GOVERNMENT OF WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 7698/1
File Number: DER2017/001313-1
Duration of Permit: From 4 January 2019 to 4 January 2021

ADVICE NOTE

The funds referred to in condition 4 of this permit are intended for contributing towards the purchase of 76 hectares of native vegetation with similar environmental values and containing habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*).

PERMIT HOLDERS

Do Huynh 1 Property Holdings Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 130 on Deposited Plan 36979, Muckenburra.

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 44.9 hectares of native vegetation within the area cross hatched yellow on the attached Plan 7698/1.

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. **Period in which clearing is authorised**
   The Permit Holder must ensure that the planting of crop species occurs within three months of the authorised 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 known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
   (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. **Monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation (offset)**
   Prior to undertaking any clearing authorised under this Permit and no later than 4 January 2020, the Permit Holder shall provide documentary evidence to the *CEO* that funding of $157,320 has been transferred to the Department of Water and Environmental Regulation to purchase land for the purpose of establishing or maintaining native vegetation.

5. 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) the date the intended crops species were planted in accordance with condition 2 of this Permit;
(f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 3 of this Permit; and
(g) the date the funds were provided to the *CEO* in accordance with condition 4 of this Permit.

6. 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 5 of this Permit; and
  (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
(c) Prior to 4 October 2020, the Permit Holder must provide to the *CEO* a written report of records required under condition 5 of this Permit, where these records have not already been provided under condition 6(a) of this Permit.

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.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

5 December 2018

Plan 7698/1

Legend

- Roads
- Imagery
- Clearing Instruments Activities
- Local Government Authority
- Cadastre

N

0 200m

1:7,988

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 5/12/2018

Mathew Gannaway

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

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7698/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Do Huynh 1 Property Holdings Pty Ltd
Application received date: 20 July 2017

1.3. Property details

Property: Lot 130 on Deposited Plan 36979, Muckenburra
Local Government Authority: Shire of Gingin

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 5 December 2018
Reasons for Decision:

The clearing permit 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). It has been concluded that the proposed clearing is at variance to principles (b) and (f), may be at variance to principle (g) and is not likely to be at variance to the remaining principles.

The clearing permit application was received on 20 July 2017. The initial application proposed the clearing of 74 hectares of native vegetation. The Department of Water and Environmental Regulation (DWER) wrote to the applicant on 1 November 2017 and 12 February 2018, to request additional information in order to progress the application, including the requirement for an adequate offset to be provided. Prior to DWER receiving the required information, and prior to a determination being made on the clearing permit application, it was identified that clearing of native vegetation within a portion of the application area had occurred.

Subsequently, on 19 September 2018, DWER wrote a letter to the applicant to advise that a review of aerial imagery had identified clearing within Lot 130, which included a portion of the current application area. Since receiving that letter the applicant has requested to amend the application area from 74 hectares to 44.9 hectares, to largely include the portion that had been cleared, based on its regenerative capacity, and exclude the vegetation in the eastern portion of the application area, which is of higher environmental value.

The assessment has been undertaken with consideration of the condition and extent of vegetation that existed prior to the abovementioned clearing.

The Delegated Officer noted the above amendment and determined that the proposed clearing will result in the removal of 21.5 hectares of significant foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*).

After consideration of the above, the Delegated Officer determined that the acquisition and conservation of 76 hectares of native vegetation that contains suitable foraging habitat for Carnaby's cockatoo will counterbalance the significant residual impacts to this species.

The Delegated Officer determined that the proposed clearing may also increase the spread of weeds and dieback into adjacent native vegetation that may be representative of a threatened ecological community. To minimise this impact, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

The Delegated Officer determined that the proposed clearing may lead to wind erosion due to the presence of sandy soils. To prevent the prolonged exposure of bare sandy soils and minimise the potential for wind erosion, a condition has been placed on the permit that requires the planting of the intended crops over the cleared areas within three months of the date of clearing.

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

2. Site Information

Clearing Description

The revised application is to clear 44.9 hectares of native vegetation within Lot 130 on Deposited Plan 36979, Muckenburra, for the purpose of horticulture (see Figure 1).

Vegetation Description

The application area is mapped as Heddle vegetation Karrakatta Complex-North, which comprises predominantly low open forest and low woodland of *Banksia* species and *Eucalyptus todtiana* (pricklybark), and less consistently open forest of *Eucalyptus gomphocephala* (tuart) - *Eucalyptus todtiana* (pricklybark) and *Banksia* species (Heddle et al., 1980).

A site inspection of the application area undertaken by DWER officers identified that the application area comprises scattered *Banksia menziesii*, *Banksia attenuata* and *Eucalyptus todtiana* over *Xanthorrhoea preissii*, *Adenanthos Cygnorum, Jacksonia* sp., *Stirlingia latifolia*, *Hibbertia hypericoides, Conostephium pendulum* and weed species. Other areas in a completely degraded (Keighery, 1994) condition comprise of scattered *Jacksonia* sp., and *Xanthorrhoea preissii* over weeds (DWER, 2017).

Vegetation Condition

The site inspection undertaken by DWER officers determined the condition of the vegetation within the application area to be in a good to completely degraded (Keighery, 1994) condition, described as:

- Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); to
- Completely Degraded: No longer intact; completely /almost completely without native species (Keighery, 1994).

Soil type

The application area is mapped as the following land subsystems:

- Bassendean Yeal swamp complex phase (approximately 94 per cent of the application area), which is described as low sandy rises and small seasonal swamps on aeolian sands over alluvial deposits in the pale deep sands with wet and semi-wet soils; and
- Bassendean seasonal swamps phase (approximately 6 per cent of the application area), which is described as depressions with free water in winter, with humus podzols and peat (Department of Primary Industries and Regional Development (DPIRD), 2017).

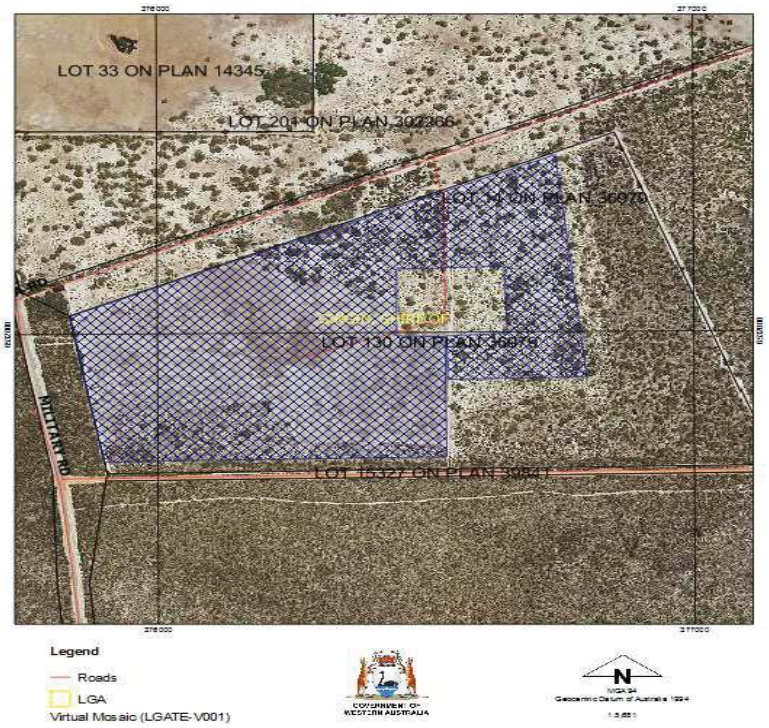

Fig 1: Proposed Clearing Area

3. Minimisation and mitigation measures

The applicant initially applied to clear 74 hectares of native vegetation, which included approximately 27.4 hectares of native vegetation in largely a very good to excellent (Keighery, 1994) condition. The applicant has since amended the application area from 74 hectares to 44.9 hectares, to exclude the highest quality vegetation (the 27.4 hectares in a very good to excellent condition) within Lot 130, and restrict it to vegetation in good to completely degraded (Keighery, 1994) condition.

4. Assessment of application against clearing principles

(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

The condition of the vegetation under application changes markedly throughout. The north western and central portion of the application area (approximately 25.6 hectares) has been historically cleared for horticulture and is in a completely degraded (Keighery, 1994) condition (DWER, 2017). From approximately the centre line of Lot 130 moving east, the condition of the vegetation generally improves to a degraded to good (Keighery, 1994) condition. There are also portions of vegetation in a good to degraded (Keighery, 1994) condition in the south western portion of the application area (DWER, 2017). The entirety of the areas in a good to degraded condition comprises 21.5 hectares. The remainder of the application area, being 23.4 hectares, is in a completely degraded (Keighery, 1994) condition (DWER, 2017).

A site inspection of the application area undertaken by DWER officers identified that the areas in a completely degraded (Keighery, 1994) condition largely comprise of scattered *Jacksonia* sp., and *Xanthorrhoea preissii* over weeds (DWER, 2017). The areas in a good to degraded (Keighery, 1994) condition largely comprise of *Banksia menziesii*, *Banksia attenuata* and *Eucalyptus todtiana* over *Xanthorrhoea preissii*, *Adenanthos Cygnorum, Jacksonia* sp., *Stirlingia latifolia*, *Hibbertia hypericoides* and *Conostephium pendulum*. Weed species are evident throughout these areas and the understorey is relatively sparse in parts (DWER, 2017).

The site inspection identified one small depression along the northern boundary of the application area, which appears to be seasonally waterlogged (mapped as a dampland). An existing fire break largely segregates the dampland from the application area, however some scattered *Melaleuca* sp. growing in association with the dampland occur within the northern boundary of the application area. This area is considered to be in a degraded (Keighery, 1994) condition (DWER, 2017).

The local area considered in the assessment of this application is defined as a 10 kilometre radius surrounding the application area. The local area contains approximately 60.5 per cent (21,412.7 hectares) native vegetation cover.

According to available databases, there are records of 16 priority flora species within the local area. Noting that the application area has been amended to exclude vegetation in a very good to excellent (Keighery, 1994) condition, and that the understorey within the revised application area was absent over approximately 23.4 hectares and had been historically disturbed in the remaining 21.5 hectares (prior to the most recent clearing) (DWER, 2017), the application area is not likely to include occurrences of, or impact on the conservation of priority flora species.

As discussed under Principle (c), the application area does not provide suitable habitat for any species of rare flora.

As discussed under Principle (d), approximately 23.5 hectares of the application area is mapped as the *Banksia* Dominated Woodlands of the Swan Coastal Plain Interim Biogeographic Regionalisation for Australia (IBRA) Region Priority Ecological Community (PEC) (Priority 3) and is within an area defined as 'likely to occur' for the *Banksia* Woodlands of the Swan Coastal Plain threatened ecological community (TEC), which is federally listed as Endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Threatened Species Scientific Committee, 2016). The main feature of both communities is the dominance of *Banksia attenuata* and/or *B. menziesii* woodland, which commonly co-occur, over a suite of native understorey species. Noting the lack of native understorey diversity and sparseness of the *Banksia* species identified during the site inspection, the application area is not considered to be representative of the PEC or TEC.

As discussed under Principle (b), the portions of the application area in a good to degraded (Keighery, 1994) condition (comprising 21.5 hectares) contain *Banksia* sp., and *Eucalyptus todtiana*, which are preferred foraging species for Carnaby's cockatoo (*Calyptorhynchus latirostris*). The site inspection identified potential Carnaby's cockatoo foraging evidence on several *Banksia* cones (DWER, 2017), and it is considered that 21.5 hectares of the application area provides significant foraging habitat for this species. Suitable breeding habitat for Carnaby's cockatoo was not identified within the application area (DWER, 2017). The application area is unlikely to provide significant habitat for any of the other 13 conservation significant fauna species recorded within the local area.

The application area provides significant foraging habitat for Carnaby's cockatoo, however, noting that it is unlikely to contain any rare or priority flora species, lacks understorey diversity and is not considered to be representative of a TEC or PEC, the application area is not likely to comprise a high level of biological diversity.

Given the above, 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 at variance to this Principle

According to available databases, there are records of 13 conservation significant fauna species within the local area, being Carnaby's cockatoo, Carter's freshwater mussel (*Westralunio carteri*) *,* curlew sandpiper *(Calidris ferruginea)*, Balston's pygmy perch *(Nannatherina balstoni)*, western brush wallaby *(Macropus irma),* quenda *(Isoodon obesulus* subsp*. Fusciventer*), blue-billed duck (*Oxyura australis*), sharp-tailed sandpiper *(Calidris acuminata),* red-necked stint *(Calidris ruficollis),* wood sandpiper *(Tringa glareola),* great egret (*Ardea modesta*) and the common greenshank (*Tringa nebularia*) (Department of Parks and Wildlife (Parks and Wildlife), 2007-).

The Balston's pygmy perch and Carters freshwater mussel (both classified as Fauna that is rare or is likely to become extinct as vulnerable fauna under the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Fauna Notice)) are aquatic fauna and the blue-billed duck (listed as Priority 4 by DBCA) occupies permanent deep water-bodies in southern Australia. Given that the application area does not contain any permanent water bodies (DWER, 2017), it is unlikely to contain suitable habitat for these species.

The sharp-tailed sandpiper, red-necked stint, curlew sandpiper, wood sandpiper, great egret and common greenshank are migratory avian fauna protected under international agreement. Noting the mobility and large home ranges of these avian species, it is unlikely that the application area provides significant habitat for these species.

Noting the general lack of understorey density (DWER, 2017), the application area is unlikely to provide significant habitat for the quenda, or western brush wallaby.

Carnaby's cockatoo is classified as Fauna that is rare or is likely to become extinct as endangered fauna under the WC Fauna Notice and has been given the status of Endangered under the EPBC Act. This species forages on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008). The records of foraging activity for Carnaby's cockatoo on the Swan Coastal Plain reveal that *Banksia* species account for nearly 50 per cent of the diet for this species. *Banksia* species are therefore considered an essential native food source for Carnaby's cockatoo (Shah, 2006).

As discussed under section 2, a site inspection identified that approximately 21.5 hectares of the application area largely comprises an overstorey of *Banksia menziesii*, *Banksia attenuata* and *Eucalyptus todtiana* (DWER, 2017), and therefore provides suitable foraging habitat for Carnaby's cockatoo. The site inspection identified Carnaby's cockatoo foraging evidence on several *Banksia* cones (DWER, 2017).

The Department of Biodiversity, Conservation and Attractions (DBCA) provided comment on the potential impacts of the proposed clearing on Carnaby's cockatoo and advised that (DBCA, 2017):

> "the application area is within an important breeding region for Carnaby's cockatoo. The regional area surrounding the application area contains numerous confirmed breeding areas and roost sites. The proximity to breeding areas and roost sites increases the significance of foraging habitat. The application area is also in close proximity to water sources, the Gingin Brook and Quin Brook, which are important resources for cockatoos, particularly in the vicinity to breeding and roosting sites.
>
> The application area is 1.6km east of a confirmed breeding area buffer, [and] there [are] many other confirmed breeding areas at increasingly greater distances in all directions. The mapped confirmed breeding areas are based on a known nesting tree plus a 12km radial buffer, which is considered to be the core foraging habitat used while breeding/nesting is occurring. Although…cockatoos may forage at further distances if required. It is likely that there are other nesting trees that are not yet known within the surrounding regional area. Outside of the breeding season cockatoos are known to opportunistically use any areas of foraging habitat within the vicinity of a roost site, including isolated trees, and may move between roost sites depending on resource availability. There are three confirmed roosts in close proximity to the application area; 11km to the west, 12km to the south and 18km to the east. Carnaby's cockatoos are known to travel 20km from a roost site for foraging however this distance may be greater depending on the available resources in the surrounding region. It should also be noted that, as with nesting trees, not all roost sites are known, and cockatoos are known to move between roost sites.
>
> The banksia and eucalypt species present (based on the desktop assessment and photographs) are known food plants for Carnaby's cockatoo. The cockatoos will move between the areas of foraging habitat depending on the available food and may alternate/vary areas between years. The cumulative impact of the physical loss of foraging habitat combined with variation in productivity of the remaining areas needs to be considered. Maintaining sufficient areas of viable food sources in the regional area surrounding known roosting and breeding sites is important for the long-term survival of the species".

The extent of nearby suitable foraging habitat for Carnaby's cockatoo within the nearby Gnangara-Moore River State Forest is acknowledged. However, noting that the application area provides Carnaby's cockatoo preferred foraging habitat on the Swan Coastal Plain, is relatively close to known roosting and breeding sites, and contained evidence of foraging (DWER, 2017), the application area is considered to provide significant foraging habitat for Carnaby's cockatoo.

To be suitable as a Carnaby's cockatoo breeding site, trees require a suitable nest hollow or be of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). A site inspection of the application area did not identify any large trees with suitable breeding hollows for Carnaby's cockatoo (DWER, 2017).

The closest mapped ecological linkage is approximately 1.3 kilometres north west of the application area and the application area is not considered to significantly contribute towards ecological linkage values within the landscape.

Noting that the application area provides significant foraging habitat for Carnaby's cockatoo, the proposed clearing is at variance to this Principle.

Taking into account the applicant's avoidance and minimisation measures, it is considered that a suitable offset will counterbalance the loss of 21.5 hectares of foraging habitat for Carnaby's cockatoo. Section 6 provides further information on the offset provided.

(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

According to available datasets there are two species of rare flora mapped within the local area. The closest of these has been recorded approximately 1.5 kilometres from the application area. This species is a tuberous perennial herb that grows between 0.12 and 0.3 metres high (Western Australian Herbarium, 1998-).

This species grows on bare patches of sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps, typically in banksia (*Banksia menziesii*, *B. attenuata* and *B. ilicifolia*) woodland or spearwood (*Kunzea glabrescens*) thicket vegetation (Department of Environment and Conservation, 2009). There was evidence of one small depression along the northern boundary of the application area which appears to be seasonally waterlogged. However the majority of this area occurs outside of the application area on the opposite side of a firebreak, is in a degraded (Keighery, 1994) condition, and has been heavily disturbed, with an absence of surrounding dense vegetation typically required by this species (DWER, 2017). Noting this, the application area is unlikely to provide suitable habitat for this species.

The second rare flora species mapped within the local area is a mallee that grows to between 1.5 to 4 metres high within shallow soils over limestone on the slopes or gullies of limestone ridges and outcrops (Western Australian Herbarium, 1998-). Noting the absence of slopes or gullies of limestone ridges and outcrops (DWER, 2017), the application area is not likely to provide suitable habitat for this species.

Given the above, the application area is not likely to include, or be necessary for the continued existence of rare flora, and 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 is not likely to be at variance to this Principle

The majority of the application area in a good to degraded (Keighery, 1994) condition (being 21.5 hectares) is mapped by the Commonwealth Department of the Environment and Energy (DotEE) as a 'likely to occur' area for the '*Banksia* Woodlands of the Swan Coastal Plain ecological community', listed as Endangered under the EPBC Act. DotEE's mapping provides an indicative distribution of the ecological community, defining areas mapped as 'likely to occur' and 'may occur'. The approved conservation advice for this community states that "Ground-truthing (e.g. an on-ground survey) is required to verify if a particular site meets the required key diagnostic characteristics and minimum condition thresholds to be the described ecological community" (Threatened Species Scientific Committee, 2016).

The canopy of the ecological community is most commonly dominated or co-dominated by *Banksia attenuata* and/or *Banksia menziesii* (Threatened Species Scientific Committee (TSSC), 2016). If present, the emergent tree layer often includes *Corymbia calophylla*, *Eucalyptus marginata*, or *Eucalyptus gomphocephala*. Other trees that may be present include *Eucalyptus todtiana*, *Nuytsia floribunda*, *Allocasuarina fraseriana*, *Callitris arenaria*, *Callitris pyramidalis* and *Xylomelum occidentale* (TSSC, 2016). The understorey of the community typically contains a high to very high diversity of shrub and herb species that often vary from patch to patch (TSSC, 2016).

The application area comprises *Banksia attenuata* and *Banksia menziesii* which, with *Eucalyptus todtiana*, are the most commonly occurring overstorey species (DWER, 2017). However, the majority of the understorey vegetation within the application area lacks density and diversity, and the *Banksia* species identified during the site inspection were relatively sparse within this locality. Therefore the application area is not consistent with that described for the abovementioned TEC, and is therefore not considered to be representative of this TEC.

The application area may however assist in the maintenance of the remnant vegetation immediately east of the application area, within Lot 130. This vegetation is in a very good to excellent (Keighery, 1994) condition, and is considered to be representative of, and therefore may be an occurrence of the abovementioned TEC.

The revised application area largely provides a buffer of 50 metres or greater to the abovementioned very good to excellent (Keighery, 1994) condition vegetation within the eastern portion of Lot 130, which will help to minimise potential edge effects associated with the proposed clearing and end land use. The applicant will also be required to adhere to weed and dieback management measures which will also assist in minimising indirect impacts to this remnant.

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

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

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).

The Swan Coastal Plain IBRA bioregion retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia, 2018a). The application area is mapped as Heddle vegetation Karrakatta Complex-North, which retains approximately 45 per cent of its pre-European vegetation extent (Government of Western Australia, 2018b). These remnant vegetation extents are all greater than the above mentioned 30 per cent threshold.

The local area retains approximately 60.5 per cent native vegetation (21,412 hectares). The application area represents approximately 0.21 per cent of the remaining native vegetation within the local area and the proposed clearing would reduce the extent of native vegetation within the local area to approximately 60.4 per cent (21,367.1 hectares).

The application area contains significant foraging habitat for Carnaby's cockatoo, and is therefore considered to be a significant remnant. However, given the abovementioned remnant vegetation extents for the bioregion, local area and mapped vegetation type, the application area is not considered to be in an extensively cleared area, and the proposed clearing is not likely to be at variance to this Principle.

Table 1. Remnant Vegetation Extents

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA bioregion:					
Swan Coastal Plain	1,501,222	578,997	38.6	222,766	18
Vegetation complex:					
Karrakatta Complex-North	44,273	19,983	45	12,496	28

(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 at variance to this Principle

A resource enhancement dampland (seasonally waterlogged basin) has been mapped along the northern boundary of the application area. Approximately 0.23 hectares of this dampland, is mapped within the application area, with the wetland system comprising approximately 2.33 hectares in total. A site inspection confirmed the presence of the mapped dampland (DWER, 2017).

An existing fire break largely segregates the dampland from the application area, however some scattered *Melaleuca* sp. growing in association with the dampland occur within the application area. The portion of the application within the mapped dampland is considered to be in a degraded (Keighery, 1994) condition (DWER, 2017).

Noting that the application area includes *Melaleuca* sp. that appear to be growing in association with a dampland, the proposed clearing is at variance to this Principle.

Given the scattered occurrence of the *Melaleuca* sp., degraded (Keighery, 1994) condition of the vegetation within the mapped dampland (DWER, 2017), and minimal extent of the dampland within the application area (0.23 hectares), the proposed clearing is not likely to significantly impact on the dampland or on large areas of riparian habitat.

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

Proposed clearing may be at variance to this Principle

The Commissioner of Soil and Land Conservation (CSLC) advised that the soils and landscape systems of the application area have been mapped by the Department of Primary Industries and Regional Development to be a mixture of two soil types: Bassendean Yeal Swamp Complex Phase Map Unit212Bs_Wy and to a much lesser extent the Bassendean Seasonal Swamp Phase Map Unit 212Bs_Ws. The application area is considered to maintain a mid to upper slope position in the landscape (CSLC, 2017).

The Bassendean Yeal Swamp Complex Phase, which comprises all but approximately two hectares of the application area, is described as low sandy rises and small seasonal swamps on aeolian sands over alluvial deposits with pale deep sand and wet and semi-wet soils. The lesser Seasonal Swamp Phase is described as having winter wet depressions with sand over alluvial deposits and wet, often peaty, soils (CSLC, 2017).

The Land Degradation Assessment provided by the CSLC noted the soil types present, and position of the application area within the landscape to advise that the risk of flooding, water erosion and waterlogging is low (CSLC, 2017). Similarly, the CSLC advised that the risk of salinity causing land degradation is low, noting the lack of salinity observed on the property (CSLC, 2017).

The CSLC advised that there is some risk of wind erosion as a result of clearing, which could be managed by using best practice measures, including the maintenance of a crop cover after harvesting, and a fixed sprinkler system (CSLC, 2017).

Noting the potential for wind erosion to occur, the proposed clearing may be at variance to this Principle.

The applicant has developed a Farm Management Plan which specifies management measures to reduce the potential for wind erosion. The Farm Management Plan specifies that irrigating bare cultivated soil between crops, with irrigation systems designed to have an application rate at slightly less than the infiltration rate of the soil, will help to minimise the exposure time of bare sandy soils (Western Agronomy, 2018).

As part of the Development Approval from the Shire of Gingin for the proposed works, the applicant is required to maintain a 20 metre buffer of native vegetation around the entirety of the property, which will also help to minimise wind erosion.

In addition to the measures outlined in the Farm Management Plan, the applicant will be required to plant the intended crops over the cleared areas within three months of the date of clearing, which will prevent the prolonged exposure of bare sandy soils and minimise the potential for 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.

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

The closest conservation area to the application area is Gnangara-Moore River State Forest (the State Forest), which occurs approximately 50 metres south of the application area at its closest point, separated from the application area by an access track and a 20 metre buffer strip of native vegetation on the southern boundary of Lot 130.

The State Forest also includes a large remnant of native vegetation approximately 120 metres west of the western boundary of the application area. The application area is separated from this portion of the State Forest by Military Road and a 90 metre wide remnant of native vegetation.

While the application area is within close proximity to the State Forest, noting that the vegetation between the application area and the State Forest is separated by access tracks/roads and strips of native vegetation, and that the application area is not considered to provide ecological linkage values, the proposed clearing is unlikely to impact on the environmental values of the State Forest.

Given the above, 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 under Principle (f), a resource enhancement dampland has been mapped along the northern boundary of the application area. Approximately 0.23 hectares of this mapped dampland is within the application area. A site inspection of the application area confirmed the presence of the mapped dampland (DWER, 2017).

The dampland area has been highly modified by historical disturbance and remains in a degraded (Keighery, 1994) condition (DWER, 2017). Noting this, and that the application area comprises a small portion of the damplands total mapped occurrence, the proposed clearing is unlikely to significantly impact on the quality of any surface water that may accumulate in this dampland over winter.

The Land Degradation Assessment provided by the CSLC advised that given the soil types present, and position of the application area within the landscape, the risk of flooding, water erosion and waterlogging is low (CSLC, 2017).

The closest major watercourses to the application area are Quin Brook and Gingin Brook, which are located approximately 1.26 kilometres and two kilometres from the application area respectively. Due to the absence of surface water connection to these bodies, the proposed clearing is not likely to impact on the water quality of these brooks.

Mapped groundwater salinity within the application area is low (500 to 1000 milligrams per litre total dissolved solids). Given this, and the advice provided by the CSLC, which noted that there was no salinity observed on the property and the risk of salinity causing land degradation is low (CSLC, 2017), the proposed clearing is unlikely to cause deterioration in the quality of surface and/or underground water via increased salinity.

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

The CSLC, considered the soil type and position of the application area in the landscape, to conclude that the risk of flooding is low (CSLC, 2017). Noting this advice, and the moderate rainfall experienced by the region (700 millimetres per annum), the proposed clearing is considered unlikely to cause or exacerbate the incidence or intensity of flooding.

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

Planning instruments and other relevant matters.

The application was advertised online on 24 August 2017 by DWER for a period of 21 days, inviting submissions. No submissions have been received in relation to this application.

The applicant has received development approval from the Shire of Gingin for the proposed end land use, subject to conditions. The development area specified within the development approval includes the completely degraded (approximately 25.6 hectares) portion of the current clearing permit application area. Condition 9 of the development approval states that the development approval "authorise[s] the Chief Executive Officer in the event a clearing permit is granted, to amend the development area to be in accordance with the clearing permit issued by the Department of Water and Environmental Regulation" (Shire of Gingin, 2017).

The applicant has a licence to take water for the proposed horticulture, with an annual water entitlement of 448,000 kilolitres, which is considered adequate for the horticulture proposed.

The CSLC provided advice on the potential impacts of the proposed clearing and end land use, and concluded that "the soils of the application area have very little capacity to retain applied phosphorus and nitrogen fertiliser. The application area is about 1.26km and 2km from Quin Brook and Gingin Brook respectively. Due to the absence of surface water connection to these sensitive receiving bodies, low risk of waterlogging and degree of separation, the risk of land degradation in the form of eutrophication is likely to be low" (CSLC, 2017).

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

5. Applicant's Submissions

On 1 November 2017 DWER wrote to the applicant to advise of the environmental impacts identified during the assessment of the clearing permit application, requesting additional information, including information on how these impacts could be minimised.

On 5 December 2017 DWER met with the applicant to discuss measures the applicant could undertake to minimise the identified environmental impacts of the proposed clearing, and progress the clearing permit application. Discussions were also had regarding the potential for environmental offsets to be provided to address the residual impacts of clearing.

On 11 January 2018, the applicant advised that consideration had been given to clearing the entirety of the vegetation within Lot 130 (comprising 74 hectares), and requested for DWER to provide a land acquisition offset figure that would be potentially adequate in addressing the residual impacts of clearing.

On 12 February 2018, DWER wrote to the applicant, advising that evidence of avoidance and minimisation measures is required prior to the consideration of an environmental offset, provided an estimated offset that would be required to address the impacts of clearing the 74 hectares of native vegetation under application, and advised that a targeted flora survey would likely be required within the eastern portion of the application area, prior to a determination being made.

On 19 September 2018, DWER wrote to the applicant to advise that a review of aerial imagery had identified clearing within Lot 130 on Plan 36979, Muckenburra, which included a portion of the current application area.

On 1 November 2018 DWER met with the applicant to discuss the clearing that occurred and the clearing permit application, including ways to progress the application. The applicant noted that while clearing has occurred, the majority of the application area (with the exception of areas cleared for a shed and dam), had regenerative capacity, and as such the applicant would like to progress the application to clear those portions.

On 13 November 2018 the applicant emailed DWER with a request to amend the application area from 74 hectares to 44.9 hectares, excluding the eastern portion of the historical application area.

On 21 November 2018 DWER emailed the applicant with a revised map and potentially adequate offset to address impacts to Carnaby's cockatoo, upon which the applicant confirmed commitment to.

6. Suitability of Proposed offset

Principle 1 of the *WA Environmental Offsets Policy September 2011* outlines that environmental offsets will only be considered after avoidance and mitigation options have been pursued. The WA Environmental Offsets Guidelines August 2014 outlines a four step mitigation hierarchy; avoid, minimise, rehabilitate and offset. The avoidance and mitigation measures assessed within section 3 of this report are deemed to be adequate in addressing this requirement.

The Delegated Officer determined that the proposed clearing will impact on 21.5 hectares of vegetation containing significant foraging habitat for Carnaby's cockatoo.

To offset the abovementioned significant residual impact, the applicant committed to providing a monetary contribution for the acquisition of 76 hectares of remnant native vegetation for conservation within the Swan Coastal Plain that provides environmental values commensurate with those being impacted by the proposed clearing.

In assessing whether the proposed offset is adequately proportionate to the significance of the habitat values being impacted, DWER undertook a calculation using the Commonwealth Offsets Assessment Guide. The calculation indicated that the allocation of 76 hectares is considered adequate to counterbalance the significant residual impacts. This equates to a monetary contribution of $157,320, determined based on the estimated value per hectare of a vegetated parcel of land in the Shire of Gingin using values determined by Western Australia's Valuer-General.

Given the above, a monetary contribution of $157,320 for the acquisition of 76 hectares of native vegetation for conservation is considered adequate to counterbalance the remaining significant residual impacts of the proposed clearing consistent with the *WA Environmental Offsets Policy September 2011*.

7. References

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GIS Databases:
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- Wetlands, Swan Coastal Plain
- Parks and Wildlife tenure
- Heddle Vegetation Complexes
- Pre-European vegetation
- SAC bio datasets accessed November 2018
- Aboriginal sites register system
- Town Planning Scheme Zones