately 62 per cent of its pre-European vegetation extent (Government of Western Australia, 2014).

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). On the basis that the remaining vegetation extents are above the 30 per cent threshold, it is considered that the application area is unlikely to be located in an area that has been extensively cleared.

The application area is located within vegetation identified under the South West Regional Ecological Linkages (SWREL) project as having a proximity value of 1b (Molloy et al., 2009). SWREL linkages provide important corridors for the dispersal of native fauna and may include significant breeding and foraging habitat for local fauna. Areas with a proximity value of 1b are generally located within 200 metres of a linkage and provide supporting habitat to the linkage. The vegetation under application is in very good (Keighery, 1994) to excellent (Keighery, 1994) condition (DER, 2016; GHD, 2015a) and is likely to comprise significant habitat for conservation significant fauna species. On this basis it is considered that the vegetation under application may be significant as a remnant.

On the basis that the vegetation under application may be significant as a remnant and taking into account that the local area and vegetation types retain more than 30 per cent pre-European vegetation extents, it is considered that the vegetation under application is unlikely to be significant as a remnant in an area that has been extensively cleared.

Given the above, the proposed clearing is not likely to be at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Jarrah Forest	4 506 660	2 425 551	54	69
Local government*				
Shire of Augusta-Margaret River	211 681	131 717	62	75
Beard Vegetation Association in Bioregion*				
3	2 390 591	1 613 656	68	81
Mattiske Vegetation Complex**				
C2	13 688	4 459	33	6

Methodology

References:

- Commonwealth of Australia (2012)
- DER (2016)
- GHD (2015a)
- *Government of Western Australia (2014)
- Keighery (1994)
- **Parks and Wildlife (2015)

GIS Databases:

- Mattiske vegetation complexes
- NLWRA, current extent of native vegetation
- Pre-European vegetation
- SAC BioDatasets - accessed March 2016
- Visual mosaic

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposed clearing is not at variance to this Principle

According to available databases, no watercourses or wetlands have been mapped within the application area. No vegetation growing in association with a watercourse has been observed within the application area (DER, 2016; GHD, 2015a).

Given the above, the proposed clearing is not at variance to this principle.

Methodology

References:

- DER (2016)
- GHD (2015a)

GIS Databases:

- Hydrography, linear
- Hydrography, hierachy

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposed clearing may be at variance to this Principle

The soil within the application area is mapped as MT8; gently undulating terrain of broad shallow valleys and low ridges with moderate amounts of laterite and lateritic (ironstone) gravel: chief soils of the broad shallow

valleys are acid grey earths sometimes containing ironstone gravels. Associated are leached sands in valley deposits and outwash areas; soils containing ironstone gravels on ridges and their slopes and areas of block laterite; and minor areas of various soils on river terraces (Northcote et al., 1960-68).

The Department of Agriculture and Food Western Australia has mapped the associated land degradation risk for the majority of the application area as:

- 3 - 10 per cent of the map unit has a high to extreme water erosion risk (second lowest risk rating out of six risk categories); and
- 30 - 50 per cent of the map unit has a high to extreme salinity risk (third highest risk rating out of six risk categories); and
- Less than three per cent of the map unit has a moderate to very high waterlogging risk (lowest risk rating out of six risk categories); and
- 30 - 50 per cent of the map unit has a high to extreme wind erosion risk (third highest risk rating out of six risk categories).

The groundwater salinity within the application area is 1000-3000 milligrams per litre of total dissolved solids. This level of groundwater salinity is considered to be brackish.

Noting the mapped salinity and wind erosion risk, it is considered that the proposed clearing may cause appreciable land degradation.

Given the above, the proposed clearing may be at variance to this principle.

Mitigation measures would be required to manage the potential impacts of the proposed clearing. The applicant's environmental impact assessment report (GHD, 2015b) and gravel pit revegetation strategy (MRWA, 2016) outline management measures in respect to managing the risk of land degradation, including:

- if any suspected acid sulfate soils are uncovered the material will be tested and treated, and management actions implemented;
- clearing should only be undertaken when necessary and areas requiring soil stabilisation should be treated as soon as practicable;
- project activities should cease during periods of high wind or when excessive dust is generated;
- in the autumn following the completion of gravel extraction, which is anticipated to be completed during 2017/18, revegetation of the project area will commence; and
- species selection for revegetation will use native species that have been recorded within the project area), provide habitat for black cockatoos and the western ringtail possum, and have a proven success in rehabilitation works.

If granted, the clearing permit will include conditions requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation, to mitigate these impacts.

Methodology

References:

GHD (2015b)
MRWA (2016)
Northcote et al. (1960-68)

GIS Databases:

- Groundwater Salinity, Statewide
- Soils, Statewide
- Water Erosion
- Waterlogging
- Wind Erosion

(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.

Comments

Proposed clearing may be at variance to this Principle

The closest conservation area is Bramley National Park, located approximately 1.3 kilometres south of the application area.

The application area is located within vegetation identified under the South West Regional Ecological Linkages (SWREL) project as having a proximity value of 1b (Molloy et al., 2009). SWREL linkages provide important corridors for the dispersal of native fauna and may include significant breeding and foraging habitat for local fauna. Areas with a proximity value of 1b are generally located within 200 metres of a linkage and provide supporting habitat to the linkage.

On the basis of the above, it is considered that the proposed clearing vegetation It is considered that the proposed clearing may contribute to degradation of the quality of the linkage, and therefore impact fauna movement between conservation areas and remnants of vegetation.

Given the above, the proposed clearing may be at variance to this principle.

The applicant's environmental impact assessment report (GHD, 2015b) and gravel pit revegetation strategy

(MRWA, 2016) outline management measures in respect to managing the risk of weeds and dieback, including:

- clearing activities should not be undertaken during wet soil conditions, where possible;
- plant, machinery, equipment, tools and footwear will be cleared down prior to arrival and prior to departure from the project area, and cleandown will consist of brushing, gouging, scraping and/or water blasting to remove any compacted soil or plant matter;
- any mulch or compost brought to the project area will be free of weeds; and
- periodic weed control on gravel stockpiles and in disturbed area to reduce weed density should be undertaken as required.

If granted, the clearing permit will include conditions for dieback and weed control, and requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation, to mitigate these impacts.

Methodology

References:

Molloy et al. (2009)
GHD (2015b)
MRWA (2016)

GIS Databases:

- Parks and Wildlife Tenure
- NLWRA, Current Extent of Native Vegetation
- Virtual mosaic

(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.

Comments

Proposed clearing may be at variance to this Principle

According to available databases, no watercourses or wetlands have been mapped within the application area. No vegetation growing in association with a watercourse has been observed within the application area (GHD, 2015a; DER, 2016). On this basis it is considered that the proposed clearing is unlikely to cause deterioration in the quality of surface water.

The groundwater salinity within the application area is 1000-3000 milligrams per litre of total dissolved solids. This level of groundwater salinity is considered to be brackish. Approximately 30-50 per cent of the map unit has a high to extreme salinity risk (third highest risk rating out of six risk categories). It is considered that the proposed clearing may cause an increase in groundwater salinity levels.

The application area does not occur within a *Country Area Water Supply Act 1914* area or a Public Drinking Water Source Area.

Given the above, the proposed clearing may be at variance to this principle.

Mitigation measures would be required to manage the potential impacts of the proposed clearing. The applicant's environmental impact assessment report (GHD, 2015b) and gravel pit revegetation strategy (MRWA, 2016) outline management measures in respect to managing the risk of water deterioration, including:

- vegetation removal and soil disturbance will be minimised, where practicable;
- existing natural drainage in the vicinity of the project area will not be unnecessarily blocked, restricted or diverted during project activities;
- all spills will be contained immediately and removed within 24 hours to minimise the potential for contaminants to enter groundwater; and
- if any suspected acid sulfate soils are uncovered the material will be tested and treated, and management actions implemented.

If granted, the clearing permit will include conditions requiring the applicant to implement its environmental management plans, incorporating rehabilitation and revegetation, to mitigate these impacts.

Methodology

References:

DER (2016)
GHD (2015a)
GHD (2015b)
MRWA (2016)

GIS Databases:

- Country Area Water Supply Act (Part IIA) – Clearing Control Catchments
- Groundwater Salinity, Statewide
- Hydrography, Linear
- Hydrography, Hierarchy
- Public Drinking Water Source Areas

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments Proposed clearing is not likely to be at variance to this Principle

The soil within the application area is mapped as MT8; gently undulating terrain of broad shallow valleys and low ridges with moderate amounts of laterite and lateritic (ironstone) gravel: chief soils of the broad shallow valleys are acid grey earths sometimes containing ironstone gravels. Associated are leached sands in valley deposits and outwash areas; soils containing ironstone gravels on ridges and their slopes and areas of block laterite; and minor areas of various soils on river terraces (Northcote et al., 1960-68).

The Department of Agriculture and Food Western Australia has mapped the flood risk for the application area as less than three per cent of the map unit with a moderate to high flood risk, being the lowest risk category.

Noting the low flood risk rating, it is considered that the proposed clearing is unlikely to cause or exacerbate flooding.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
Northcote et al. (1960-68)

GIS Databases:
- Flood Risk
- Soils, Statewide

Planning instruments and other relevant matters.

Comments The applicant's project (encompassing the proposed clearing) was referred to the Commonwealth Department of the Environment (DotE) in October 2015 for assessment under the *Environment Protection and Biodiversity Conservation Act 1999*, as the applicant considered that the project, being the construction of a gravel pit impacting 5.91 hectares of native vegetation on Lot 104 (GHD, 2015b), would impact four threatened fauna species and a migratory bird species (GHD, 2015c). The DotE determined that the proposed action was not a 'controlled action' on 17 December 2015.

The application was advertised in *The West Australian* newspaper on 18 January 2016 for a 21 day submission period. No public submissions were received.

The proposed clearing is zoned 'priority agriculture' under the town planning scheme.

There are no Aboriginal Sites of Significance mapped within the application area.

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 511(2)(b) of the EP Act, in order to mitigate the significant environment impacts described above the Permit Holder is required to provide an offset within three months of the clearing permit commencement date for approval by DER and subsequent implementation by the Permit Holder.

Methodology References:
GHD (2015c)

GIS Databases:
- Aboriginal Sites Register System
- Town Planning Scheme Zones

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