



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 8296/1
<b>Permit Holder:</b>	Commissioner of Main Roads
<b>Duration of Permit:</b>	21 April 2019 to 21 April 2024

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 a principal shared footpath.

**2. Land on which clearing is to be done**

Maida Vale Road reserve (PIN 11879900), High Wycombe  
Brae Road reserve (PIN 1155669), High Wycombe  
Smokebush Place Road reserve (PIN 1255890), High Wycombe  
Un-named Road reserves (PINs 11569708, 11573004, 11573003 and 11573022), Maida Vale  
Roe Highway (PIN 12283583), Maida Vale

**3. Area of Clearing**

The Permit Holder must not clear more than 0.4 hectares of native vegetation within the area hatched yellow on attached Plan 8296/1.

**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 activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Main Roads Act 1930* or any other written law.

### PART II – MANAGEMENT CONDITIONS

**6. 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:

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

## 7. 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.

## PART III - RECORD KEEPING AND REPORTING

### 8. Records must be kept

The Permit Holder must maintain the following records 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 the extent of clearing in accordance with condition 6 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 7 of this Permit.

### 9. Reporting

The Permit Holder must provide to the CEO the records required under Condition 8 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.



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Mathew Gannaway  
MANAGER  
NATIVE VEGETATION REGULATION

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

22 March 2019

# Plan 8296/1

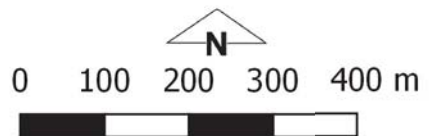
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## Legend

-  CPS areas approved to clear base layers
-  Local Government Authorities
-  Road Centrelines
-  Cadastre
-  Image



MGA 94  
Geocentric Datum of Australia 1994  
**Matthew Gannaway**  
2019.03.22  
12:26:46 +08:00  
Officer with delegated authority under section 114 of the Environmental Protection Act, 1986



GOVERNMENT OF WESTERN AUSTRALIA



## 1. Application details

### 1.1. Permit application details

Permit application No.: 8296/1  
Permit type: Purpose Permit

### 1.2. Applicant details

Applicant's name: Commissioner Of Main Roads  
Application received date: 17 December 2018

### 1.3. Property details

Property: Maida Vale Road Reserve - 11879900, High Wycombe  
Smokebush Place Road Reserve - 1255890, High Wycombe  
Brae Road Reserve - 11551669, High Wycombe  
Un-named Road Reserve - 11573003, Maida Vale  
Un-named Road Reserve - 11573004, Maida Vale  
Roe Highway Road Reserve - 12283583, Maida Vale  
Un-named Road Reserve - 11573022, Maida Vale  
Un-named Road Reserve - 11569708, Maida Vale  
Local Government Authority: Kalamunda, City of  
Localities: Maida Vale

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.4		Mechanical Removal	Principal shared foot path

### 1.5. Decision on application

Decision on Permit Application: Granted  
Decision Date: 22 March 2019

Reasons for Decision: The clearing permit application was received on 17 December 2018 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is not likely to be at variance to any of the clearing principles.

Through the assessment it was determined that the application area contains suitable foraging habitat for black cockatoos. The Delegated Officer took into consideration the small scale of the proposed clearing and the presence of extensive areas of remnant native vegetation that would provide suitable habitat for the species located approximately 4.3 kilometres east of the application area within Darling Scarp of which the majority of the land falls within DBCA tenure and the Bush Forever sites located 60 metres and 210 metres west of the application area. Given this, it was determined that the proposed clearing will not significantly impact upon foraging habitat.

The proposed clearing may result in the spread of weeds and dieback into adjacent remnant vegetation. A weed and dieback management condition has been placed on the clearing permit to minimise this risk.

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is unlikely to lead to any unacceptable impact to the environment.

## 2. Site Information

### Clearing Description

The application is to clear 0.4 hectares of native vegetation within a 4.33 hectare footprint area within Maida Vale Road reserve (PIN 11879900), Brae Road reserve (PIN 1155669) and Smokebush Place Road reserve (PIN 1255890), High Wycombe, and un-named Road reserves (PINs 11569708, 11573004, 11573003 and 11573022) and Roe Highway (PIN 12283583), Maida Vale, for the purpose of extending the principal shared footpath on the eastern side of Roe Highway, from the intersection of Roe Highway and Maida Vale Road and Sultana Road West (Main Roads Western Australia (MRWA), 2018) (Figure 1). The proposed extension of the footpath is intended to improve safety for cyclists that are currently required to ride on the shoulder of Roe Highway (MRWA, 2018).

### Vegetation Description

The application area is mapped as Forrestfield Complex, which is described as vegetation ranging from open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) to open forest of *Eucalyptus marginata* (Jarrah) - *Corymbia*

*calophylla* (Marri) - *Allocasuarina fraseriana* (Sheoak) - Banksia species. Fringing woodland of *Eucalyptus rudis* (Flooded Gum) in the gullies that dissect this landform.

Upon review of the flora and vegetation survey undertaken by 360 Environmental in October 2017, three mapped vegetation associations occur within the application area, described as:

- 'Cc' – '*Corymbia calophylla*' occurs over a 350 metre stretch commencing at the intersection of Roe Highway and Maida Vale Road reserve to the south covering approximately 13 per cent of the footprint area;
- 'CcEm' – '*Corymbia calophylla* and *Eucalyptus marginata* over weed species' occurs within the central portion of the application area over an 850 metre length and covers approximately 56 per cent of the footprint area; and
- 'CcAf' – '*Corymbia calophylla* and *Allocasuarina fraseriana* over weed species' commences at the Roe Highway and Sultana Road West intersection and extends north for approximately 590 metres. This area comprises of approximately 31 per cent of the footprint area.

The survey indicated that 'CcEm' and 'CcAf' are the most prevalent vegetation types within the application area. A site inspection undertaken by the applicant on 11 February 2019 confirmed that 'CcEm' was the most dominant vegetation type within the application area. *Corymbia calophylla* was identified as being the most dominant species throughout the application area (MRWA, 2019).

#### Vegetation Condition

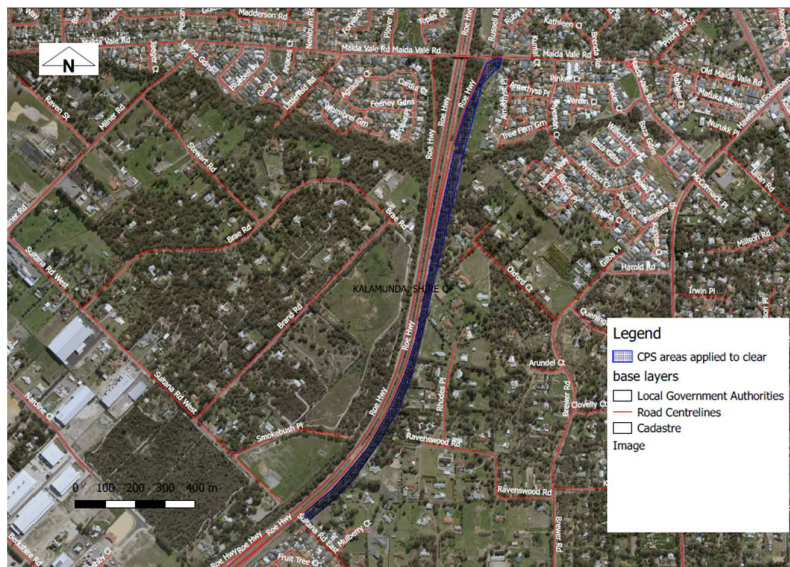
The condition and description of the vegetation within the application area was determined upon review of the flora and vegetation survey conducted by 360 Environmental and supporting documentation provided by the applicant (360 Environmental, 2017; MRWA 2019). The vegetation within the application area was identified as being in a degraded to completely degraded (Keighery, 1994) condition, described as:

- Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994); to
- Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

#### Soil type

The application area intersects seven soil types mapped by the Department of Primary Industries and Regional Development (DPIRD), described as:

- EnvGeol S10 Phase subsystem is described as sand - as S8 as relatively thin veneer over sandy clay to clayey sand of eolian origin;
- Pinjarra, Phase Gf9 subsystem is described as minor sandy rises (aeolian deposits) with moderately deep well drained sands overlying gravelly mottled clay;
- Pinjarra, Phase Gf5 subsystem is described as incised drainage channels with poorly drained gradational mottled yellow earths. Shrubland of Melaleucas and other low shrubs;
- Pinjarra, Phase Gf1 subsystem is described as very gently undulating plain. Moderately well drained yellow duplex or gradational soils with sand to sandy loam topsoil. Woodland of *E. wandoo* and *E. calophylla*;
- Forrestfield (D Range) F1 Phase subsystem is described as foot and low slopes < 10% with deep rapidly drained siliceous yellow brown sands, and pale or bleached sands with yellow-brown subsoil. Shrubland of unidentified species;
- Pinjarra, Phase Gf1 subsystem is described as very gently undulating plain. Moderately well drained yellow duplex or gradational soils with sand to sandy loam topsoil. Woodland of *E. wandoo* and *E. calophylla*; and
- Pinjarra, Phase Gf7 subsystem is described as minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay. Low woodland of *B. prionotes* and some tall *E. calophylla* with *E. rudis* along streamlines (Schoknecht et al., 2004).



**Figure 1: Application area cross-hatched in blue**

### 3. Minimisation and mitigation measures

The applicant has proposed to implement the following avoidance and mitigation measures to minimise the environmental impacts associated to the proposed clearing for the proposed principal shared footpath (MRWA, 2018):

- The application area will be delineated prior to the commencement of project activities and prior to the commencement of the proposed clearing; and
- The native vegetation associated to Poison Gully Creek will be avoided by constructing the principal shared footpath close to the existing fence line.

### 4. Assessment of application against clearing principles

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

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

The applicant commissioned 360 Environmental to undertake a flora and vegetation survey which was undertaken on 19 and 23 October 2017 (360 Environmental, 2017). The project area surveyed by 360 Environmental was undertaken over 80.8 hectares and encompassed the application area (360 Environmental, 2017). Field survey methods involved the assessment of two quadrats of 10 metres by 10 metres, three relevés and vegetation mapping notes (360 Environmental, 2017).

The survey identified that the vegetation within the application area has been highly modified and subject to significant human disturbance through historical clearing, road infrastructure, weed invasion and residential development adjacent to the application area (360 Environmental, 2017). The structure of the vegetation within the application area has been significantly fragmented and as a result is in a degraded to completely degraded (Keighery, 1994) condition with an understorey of exotic weeds (360 Environmental, 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 26.97 per cent vegetative cover.

According to available datasets, there are records of 71 Priority (P) flora species and 22 threatened flora species within the local area. A collective total of 120 flora taxa were identified within the project area during the flora survey (360 Environmental, 2017). There were no conservation significant flora identified within the application area during the flora survey (360 Environmental, 2017). Noting that the application area is in a degraded to completely degraded (Keighery, 1994) condition with invasive grasses that dominate the understorey and that no conservation significant flora were identified during the appropriately timed survey, the application area is not likely to include or be necessary for the continued existence of conservation significant flora species.

As discussed under Principle (b), the application area contains foraging habitat for the conservation significant forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and Baudins cockatoo (*Calyptorhynchus baudinii*). The vegetation proposed for clearing is not likely to provide significant habitat for these species.

As discussed under Principle (c), the application area may support suitable habitat for four species of threatened flora known to occur within the local area, namely *Conospermum undulatum*, *Macarthuria keigheryi*, *Thelymitra stellata* and *Banksia mimica*. Noting the appropriate timing of the spring survey for *Conospermum undulatum*, *Macarthuria keigheryi*, *Thelymitra stellata*, that *Banksia mimica* is a perennial species that would have been easily detected if present, and that no threatened flora were identified during the survey, the proposed clearing is not likely to impact upon threatened flora known to occur within the local area.

As discussed under Principle (d), a small portion of the vegetation within the application area is mapped within an occurrence of the 'Banksia Woodlands of the Swan Coastal Plain ecological community'. In consideration of the vegetation types that occur

within the application area, lack of *Banksia* species within the application area and degraded to completely degraded (Keighery, 1994) condition of the vegetation, the proposed clearing is not likely to be representative of this TEC.

While the application area contains suitable habitat for the above mentioned conservation significant fauna, noting that the application area is not likely to contain threatened or priority flora, and has been extensively disturbed through human disturbance and weed invasion, it is not likely to contain 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.**

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

The applicant commissioned 360 Environmental to undertake a Level 1 terrestrial vertebrate fauna survey which was undertaken over three non-consecutive days in late October and early November 2017 (360 Environmental, 2017). The survey covered an area of approximately 80.8 hectares, and encompassed the application area. Two broad fauna habitat types were identified within the application area described as 'Marri/Jarrah Forest' and 'Banksia woodland' (360 Environmental, 2017). A site inspection undertaken by the applicant confirmed that the fauna habitat types within the application area have not been accurately mapped (MRWA, 2019). The areas that have been mapped as 'Banksia woodland' coincide with the mapped vegetation associations in the flora survey which were labelled as 'CcEm' – '*Corymbia calophylla* and *Eucalyptus marginata* over weed species' (360 Environmental, 2017; MRWA, 2019). The site inspection undertaken by the applicant confirmed that only a few *Banksia* species were present at the Southern end of the application area, and that *Corymbia calophylla* was the dominant species throughout the site (MRWA, 2019).

A search of the Nature Map database returned records of 41 fauna species of conservation significance within a 10 kilometre radius of the application area, which comprise of 14 threatened fauna species, 9 fauna species protected under international agreement, three specially protected fauna species and 15 priority fauna species (DBCA, 2007-). Several of the fauna species recorded are waterbird species that utilise the wetlands that occur within the local area. Noting the absence of wetlands and the terrestrial vegetation that occurs within the application area, suitable habitat is not likely to occur within the application area for these fauna species.

The fauna survey identified eight conservation significant fauna species listed under the *Biodiversity Conservation Act 2016* (BC Act) within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Notice) that are known, likely or have the possibility to occur within the larger survey area, based on the availability of suitable habitat (360 Environmental, 2017). These species include:

- forest red-tailed black cockatoo;
- Carnaby's cockatoo;
- Baudin's cockatoo;
- Peregrine falcon (*Falco peregrinus*);
- South-western brush-tailed phascogale (*Phascogale tapoatafa* subsp. *wambenger*);
- Western Quoll, Chuditch (*Dasyurus geoffroii* subsp. *Fortis*);
- Fork-tailed swift (*Apus pacificus*); and
- Southern Brown Bandicoot, Quenda (*Isodon obesulus fusciventer*).

Two of the above listed species of fauna significance, namely the forest red-tailed black cockatoo and the Quenda were observed within the application area during the fauna survey (360 Environmental, 2017).

The fauna survey recorded the presence of forest red-tailed black cockatoo individuals within the 'Marri/Jarrah Forest' vegetation type and extensive foraging evidence throughout the application area (360 Environmental, 2017). Isolated foraging evidence for Carnaby's black cockatoo species was also observed during the fauna survey, however was difficult to accurately confirm due to the age of the samples and Red-capped Parrots (360 Environmental, 2017). The application area is within the known distribution and foraging areas for both species with records known to occur within the application area (DBCA, 2007-). In order to determine the type and extent of breeding, foraging and roosting habitat suitable for black cockatoo species within the fauna survey area, a Black Cockatoo Habitat Assessment was conducted by Strategen on 29 and 30 January 2018 which encompassed the application area (Strategen, 2018).

Carnaby's cockatoo, Baudin's cockatoo and Forest Red-tailed black cockatoo (collectively referred to as black cockatoos herein within the report) are classified as rare or likely to become extinct as Endangered fauna under the BC Act within the WC Notice. Under the BC Act, Carnaby's and Baudin's cockatoo are listed as Endangered and the Forest Red-tailed black cockatoo is listed as Vulnerable. Black cockatoos forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), *Eucalyptus*, *Corymbia* species and a range of introduced species (Valentine and Stock, 2008). The Black Cockatoo Habitat Assessment recorded numerous (approximately 30) forest red-tailed black cockatoos which were heard from many locations, flying overhead and observed feeding on Marri nuts within the survey area (Strategen, 2018). Given this, the assessment concluded that the entire survey area contains very high quality foraging habitat for black cockatoos.

The application area provides favourable foraging habitat for forest red-tailed black cockatoos in particular, given the presence of Jarrah/Marri woodland which is the preferred food source for these species (Commonwealth of Australia, 2012). Although the application area contains very high quality foraging habitat, it is not considered to provide significant habitat for black cockatoo species given the small scale of the proposed clearing and the presence of extensive areas of remnant native vegetation located approximately 4.3 kilometres east of the application area of the Darling Scarp of which the majority of the land falls within DBCA tenure. Bush Forever sites No. 45 and 123 are also located 60 metres and 210 metres west of the application area respectively,



which would also provide suitable habitat for this species of which is likely to be of a higher quality than that of the application area.

Black cockatoo's breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). To be suitable as a 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). The fauna survey identified five hollow bearing Jarrah trees within the application area (360 Environmental, 2017). The Black Cockatoo Habitat Assessment confirmed that none of the hollow bearing trees recorded were of a suitable size for breeding for black cockatoo species (Strategen, 2018). There was no roosting evidence or suitable locations that would be favoured by black cockatoo populations identified within the survey during the fauna survey (360 Environmental, 2017).

The southern brush-tailed phascogale is classified as 'fauna that is of special conservation need as conservation dependent fauna' under the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*. The preferred habitat for this species in Western Australia is within dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC, 2012). Although five hollow-bearing trees were identified during the fauna survey, no individuals were observed during the survey or during the Black Cockatoo Habitat Assessment where hollows were inspected (360 Environmental, 2017; Strategen, 2018). Given this, and noting the disturbance from the adjacent Roe Highway and small scale of clearing over a 1.7 kilometre distance, the application area is not likely to represent significant habitat for the South-western Brush-tailed Phascogale.

Chuditch are found in varying densities in jarrah forests and woodlands in the south west corner of Western Australia, in woodlands, mallee shrublands and heaths along the south coast, east to the Ravensthorpe area, and at lower densities in drier woodland and mallee shrubland in the Wheatbelt and Goldfield regions (DEC, 2012a). Chuditch require large areas of intact habitat to survive and are rarely found where habitat is severely fragmented by clearing, except as transient visitors. The application area may provide suitable habitat for this species given the predominately Marri/Jarrah Forest vegetation type under application. However, noting the degraded to completely degraded (Keighery, 1994) condition of the understorey, and that the application area is surrounded by high density residential development and adjacent to Roe Highway, it is not likely significant habitat would occur within the application area.

On the Swan Coastal Plain, the quenda has a preference for a dense understorey often associated with wetland vegetation (DEC, 2012b). Noting a minor perennial watercourse intersects the application area and that the fauna survey recorded evidence of quenda in the form of diggings within the application area, suitable habitat for this species occurs within the application area (360 Environmental, 2018). However, noting the majority of the application area contains terrestrial vegetation with the exception of the vegetation associated to the watercourse which will be retained, the application area is not likely provide significant habitat for this species.

The habitat type within the application area may provide suitable foraging habitat for the peregrine falcon and the Fork-tailed swift. Although suitable habitat was identified within the application area, it is not likely the proposed clearing will significantly impact on the conservation status of both of these species given they are both highly mobile avian species and have a large home range.

Given the above, 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, threatened flora.**

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

A search of the DBCA threatened flora database revealed that there are 22 threatened flora species that occur within the local area (10 kilometre radius). Noting the habitat requirements of the threatened flora species recorded in the local area, the application area may support suitable habitat for four of the 22 species, namely *Conospermum undulatum*, *Macarthuria keigheryi*, *Thelymitra stellata* and *Banksia mimica*.

*Conospermum undulatum* is the closest threatened flora species to the application area mapped approximately 123 metres west of the application area. This species is an erect, compact shrub that flowers between May to October and grows in grey or yellow-orange clayey sandy soils (Western Australian Herbarium, 1998-). Noting the application area occurs within sandy soils, suitable habitat for this species may be present within the application area. A spring flora survey was undertaken within the application area in October 2017 by 360 Environmental which targeted the threatened flora species *Conospermum undulatum* (360 Environmental, 2018). The survey identified this species in eight locations in the survey area within Banksia and Eucalyptus woodland in a very good to excellent condition, however, none of the records of this species identified were located within the application area (360 Environmental, 2018).

*Macarthuria keigheryi* is an erect or spreading perennial herb or shrub that flowers between September to December or February to March and has a preference for white or grey sandy soils (Western Australian Herbarium, 1998-). Given the presence of sandy soils within the application area, the application has the potential to support this species. Noting the species is a perennial species and that the spring flora survey was undertaken during the optimum flowering time, it would have been easily detectable during the survey. Given this, it is not likely this species is present within the application area.

*Thelymitra stellata* is a tuberous, perennial herb that has a preference for sand, gravel or lateritic loamy soils and flowers between October to November (Western Australian Herbarium, 1998-). This species has the potential to occur within the application area, noting the sandy soil types present. The spring flora survey was also undertaken at an appropriate time to detect this species,

therefore, if this species was present within the application area, it is considered that this species would have been identified during the survey.

*Banksia mimica* is a prostate shrub that grows on flat to gentle slopes in grey and white sand in open woodlands (Department of the Environment and Energy, 2019). Although the application area contains suitable habitat for this species, it is not likely that the species would occur within the application area given the degraded (Keighery, 1994) condition of the understorey that has been heavily disturbed by weed invasion (MRWA, 2019). In addition, it is a perennial species and is therefore likely to have been detected if it was present in the application area.

Given the above, 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**

According to available datasets, a very small portion of the application area (0.150 hectares of the application area) has been mapped by the Commonwealth Department of the Environment and Energy (DotEE) within an occurrence of the 'Banksia Dominated Woodlands of the Swan Coastal Plain ecological community', listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This TEC is listed as 'endangered' at a federal level under the Commonwealth EPBC Act and 'Priority 3' at a state level. The mapping of the Banksia Woodland TEC is based on the Commonwealth's 'likely to occur' areas and incorporates broad-scale mapping of areas most likely to contain the TEC. 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 sclerophyllous shrub and herb species that often vary from patch to patch (TSSC, 2016). The Approved Conservation Advice for the TEC states that the patch of vegetation must meet the minimum patch size and condition thresholds criteria to be representative of the TEC. The approved advice states that a single patch of the TEC must be in at least a good (Keighery, 1994) condition to meet the condition threshold requirements of the TEC. The minimum patch size for a patch considered to be in a good (Keighery, 1994) condition is two hectares (TSSC, 2016).

The survey undertaken by 360 Environmental and the applicant's site inspection confirmed that this portion of the vegetation within this mapped TEC occurrence comprises of a *Corymbia calophylla* and *Eucalyptus marginata* woodland over weed species in a degraded to completely degraded (Keighery, 1994) condition (360 Environmental, 2018; MRWA, 2019). Noting the vegetation type identified within the mapped occurrence of this TEC, the condition and description of the vegetation types of the remainder of the application area as described under section 2, the application area is not considered to be representative of this TEC.

There is another mapped occurrence of this TEC adjacent to the north western end of the application area. This area of remnant vegetation was identified in the survey as having an affiliation with the '*Corymbia calophylla* - *Xanthorrhoea preissii*' woodlands and shrublands of the Swan Coastal Plain TEC. Given this, it does not resemble the Banksia Dominated Woodlands of the Swan Coastal Plain TEC as mapped by the DotEE. There were no TEC's identified within the application area during the survey undertaken by 360 Environmental (360 Environmental, 2018). This was further confirmed by the site inspection undertaken by the applicant (MRWA, 2019).

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 local area (10 kilometre radius surrounding the application area) retains approximately 26.97 per cent (9,391.20 hectares) native vegetation cover.

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). In the Perth Metropolitan and Bunbury regions, the Environmental Protection Authority (EPA) has a modified objective to retain at least 10 per cent of the pre-clearing extent of vegetation complexes for defined constrained areas (intensely developed) (EPA, 2008). Noting that the application area is located within the mapped extent of the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance.

As indicated in Table 1, the remaining extents of native vegetation within the bioregion and mapped vegetation complexes are above the minimum 10 per cent representation threshold for a constrained area.

Noting that the application area occurs within a constrained area, and that the local area and mapped vegetation complex retain above the recommended threshold, the application area is not likely to be considered significant as a remnant of native vegetation 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 (%)	Current Extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
<b>IBRA Bioregion*</b>					
Swan Coastal Plain	1,501,221.9	578,997.4	38.6	222,766.5	14.8
<b>Swan Coastal Plain Complex**</b>					
Forrestfield Complex	22,812.9	2,805	26.9	4,363.69	5

**(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**

According to the Geomorphic Wetlands Swan Coastal Plain dataset, there are no wetlands mapped within the application area. A minor perennial watercourse known as 'Poison Gully' occurs approximately 375 metres south of the most northern end of the application area.

The applicant has advised that a small number of remnant trees are growing in association with this watercourse (MRWA, 2018). As discussed within the avoidance/mitigation measures under Section 3, the applicant proposes to avoid the clearing of native vegetation within the Poison Gully Creek by constructing the principal shared pathway close to the existing fence line (MRWA, 2018).

Noting the applicant's avoidance/mitigation measures proposed, native vegetation growing in association with the Poison Gully watercourse will be retained. Given the above, the proposed clearing is considered to 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 described under section 2 'Site information', the application area is situated within seven soil types, with the Pinjarra Phase Gf1 subsystem being the most prevalent soil type covering approximately 45 per cent of the application area. This mapped soil unit is associated to gradational soils, therefore are likely to have a low likelihood of causing land degradation in the form of wind erosion.

The Pinjarra Phase Gf9, Pinjarra Phase Gf7 Forrestfield (D Range) and F1 Phase subsystems which comprise of approximately 56 per cent of the application area are associated to deeply drained sandy soils which are highly susceptible to wind erosion. The proposed clearing within these sandy soils may increase the risk of land degradation in the form of wind erosion. Noting that the small size of the proposed clearing of 0.4 hectares which will occur over a 4.33 hectare footprint area, it is not likely the proposed clearing will cause appreciable land degradation in the form of wind erosion.

The majority of the application area has been mapped by DPIRD as having a low risk of land degradation in the form of water erosion given the largely highly permeable soils (Schoknecht et al., 2004). There is a very small portion of the application area associated to the Poison Gully water course, however there will be no clearing undertaken in this area. Given this, the proposed clearing is not likely to result in appreciable land degradation in the form of water erosion.

Salinity levels within the application area is mapped at between 500 and 1000 milligrams per litre total dissolved solids. Noting these low salinity levels, the proposed clearing is not likely to result in land degradation as a result of salinity.

Given the above, 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**

According to available databases, there are several conservation areas mapped within the local area (10 kilometre radius) and no conservation areas are mapped within application area. The closest conservation area is Bush Forever Site No. 45 known as 'Poison Gully Bushland, High Wycombe' located approximately 60 metres west of the application area. Bush Forever Site No. 123 known as 'Sultana Road West Bushland, High Wycombe' is also mapped approximately 210 metres west of the application area.

While the application area is within close proximity to Bush Forever Site number's 45 and 123, noting that the application area is separated from these conservation areas by a major highway (Roe Highway), it is not likely the proposed clearing will impact upon the environmental values of these conservation areas. Noting this, and the distance to the other conservation areas within the local area that are separated by residential development and strips of native vegetation, the application area is not likely to be supporting a significant ecological linkage.

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 Principles (f) and (g), the application area intersects a minor non-perennial watercourse known as 'Poison Gully'.

Noting that the applicant proposes to retain the native vegetation growing in association to this watercourse, it is not likely the proposed clearing will increase surface water runoff and sedimentation into this hydrological feature. In addition, given the application area is relatively small that occurs over a larger footprint area, it is not likely the proposed clearing will impact upon surface water quality.

Groundwater salinity over the application has been mapped between less than 500 and 1000 milligrams per litre per total dissolved solids. Noting the condition, mapped soil types and extent of clearing, the proposed clearing is not likely to result in a significant rise in groundwater levels.

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 under Principle (f), the application area intersects a watercourse, which has a high level flood risk associated to the mapped soil unit (Schoknecht et al., 2004). Noting that the riparian vegetation associated to this watercourse will be retained, and the well-drained sandy soils that occur within the remainder of the application area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding (Schoknecht et al., 2004).

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

**Planning instruments and other relevant matters.**

The clearing permit application was advertised on the DWER website on 3 January 2019 with a 21 day submission period. One public submission has been received from the public regarding the application. The main issues raised were:

1. The area proposed to be cleared is located within an Environmentally Sensitive Area (ESA) associated to the wetland and threatened ecological community located to the west of the application area;
2. The area proposed to be cleared will impact upon foraging and breeding habitat for black cockatoo species; and
3. Further measures to avoid and minimise the vegetation proposed to be cleared should be considered by the applicant, particularly with reference to avoiding clearing existing trees.

In regards to point 1, the application area occurs within the ESA buffer which is associated to a mapped TEC occurrence located to the west of the application area. It is noted that the mapping of the ESA layer is indicative as to where the TEC occurrence is located, it does not represent the actual boundary of the TEC. Noting that a major highway separates the application area from this mapped TEC occurrence, the proposed clearing is not likely to impact upon this TEC. As discussed further under Principle (d), the vegetation within the application area is not representative of any TECs within the local area. The ESA buffer that is mapped over the application area, is not associated to any of the mapped wetlands that occur to the west of the application area. The proposed clearing will not impact upon any wetlands as Roe Highway separates the application area from these mapped occurrences.

In relation to point 2, the impacts to foraging and breeding habitat for black cockatoo species has been assessed under Principle (b).

In relation to point 3, the applicant has proposed avoidance/mitigation measures for the proposed clearing which have been discussed further under Section 3.

It is noted that the land owner does not have consent to access and clear native vegetation on two of the land parcels within the application area owned by the Shire of Kalamunda. The applicant has advised that they will obtain legal authority to access and clear within these land parcels prior to the proposed clearing (MRWA, 2019). It is therefore the applicant's responsibility to liaise with the Shire of Kalamunda to obtain this consent to access and clearing within these land parcels prior to commencing any clearing.

**5. Applicant's Submissions**

On 4 February 2019, DWER wrote to the applicant requesting clarification as to the vegetation types that were mapped in the flora and fauna survey reports provided as there appeared to be some discrepancies in the report that detailed the mapped vegetation associations. The Delegated Officer requested additional information and clarification on this matter in order to determine the quality and significance of the foraging habitat for black cockatoo species.

On 20 February 2019, the applicant provided clarification around the vegetation mapping and provided a site inspection report that was undertaken on 11 February 2019 which confirmed the vegetation types within the application area. The site inspection

confirmed that the areas that were identified as 'Banksia woodland' in the fauna survey undertaken by Strategen were incorrectly mapped and were consistent with a Marri/Jarrah woodland as mapped in the flora survey (MRWA, 2019). The site inspection also confirmed that only a few *Banksia* species were present within the southern end of the application area, and the entire site was dominated by *Corymbia calophylla* species (MRWA, 2019).

## 6. References

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- Saunders, D.A. and Ingram, J.A. (1998) Twenty-eight years of monitoring a breeding population of Carnaby's cockatoo. Pacific Conservation Biology. 4: 261-270.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
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- Threatened Species Scientific Committee (TSSC) (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain Ecological Community. Canberra: Department of the Environment and Energy. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>. In effect under the EPBC Act from 16-Sep-2016.
- 360 Environmental (2018) Roe Highway and Kalamunda Road Upgrade. Flora, Vegetation, Fauna and Black Cockatoo Assessment. Prepared for Main Roads Western Australia. January 2018. 360 Environmental (DWER Ref: A1752243).
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- Western Australian Herbarium (1998- ) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed March 2019).

### GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Tenure
- Conservation managed reserves
- Hydrography, COG Hydro
- Hydrography, General Hydro
- Hydrography, Wetlands
- Land degradation risk categories
- SAC bio-datasets (Accessed March 2019)