



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 7853/1
File Number: 2017/002005
Duration of Permit: From 26 May 2018 to 26 May 2020

PERMIT HOLDER

Jessica Dang Tran
Thanh Phong Huynh

LAND ON WHICH CLEARING IS TO BE DONE

Lot 100 on Plan 14371, Nowergup.

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 2.2 hectares of native vegetation within the area cross-hatched yellow on attached Plan 7853/1.

CONDITIONS

1. **Avoid, minimise and reduce the impacts and extent of clearing**

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

2. **Wind erosion management**

The Permit Holder shall not clear native vegetation unless the establishment of horticultural crops begins within three months of the clearing being undertaken.

3. **Dieback and weed control**

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

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no dieback or weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. **Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) 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;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit;

- (e) actions taken to manage the risk of wind erosion in accordance with condition 2 of this Permit;
and
- (f) actions taken to manage the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 3 of this Permit.

5. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 4 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

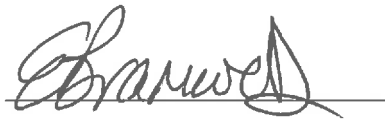
dieback means the effect of *Phytophthora* species on native vegetation;

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

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;

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 Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Emma Bramwell
A/MANAGER
CLEARING REGULATION



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

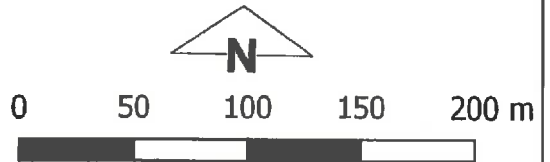
27 April 2018

PLAN 7853/1



Legend

-  Areas approved to clear cadastre
-  Cadastre
- WANow_Imagery



MGA94
Geocentric Datum of Australia 1994
BRAMWEE Date... 27/04/18
BRAMWEE
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.: 7853/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Jessica Dang Tran
Thanh Phong Huynh
Application received date: 06 November 2017

1.3. Property details

Property: Lot 100 on Plan 14371, Nowergup
Local Government Authority: City of Wanneroo
Localities: Nowergup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
2.2		Mechanical Removal	Horticulture

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 27 April 2018
Reasons for Decision: The clearing permit application was received on 6 November 2017 and 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). It has been concluded that the proposed clearing may be at variance to clearing principle (d), and is not likely to be at variance to the remaining clearing principles.

The Delegated Officer took into consideration the applicant's avoidance and minimisation measures. The Delegated Officer determined that the proposed clearing may impact on vegetation that may be necessary for the maintenance of a TEC through the introduction or spread of weeds and dieback, and may result in wind erosion.

In determining to grant a clearing permit subject to conditions to manage these impacts, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description: This application is for the proposed clearing of 2.2 hectares of native vegetation within Lot 100 on Plan 14371, Nowergup, for the purpose of expanding horticultural activities on the property.

Vegetation Description: The application area mapped as Heddle vegetation complex 52, described as a mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of Tuart - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the limestone outcrops (Heddle et al 1980).

In October 2016, a flora and vegetation survey of 8.64 hectares of remnant native vegetation on the property, including the application area, was undertaken by MBS Environmental. This survey comprised foot traverses, opportunistic flora recordings and the surveying of two 10 metre by 10 metre quadrats for flora species composition, heights and density (MBS Environmental 2017a). Photographs were taken at several locations on the property, including the quadrats, to document the vegetation and flora identified in the survey area (MBS Environmental 2017a). Signs of any historical or more recent disturbance and regeneration were noted, and any evidence of the presence of fauna was recorded, with a targeted search undertaken for trees with the potential to form or contain hollows suitable for nesting by Black Cockatoo species (MBS Environmental 2017a).

MBS Environmental advised that the flora and vegetation survey was planned and implemented, as far as practicable, according to *Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004a) and *Guidance Statement No. 56: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004b) (MBS Environmental 2017a).

The flora and vegetation survey identified the following vegetation community on the property: low open woodland of *Banksia attenuata* (Candle Banksia), *Banksia menziesii* (Firewood Banksia) and *Eucalyptus tottiana* (Pricklybark) over shrubland dominated by *Hibbertia hypericoides* (Yellow Buttercups), *Eremaea* spp., *Acacia pulchella* (Prickly Moses), *Macrozamia riedleii* (Zamia), *Xanthorrhoea preissii* (Grasstree), *Mesomelaena pseudostygia* and *Patersonia occidentalis* (Purple Flag) (MBS Environmental 2017b).

Vegetation Condition:

Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it (Keighery 1994).

To

Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration. But not to a state approaching good condition without intensive management (Keighery 1994).

The condition of the vegetation in the application area was determined from the flora and vegetation survey and confirmed during an inspection of the application area undertaken by officers from the Department of Water and Environmental Regulation in February 2018. Approximately 0.49 hectares of the application area contains vegetation in Good (Keighery 1994) condition and 1.71 hectares in Degraded (Keighery 1994) condition.

Soil/Landform Type:

The application area is within the mapped Karrakatta Sand Yellow Phase subsystem, characterised as low hilly to gently undulating terrain; yellow sand over limestone at 1-2 m; *Banksia* spp. woodland with scattered emergent Tuart and Jarrah and a dense shrub layer (Department of Primary Industry and Regional Development 2017).

Comments:

The local area referred to in this assessment is defined as the area within a 10 kilometre radius of the application area. The local area retains approximately 45 per cent native vegetation cover, a large portion of this within conservation estate.

Figure 1: Application area (shown in blue) and Lot boundaries (shown in yellow).



3. Minimisation and mitigation measures

The applicant advised that the application area has been located within vegetation predominantly in Degraded (Keighery 1994) condition, having the lowest native flora species density, the poorest quality fauna habitat and the highest invasive flora species cover when compared to other areas of remnant vegetation on the property (MBS Environmental 2017a). The applicant advised that the application area will be demarcated with survey pegs to ensure the proposed clearing is limited (MBS Environmental 2017a). The applicant has also committed to using disturbed areas where possible and to cleaning earth moving equipment prior to entering the application area to minimise the spread of invasive flora species (MBS Environmental 2017a).

4. Assessment against clearing principles, planning instruments and other relevant matters

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

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

As discussed in Section 2, the application area is situated in vegetation which ranges in condition from Degraded (Keighery 1994) to Good (Keighery 1994). Desktop assessments undertaken prior to the flora and vegetation survey identified 224 flora species recorded within the local area (MBS Environmental 2017a). A total of 104 vascular plant species representing 43 plant families and 83 genera, including 30 introduced species, were recorded during the flora and vegetation survey (MBS Environmental 2017a). The most common families recorded were Fabaceae (13 species), Myrtaceae (nine species) and Proteaceae (nine species) (MBS Environmental 2017a).

The introduced flora species recorded during the flora and vegetation survey included *Zantedeschia aethiopica* (Arum Lily) (MBS Environmental 2017b). The Arum Lily is listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (Department of Primary Industries and Regional Development 2018a). The flora and vegetation survey determined that weed cover was highest in the application area (MBS Environmental 2017a). The proposed clearing may impact on the environmental values of adjacent remnant native vegetation through increased edge effects, and the introduction and spread of weeds and pathogens. Weed and pathogen management practices will assist in managing these impacts.

The flora and vegetation survey identified habitat within the application area that was considered suitable for three Priority listed flora species known to occur in the local area (MBS Environmental 2017b):

- *Leucopogon* sp. Yanchep (M. Hislop 1986) (Priority 3) is known from 31 records within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion from varying soil types and landscape positions (Western Australian Herbarium 1998-). The closest recorded occurrence of this species has been recorded approximately 4.5 kilometres from the application area. When the condition of the vegetation in the application area is considered, it is unlikely the application area comprises suitable habitat for this species;
- *Styliidium maritimum* (Priority 3) is known from 41 records within the Geraldton Sandplains and Swan Coastal Plain IBRA bioregions from varying soil types and landscape positions (Western Australian Herbarium 1998-). The closest recorded occurrence of this species has been recorded approximately 1.1 kilometres from the application area. When the condition of the vegetation in the application area is considered, it is unlikely the application area comprises suitable habitat for this species; and
- *Jacksonia sericea* (Priority 4) is known from 58 records within the Swan Coastal Plain IBRA bioregion from varying soil types and landscape positions (Western Australian Herbarium 1998-). The closest recorded occurrence of this species has been recorded approximately 4.5 kilometres from the application area. When the condition of the vegetation in the application area is considered, it is unlikely the application area comprises suitable habitat for this species.

A review of available databases determined that 26 Priority listed flora species have been recorded within the local area. These species have been recorded occurring in varying soil types and landscape positions. Based on the condition of the vegetation and the habitats found in the application area, these species are unlikely to be present in the application area. As discussed under Principle (c), three rare flora species have been recorded within the local area. The application area does not contain suitable habitat for these species. The flora and vegetation survey did not identify rare flora within the application area (MBS Environmental 2017a). On this basis, the proposed clearing is unlikely to impact upon rare flora. No flora species of conservation significance were recorded during the flora and vegetation survey (MBS Environmental 2017a).

The vegetation within the application area shares characteristics of the ecological community '*Banksia* dominated woodlands of the Swan Coastal Plain IBRA region', listed as a 'Priority 3(iii)' priority ecological community (PEC) by the Department of Biodiversity, Conservation and Attractions. These characteristics include the domination or co-domination of the canopy by *Banksia* species and its occurrence on sandplain landforms (Department of Biodiversity, Conservation and Attractions 2017a). The application area is not contained within any mapped extents of this PEC, and the nearest occurrence is the PEC '*Banksia* dominated woodlands of the Swan Coastal Plain IBRA region' situated 1.5 kilometres east of the application area, separated from the application area by remnant bushland and agriculture activities. Based on the condition of the vegetation, the application area is not likely to be representative of this PEC. The ecological community '*Banksia* dominated woodlands of the Swan Coastal Plain IBRA region' is also listed as an 'Endangered' threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). TECs are discussed further under Principle (d).

As discussed under Principle (b), a review of available databases found that 14 fauna species of conservation significance have the potential to occur in the local area. Given the condition of the vegetation within the application area and the extent of remnant native vegetation remaining in the local area including within conservation estate, the application area is unlikely to comprise significant habitat for indigenous fauna including species of conservation significance.

Based on the above, the application area is unlikely to comprise a high level of biological diversity. The proposed clearing is not likely to be at variance to this 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 indigenous to Western Australia.

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

As outlined in Section 2, the vegetation within the application area comprises a *Banksia* woodland with variable density understorey on deep sandy soil (MBS Environmental 2017a).

A review of the Nature Map database determined that 48 conservation significant fauna species have been recorded within the local area (Department of Biodiversity, Conservation and Attractions 2007-). Excluding marine and migratory species, species endemic to Rottnest Island, species whose habitat requirements clearly do not occur in the application area, and species which are presumed extinct, the application area may comprise suitable habitat for the following species:

- Brush-tailed Bettong (*Bettongia penicillata* subsp. *ogilbyi*) (Endangered under the *Wildlife Conservation Act 1950* (WC Act), Endangered under the EPBC Act);
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (Endangered under the WC Act, Endangered under the EPBC Act);
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) (Endangered under the WC Act, Endangered under the EPBC Act);
- Western Quoll (*Dasyurus geoffroii*) (Vulnerable under the WC Act, Vulnerable under the EPBC Act);
- Western Barred Bandicoot (*Perameles bougainville* subsp. *bougainville*) (Vulnerable under the WC Act, Endangered under the EPBC Act);
- Biting Midge (Southwest) (*Austroconops mcmillani*) (Priority 2);
- Bush Cricket (Swan Coastal Plain) (*Austrosaga spinifer*) (Priority 3);
- Woollybush Bee (*Hylaeus globuliferus*) (Priority 3);
- Black-striped Snake (*Neelaps calonotos*) (Priority 3);
- Masked Owl (southwest) (*Tyto novaehollandiae* subsp. *novaehollandiae*) (Priority 3);
- Southern Brown Bandicoot (*Isodon obesulus*) (Priority 4);
- Western Brush Wallaby (*Macropus Irma*) (Priority 4); and
- Graceful Sunmoth (*Synemon gratiosa*) (Priority 4).

A review of the Protected Matters Search Tool determined that the following fauna species protected under the EPBC Act could potentially occur in the local area. Excluding marine and migratory species, species endemic to Rottnest Island, and species whose habitat requirements clearly do not occur within the application area, the application area may also comprise suitable habitat for the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) (Vulnerable under the WC Act, Vulnerable under the EPBC Act).

Noting the habitat preferences of the above species and the habitat and vegetation types within the application area, the application area is not likely to include suitable habitat for the following species:

- The Brush-tailed Bettong was found across most of southern and central Australia prior to European settlement (Department of Biodiversity, Conservation and Attractions 2017b). This species is endemic to the south-west of Western Australia, but is now known to occur in only two areas, the Upper Warren and Dryandra Woodlands (Department of Biodiversity, Conservation and Attractions 2017b). There are also populations which have been re-established at Batalling and inside fenced areas at Mt Gibson, Karakamia and the Whiteman Park Woodlands (Department of Biodiversity, Conservation and Attractions 2017b).
- The Western Quoll is patchily distributed through the Jarrah forests and mixed Karri / Marri / Jarrah forests of south-west Western Australia (Department of Environment and Conservation 2012a). This species also occurs in very low numbers in the Midwest, Wheatbelt and South Coast Regions (Department of Environment and Conservation 2012a). The Western Quoll is believed to have disappeared from the Swan Coastal Plain by the 1930s (Australian Wildlife Conservancy 2018).
- The Western Barred Bandicoot was last recorded on mainland Western Australia in 1943 (Department of Environment Conservation 2012b). This species is today restricted to Bernier and Dorre Islands in Shark Bay, with reintroduced populations established at Heirisson Prong and Faure Island at Shark Bay and Roxby Downs in South Australia (Department of Environment Conservation 2012b).
- The online Atlas of Living Australia indicates that relatives of the Biting Midge (Southwest) are generally associated with aquatic habitats and very wet soils.

Noting the habitat preferences of the above species and the habitat and vegetation types within the application area, the application area is likely to include suitable habitat for the following species, however noting the extent of the proposed clearing and the condition of the vegetation within the application area, and the extent of remnant native vegetation remaining in the local area, the application area is not likely to comprise significant habitat for these species:

- The Southern Brown Bandicoot is patchily distributed through the Jarrah and Karri Forests of South Western Australia, the Swan Coastal Plain and inland to Hyden, as well as a series of nature reserves where this species has been reintroduced over the years (Department of Environment and Conservation 2012c). This species prefers scrubby, swampy vegetation with a dense cover up to 1 metre high and often feeds in adjacent forest and woodland that is burnt regularly (Department of Environment and Conservation 2012c). The Southern Brown Bandicoot also feeds in areas of pasture and cropland lying close to dense cover (Department of Environment and Conservation 2012c). On the Swan Coastal Plain, this species is often associated with wetlands (Department of Environment and Conservation 2012c).
- The Western Brush Wallaby is known to inhabit a wide variety of habitats, including open forest and woodland, mallee, healthland, low open grasses and scrubby thickets (IUCN Redlist 2018b).
- The Black-striped Snake is a terrestrial burrowing snake found in *Banksia* spp. woodlands and sandy areas of the Perth region (Western Australian Museum 2018).
- The Masked Owl inhabits forests, woodlands and timbered waterways and open country on the fringes of these habitats (Birdlife Australia 2018). The main habitat requirements for this species are tall trees with suitable hollows for both nesting and roosting and adjacent areas for foraging (Birdlife Australia 2018). The flora and vegetation survey did not identify any hollow-bearing trees in the application area (MBS Environmental 2017a).

- The online Atlas of Living Australia indicates that relatives of the Bush Cricket (Swan Coastal Plain) are associated with leaf litter, and the Woollybush Bee and Graceful Sunmoth are associated with specific vegetation and/or landform types.

The Baudin's Cockatoo, Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo breed in the hollows of long-lived, suitably sized tree's (Department of Biodiversity, Conservation and Attractions 2017c, d and e). These hollows are often found in trees over 100 years of age, have a diameter of approximately 30-40 centimetres and can be over a metre in depth (Department of Biodiversity, Conservation and Attractions 2017c, d and e). During the flora and vegetation survey, no trees containing suitable hollows to support the breeding of Black Cockatoo species were identified (MBS Environmental 2017a). *Banksia* sp. are known to comprise an important component of the diet of both the Baudin's Cockatoo and Canaby's Cockatoo (Department of Biodiversity, Conservation and Attractions 2017c and d). The flora and vegetation survey identified suitable foraging habitat for these species within the application area (MBS Environmental 2017a). The flora and vegetation survey also determined that the quality of the foraging habitat available for these species varies from excellent in the eastern portion of the property, to poor in the northwest corner of the property (in which the application area is located) (MBS Environmental 2017a). Noting the condition of the vegetation within the application area and the extent of vegetation in the local area, the application area is unlikely to comprise significant foraging habitat for these species.

Based on the above, the application area is unlikely to comprise the whole or a part of, or be necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia, including conservation species. The proposed clearing is not likely to be at variance to this Principle.

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

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

No flora species listed as threatened under State or Commonwealth legislation were identified within the application area during the flora and vegetation survey (MBS Environmental 2017a).

A review of available databases has determined that three threatened flora species listed under the *Wildlife Conservation Act 1950* have been recorded in the local area.

The first species is known from 42 records from the Swan Coastal Plain IBRA bioregion from varying soil types and landscape positions (Western Australian Herbarium 1998-). The closest record of this species is approximately 1.9 kilometres from the application area (Western Australian Herbarium 1998-). This species is distinctive, long lived and grows to between 1.5 and four metres in height (Western Australian Herbarium 1998-). These attributes would have served to increase the likelihood of this species detection during the flora and vegetation survey, had it been present. In addition, the preferred habitats of this species are not found in the application area (Western Australian Herbarium 1998-). On this basis, this species is unlikely to occur within the application area.

The second species is known from six records from the Swan Coastal Plain IBRA bioregion from white sand over limestone and low coastal cliffs (Western Australian Herbarium 1998-). The closest record of this species is approximately 8.1 kilometres from the application area (Western Australian Herbarium 1998-). The preferred habitats of this species are not found in the application area. On this basis, this species is unlikely to occur within the application area.

The third species is known from five records from the Perth IBRA subregion from varying soil types and landscape positions (Western Australian Herbarium 1998-). The closest record of this species is approximately 1.7 kilometres from the application area. The preferred habitats of this species are not found in the application area. On this basis, this species is unlikely to occur within the application area.

Given the above, the application area is unlikely to include, or be necessary for the continued existence of, rare flora. The proposed clearing is not likely to be at variance to this 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.

Proposed clearing may be at variance to this Principle

The flora and vegetation survey determined that the vegetation within the application area shares characteristics of the Commonwealth-listed TEC '*Banksia* Woodlands of the Swan Coastal Plain IBRA region'. The Approved Conservation Advice for this TEC specifies a number of criteria for vegetation to be considered representative of this TEC (Threatened Species Scientific Committee 2016). These criteria include the situation of the vegetation on sandplain landforms, a structure of low woodland or forest, the presence of a dominant *Banksia* component which includes at least one of *Banksia attenuata* (candlestick banksia), *B. menziesii* (firewood banksia), *B. prionotes* (acorn banksia) and/or *B. ilicifolia* (holly-leaved banksia), with/without the presence of emergent medium-height trees comprised of species including *Eucalyptus* spp. or *Allocasuarina* spp., with a species-rich schlerophyllous understorey and herbaceous ground layer (TSSC, 2016). These criteria also specify minimum patch sizes and condition ratings, which include a requirement that a patch should meet at least a 'Good' (Keighery 1994) condition rating, and a minimum patch sizes of two hectares for vegetation in 'Good' (Keighery 1994) condition (Threatened Species Scientific Committee 2016).

As outlined in Section 2, the vegetation within the application area includes Candle Banksia, Firewood Banksia and Pricklybark over a mixed shrubland on a sandy soil. On this basis, the application area appears to meet the key diagnostic requirements for the TEC in regard to soil and landform, structure, and vegetation composition. However, on the basis of the condition of the vegetation and the extent of the proposed clearing, the application area does not meet the minimum patch size to be classified as this TEC. Notwithstanding, noting the presence of adjacent vegetation of similar type and condition as that present within the application area, the application area may be necessary for the maintenance of an adjacent occurrence of this TEC.

Given the above, the application area is unlikely to comprise the whole or a part of a TEC, however may be necessary for the maintenance of a TEC. The proposed clearing may be at variance to this Principle. Weed and pathogen management practices will assist in managing impacts to adjacent vegetation.

(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.

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

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).

As indicated in Table 1, the local area, the Swan Coastal Plain bioregion, the City of Wanneroo and the mapped vegetation association are above the recommended 30 per cent retention threshold. The proposed clearing represents less than 0.02 per cent of the current extent of remnant native vegetation within the local area.

As discussed under Principles (a), (b), (c) and (d), the application area is unlikely to comprise a high level of biological diversity, or comprise significant habitat for indigenous fauna including conservation significant species, or be necessary for the maintenance for rare flora species, or comprise a TEC (although it may be necessary for the maintenance of a TEC).

Given the above, the application area is unlikely to be significant as a remnant of native vegetation in an area that has been extensively cleared. The proposed clearing is not likely to be at variance to this Principle.

Table 1: Vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DCBA Managed Lands	
				(ha)	(%)
IBRA Bioregion*					
Swan Coastal Plain	1,501,221.93	578,997.37	38.57	222,766.51	38.47
Local government authority*					
City of Wanneroo	67,516.72	29,755.48	44.07	16,029.15	53.87
Beard vegetation association*					
52	45,299.91	14,571.43	32.17	6,591.78	14.55

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

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

A review of available databases and aerial imagery has determined that no surface water features are present in the application area or its immediate surrounds. The closest surface water feature is a swamp situated approximately 1.8 kilometres from the application area. The DWER site inspection determined that no surface water features were present within the application area or its immediate surrounds, and that no vegetation associated with surface water features will be impacted by the proposed clearing (Department of Water and Environmental Regulation 2018). Due to the separation distance between the application area and the nearest surface water feature, no impacts to vegetation communities associated with surface water features are expected to result from the proposed clearing.

Given the above, the proposed clearing is unlikely to impact vegetation growing in, or in association with, an environment associated with a watercourse or wetland. The proposed clearing is not likely to be at variance to this Principle.

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

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

As discussed in Section 2, the application area is within the mapped Karrakatta Sand Yellow Phase land system (Department of Primary Industry and Regional Development 2017). A review of available databases has determined that this land system has a high risk of wind erosion, a moderate risk of soil salinity and a low risk of water logging, water repellence, water erosion, subsurface compaction and acidification, phosphorous export and flooding.

A review of aerial photography of the property did not identify evidence of land degradation impacts associated with the existing agricultural activities. Notwithstanding, noting the extent of the proposed clearing and the sandy soils present within the application area, and the abovementioned high risk of wind erosion, the proposed clearing may cause wind erosion if soils are left exposed. Noting the position of the application area between land cleared for agricultural purposes and remnant vegetation, alongside the condition of the vegetation within the application area, any wind erosion resulting from the proposed clearing is expected to be minimal. Notwithstanding, limiting the length of time that soils are left exposed will assist in managing this risk.

An inspection of the application area by the Office of the Commissioner of Soil and Land Conservation on 23 January 2018 determined that the application area is in the mid-slope position of the landscape, and that the risk of appreciable land degradation occurring as a result of the proposed clearing is low (Department of Primary Industries and Regional Development 2018b).

Given the above, the proposed clearing is not likely to cause appreciable land degradation. The proposed clearing is not likely to be at variance to this 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.

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

A review of available databases indicates that the Gngangara-Moore River State Forest and Bush Forever site 290 are situated 400 metres to the east of the application area. A privately-managed conservation area is located approximately 1.2 kilometres from the application area. The application area is also situated approximately 1.7 kilometres east north-east of the Neerabup Nature Reserve, approximately three kilometres east of the Neerabup National Park, and approximately six kilometres south east of Yanchepp National Park.

Noting the separation distances, and presence of remnant native vegetation and existing agricultural land uses, between the application area and these conservation areas, the proposed clearing is not likely to impact on the environmental values of these conservation areas. Noting the extent of remnant native vegetation in the local area, the application area is also not likely to be crucial to the interconnectivity of these conservation areas and the proposed clearing is unlikely to impact upon the biodiversity and species recruitment of these conservation areas.

Based on the above, the proposed clearing is unlikely to impact on the environmental values of any nearby conservation areas. The proposed clearing is not likely to be at variance to this 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.

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

As discussed in Principle (g), the Karrakatta Sand Yellow Phase Land System has a low risk of land degradation impacts, including water erosion leading to sedimentation (Department of Primary Industry and Regional Development 2017). The findings of the site inspection undertaken by the Office of the Commissioner of Soil and Land Conservation indicate that the application area has a low likelihood of experiencing land degradation impacts from the proposed clearing activities and the final land use (Department of Primary Industry and Regional Development 2018b)). As discussed in Principle (f), the application area is devoid of surface water features.

Noting the above, and the size of the application area, surface water runoff into the surrounding environment as a result of the proposed clearing is expected to be minimal. Furthermore, a review of the existing agricultural areas on the property using aerial photography has not identified evidence of the sedimentation of surface water flows. On this basis, the proposed clearing is unlikely to result in deterioration in the quality of surface water.

The depth of groundwater resources beneath the application area is 30-40 metres below ground level (MBS Environmental 2017a). Noting this, and the size of the application area, the proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

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

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

As discussed in Principle (g), the Karrakatta Sand Yellow Phase land system shows a low potential for flooding (Department of Primary Industry and Regional Development 2017). The Office of the Commissioner of Soil and Land Conservation advised that the application area has a low likelihood of experiencing land degradation impacts as a result of both the proposed clearing activities and the post clearing land use (Department of Primary Industry and Regional Development 2018b).

As discussed in Principle (f), the application area is devoid of surface water features. A review of the topographic contours of the local area found that the application area has relatively consistent topography. These factors are expected to limit both surface water accumulation within the application area and runoff out of the application area as a result of the proposed clearing. Noting the above, the size of the application area, and the extent of remnant native vegetation remaining in the local area, no changes to the local areas flooding regime are expected to result from the proposed clearing.

Given the above, the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding. The proposed clearing is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

MBS Environmental (2017a) advises that a development application for the historic and current cultivation area and proposed expansion activities has been submitted to the City of Wanneroo and was approved on 5 October 2017. The application was referred under the EPBC Act to the Department of the Environment and Energy (DotEE) on 20 September 2017, for assessment regarding the impact of the clearing activities on the following matters of national significance:

- The 'Banksia Woodlands of the Swan Coastal Plain IBRA region' TEC;
- Carnaby's Cockatoo; and
- Forest Red-tailed Black Cockatoo.

On 6 December 2017, the DotEE advised that the proposed clearing was not a controlled action.

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

The clearing permit application was advertised on the DWER website on 15 January 2018 with a 14 day submission period. No public submissions have been received in relation to this application.

An inspection of the application area by the Office of the Commissioner of Soil and Land Conservation on 23 January 2018 determined that the application area has a moderate to high capability for the intended land use and a low risk of appreciable land degradation occurring as a result of the proposed clearing and subsequent land use (Department of Primary Industries and Regional Development 2018b).

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GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Tenure
- Hydrography, Basins
- Hydrography, Geodata
- Hydrography, Hierarchy
- Hydrography, Hydro Lines
- Hydrography, Swan Waterbodies
- Hydrography, Swan Drainage Lines
- Hydrography, Linear
- Remnant Vegetation
- SAC bio datasets
- Soils, Statewide
- Swan Contours (50m)