



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	8826/1
Permit Holder:	Commissioner of Main Roads Western Australia
Duration of Permit:	22 July 2020 to 22 July 2025

ADVICE NOTE

Monetary Offset Contribution

The funds referred to in condition 11 of this permit are intended for contributing towards the purchase of 8.4 hectares of native vegetation with habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*) and 5.73 hectares of native vegetation that is representative of the 'Banksia woodlands of the Swan Coastal Plain' ecological community.

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 purposes of road reconstruction and associated activities.

2. Land on which clearing is to be done

Lot 10313 on Plan 219820, Nowergup

Lot 809 on Plan 25657, Nowergup

Lot 700 on Plan 405358, Nowergup

3. Area of Clearing

The Permit Holder must not clear more than 1.91 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8826/1.

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 work involving clearing for those activities under the *Main Roads Act 1930* or any other written law.

6. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 22 July 2025.

PART II – MANAGEMENT CONDITIONS

7. 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.

8. Dieback and weed control

When undertaking any clearing 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 machines and other vehicles of soil and vegetation prior to entering and leaving the area to be cleared
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

9. Fauna management – direction of clearing

The Permit Holder shall conduct clearing in a slow progressive manner from one direction to the other (e.g. west to east) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

10. Wind erosion management

The Permit Holder must ensure that road construction and associated activities commence within three months of the authorised clearing being undertaken, to reduce the risk of soil erosion by minimizing the exposure time of soils prior to construction.

11. 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 22 July 2021, the Permit Holder shall provide documentary evidence to the *CEO* that funding of \$11,676 has been transferred to the Department of Water and Environmental Regulation to purchase land for the purpose of establishing or maintaining native vegetation.

PART III - RECORD KEEPING AND REPORTING

12. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings
 - (ii) the date that the area was cleared
 - (iii) the size of the area cleared (in hectares)
 - (iv) the purpose for which clearing was undertaken.
 - (v) actions taken in accordance with condition 6 of this Permit
 - (vi) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 7 of this Permit;
 - (vii) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 8 of this Permit;
 - (viii) activities taken in accordance with condition 9 of this Permit;
 - (ix) activities taken in accordance with condition 10 of this Permit; and
 - (x) activities taken in accordance with condition 11 of this Permit.

13. 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 12 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 has been undertaken, a written report confirming that no clearing under this Permit has been undertaken, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 22 April 2025, the Permit Holder must provide to the *CEO* a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(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 species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Richard Newman
DIRECTOR
NATIVE VEGETATION PROTECTION

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

30 June 2020



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8826/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Commissioner of Main Roads WA
Application received date: 25 February 2020

1.3. Property details

Property: Lot 10313 on Plan 219820, Nowergup
Lot 809 on Plan 25657, Nowergup
Lot 700 on Plan 405358, Nowergup
Local Government Authority: City of Wanneroo
Localities: Nowergup

1.4. Application

Clearing Area (ha)	Method of Clearing	Purpose category:
1.91	Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 June 2020

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 with principles (a), (b), (e) and (h), may be at variance with principle (g), and is not likely to be at variance with the remaining Clearing Principles.

The applicant has implemented or committed to a number of minimisation and mitigation measures, including:

- locating the access road alignment in or as close to the existing adjacent road reserve as possible;
- designing the access road to impact degraded vegetation and avoid better condition vegetation in the vicinity; and
- reducing the cross section width of the PTA access road to the minimum permissible to ensure safe and efficient movement;
- minimising roundabout size as far as permissible; and
- adding a combined area of 6.735 hectares into Neerabup National Park estate which is currently vested with Main Roads and as unallocated Crown land, as it is surplus to the overall Mitchell Freeway upgrade requirements.

Taking into account the above measures, the Delegated Officer considers that the following significant residual impacts remain:

- loss of 1.91 hectares of Carnaby's cockatoo significant foraging habitat;
- loss of 1.30 hectares of native vegetation that is representative of federally listed Critically Endangered Banksia Dominated Woodlands of the Swan Coastal Plain (SCP) threatened ecological community (TEC).

The Delegated Officer considers that the acquisition and conservation of 8.4 hectares of native vegetation containing the following values is sufficient to counterbalance the significant residual impacts:

- 8.4 hectares of foraging habitat for Carnaby's cockatoo; and
- 5.73 hectares of native vegetation representative of the Banksia Woodland TEC.

As a condition of the clearing permit, the applicant is required to provide a monetary offset contribution, which will be used to acquire 8.4 hectares of native vegetation that includes the above values. Based on a desktop analysis, it is considered that acquisition of an appropriate offset site utilising these funds is achievable.

To minimise other potential impacts, as a condition of the clearing permit the applicant will be required to undertake the following measures:

- Undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- Implement weed and dieback management measures to reduce the risk of spread; and
- Undertake road upgrade activities within three months of clearing to reduce the exposure time of bare sandy soils and minimise the risk of land degradation through wind erosion.

The Delegated Officer took into consideration that the road upgrades are required to ensure road safety, accessibility and travel times and enabling regional development in Perth's northern suburbs. The Delegated Officer also considered the impacts associated with this application and two other nearby Main Roads clearing permit applications related to the larger Mitchell Freeway extension project (CPS 8861/1 and CPS 8753/1), which were assessed concurrently.

In granting a clearing permit subject to the above requirements, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The application is to clear 1.91 hectares of native vegetation within a 2.33 hectare footprint within Lot 10313 on Deposited Plan 219820, Lot 809 on Deposited Plan 25657 and Lot 700 on Deposited Plan 405358, Nowergup, for the purpose of construction and development of a road and associated infrastructure (Figure 1). The footprint encompasses approximately 0.42 of already existing infrastructure.

The proposed clearing is required due to changes to the Public Transport Authority's (PTA) access to its Nowergup Depot. The depot will be situated in the middle of the freeway and PTA requires safe access. Originally, access was provided within the MRS 992/33, but the proposed Whiteman-Yanchep rail line will interfere with the originally proposed access and an alternate access is required. The alternate access to Nowergup Depot has resulted in the requirement to install a roundabout on Hester Avenue and widening the existing southern access to Quinns Quarry Access, which is subject of clearing permit application CPS 8861/1 (Main Roads Western Australia (MRWA), 2020a).

The project relates to the larger Mitchell Freeway extension project designed to support the expansion of Perth's fast growing outer northern suburbs. The majority of the larger project was considered under the MRS Amendment (992/33), which was considered by the Environmental Protection Authority (EPA), and approved under Ministerial Statement 629. The application area was not considered under the MRS amendment and has therefore been applied to clear under Part V of the EP Act.

Biological Surveys

A larger project area encompassing the application area has been subject to biological surveys (the Survey) by GHD (2019). The Survey included single season detailed and targeted vegetation and flora assessments and a reconnaissance survey of an extended survey area (GHD, 2019). The Survey included targeted surveys for conservation significant flora based on desktop assessments and habitat availability. The survey was undertaken over multiple visits between early and late spring (September to November 2018) with an additional targeted flora survey undertaken in early summer (December 2018 and January 2019). An evaluation of conservation significant ecological communities was also undertaken (GHD, 2019). The Survey was undertaken in accordance with the Environmental Protection Authority's (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (GHD, 2019).

The weather conditions recorded during the Survey were considered unlikely to have impacted the survey results. The Survey timings were considered appropriate for the flora and fauna field surveys (GHD, 2019).

A targeted flora survey for conservation significant flora species (the Targeted survey) was conducted by GHD between 7 – 9 October 2019 (GHD, 2020c). The Targeted survey area encompassed part of the Survey area and the scope of the survey was to conduct a search for conservation significant flora based on the findings of the Survey (GHD, 2019), follow up desktop likelihood of occurrence and habitat availability. The Targeted survey noted that the field survey timing generally coincided with the most suitable period to identify the conservation significant flora species identified as likely to occur within the application area (GHD, 2020c).

With regard to fauna, four field surveys were undertaken between August 2018 and February 2019. These included (GHD, 2019):

- habitat assessment including specific black cockatoo habitat assessment
- level 2 fauna trapping within the survey area and assessment within the extended survey area (diurnal and nocturnal with opportunistic observations also recorded)
- monitoring of identified black cockatoo habitat trees
- monitoring of identified black cockatoo breeding hollows.

Vegetation Description

The application area occurs within the 'SCP' Interim Biogeographic Regionalisation for Australia (IBRA) bioregion, and is mapped as SCP vegetation complex Cottesloe Complex-Central And\South, which is described as mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia callophylla* (Marri); closed heath on the Limestone outcrops (Heddlie et al., 1980).

The Survey identified five vegetation types within the application area as shown in Table 1.

Table 1 Vegetation types recorded in the clearing footprint encompassing the application area (GHD, 2019).

Vegetation Type	Vegetation Description
Banksia low woodland 55.8 percent (1.30 hectares)	Low woodland of <i>Banksia attenuata</i> and <i>B. menziesii</i> with occasional <i>Allocasuarina fraseriana</i> and <i>Eucalyptus tottiana</i> over a mid to low shrubland of <i>Hibbertia hypericoides</i> , <i>Xanthorrhoea preissii</i> and <i>Acacia pulchella</i> var. <i>glaberrima</i> over open sedgeland and forbland of <i>Mesomelaena pseudostygia</i> , <i>Conostylis aculeata</i> and <i>Desmocladius flexuosus</i> (Figure 2a)
Banksia sessilis 5.9 percent (0.14 hectares)	Tall closed shrubland - tall closed shrubland of <i>Banksia sessilis</i> , <i>Melaleuca systema</i> and <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i> over shrubland of <i>Xanthorrhoea preissii</i> , <i>Hibbertia hypericoides</i> and <i>Hakea trifurcata</i> over Forbland/Sedgeland of <i>Desmocladius flexuosus</i> , <i>Conostylis aculeata</i> and <i>Mesomelaena pseudostygia</i> (Figure 2b)
Jarrah tall woodland 7.2 percent (0.17 hectares)	Tall woodland of <i>Eucalyptus marginata</i> , <i>Banksia</i> spp. and <i>Allocasuarina fraseriana</i> over shrubland of <i>Hibbertia hypericoides</i> , <i>Xanthorrhoea preissii</i> and <i>Acacia pulchella</i> var. <i>glaberrima</i> over a forbland/ grassland of <i>Mesomelaena pseudostygia</i> , <i>Desmocladius flexuosus</i> and weedy grasses (<i>*Ehrharta longiflora</i> and <i>*Briza maxima</i>) (Figure 2c)
Scattered natives over weeds 13.1 percent (0.31 hectares)	Areas that have been impacted by previous clearing or grazing and consist of scattered native trees and/or shrubs including <i>*Eucalyptus marginata</i> , <i>E. gomphocephala</i> , <i>Corymbia calophylla</i> , <i>Banksia</i> spp., <i>Allocasuarina fraseriana</i> with a scattered mid and lower storey including <i>Acacia</i> spp., <i>Xanthorrhoea preissii</i> and <i>Hibbertia hypericoides</i> over a groundcover completely dominated by introduced grasses (<i>*Avena barbata</i> , <i>*Bromus diandrus</i> and <i>*Ehrharta calycina</i>) and herbs (<i>*Euphorbia terracina</i> , <i>*Carpobrotus edulis</i> and <i>*Pelargonium capitatum</i>) (Figure 2d)
Cleared/highly disturbed 18 percent (0.41 hectares)	Generally completely cleared of native vegetation and consists of roads, railway, tracks, planted non-native vegetation and building structures.

Vegetation Condition

The condition of the vegetation within the application area varies greatly ranging from very good (Keighery, 1994) to completely degraded (Keighery, 1994) condition (GHD, 2019), described as:

- **Very Good:** Vegetation structure altered; obvious signs of disturbance (Keighery 1994);
- **Good:** Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994);
- **Degraded:** Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994); and
- **Completely Degraded:** No longer intact, completely/almost completely without native species (Keighery, 1994).

The extent of the recorded vegetation condition (GHD, 2019) is summarised in Table 2.

Table 2 Vegetation condition recorded in the application area (GHD, 2019).

Vegetation condition within vegetation types mapped in the application area			Overall vegetation condition in the application area	
Vegetation type	Vegetation Condition (Keighery, 1994)	Area (hectares)	Vegetation Condition (Keighery, 1994)	Cumulative extent (ha)
<i>Banksia</i> low woodland	Degraded	0.27	Very good – good	1.03
	Very good – good	1.03		
<i>Banksia sessilis</i> tall closed shrubland	Degraded	0.02	Good	0.12
	Good	0.12		
Jarrah tall woodland	Degraded	0.17	Degraded	0.73
	Completely degraded	0.03		
Scattered natives over weeds	Degraded	0.27	Completely degraded	0.03
Total		1.91		

Soil and Landform

The application area is mapped as the following land subsystems (Schoknecht et al., 2004):

- **Karrakatta Shallow Soils Phase**, which is described as low hills and ridges. Bare limestone or shallow siliceous or calcareous sand over limestone. Dense low shrub dominated by *Dryandra sessilis*, *Melaleuca huegellii* and species of *Grevillea*. This soil subsystem comprises around 55.8 percent of the application area
- **Karakatta Sand Yellow Phase**, which is described as low hilly to gently undulating terrain. Yellow sand over limestone at 1-2 m. *Banksia* spp. woodland with scattered emergent *E. gomphocephala* and *E. marginata* and a dense shrub layer. This soil subsystem comprises around 44.8 percent of the application area.

Comments

The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area.

The survey area included the proposed road corridors for Mitchel Freeway extension and Wanneroo road upgrade plus a 50 metre buffer. Covers a total area of 399.97 hectares (GHD, 2019).



Figure 1 Application area cross-hatched blue



Figure 2a *Banksia* low woodland



Figure 2b *Banksia sessilis* tall closed shrubland



Figure 2c Jarrah tall woodland



Figure 2d Scattered natives over weeds

Figures 2a-d: Representative photos of the vegetation within the application area (GHD, 2019).

3. Minimisation and mitigation measures

In relation to whether alternatives have been considered that would avoid or minimise the need for clearing, MRWA has advised that the Proposal design has commenced, and impacts will be minimised where possible to prevent the clearing of native vegetation. Although the design has not been finalised, significant effort has been taken to avoid impacts on the environment. The following avoidance measures have been considered (GHD, 2020a):

- The access has been located as close as possible to the existing PTA access to minimise the clearing footprint. Selection of preferred alignment and location of access was undertaken to minimise impacts to native vegetation.
- Design of access has minimised clearing or impacts to the National Park by:
 - Ensuring the access road alignment is located in or as close to the existing adjacent road reserve as possible;
 - Designing the access road to impact degraded vegetation and avoid better condition vegetation in the vicinity (e.g. follow existing cleared access tracks where possible);
 - Installing new or modifying existing drainage basins in the current roads reserve where possible including the use of Freehold Lot (Lot 809) for any future additional drainage needs;
 - Reducing the cross section width of the PTA access road to the minimum permissible to ensure safe and efficient movement;
 - Implementation of typical surface water control measures along the access road including swales to prevent impacts to adjacent vegetation from surface water runoff and control 1 in 50 flooding events;
 - Implementation of typical surface water control measures on the roundabout including pit and pipe drainage connecting to the existing drainage network on Hester Avenue preventing runoff into adjacent vegetation;
 - Fully sealing the road which eliminates potential impact of dust particles on adjacent vegetation (associated with unsealed roads);
 - Vertical design of the road closely matches the existing topography where possible to minimise earthworks; and
 - Minimising roundabout size as far as permissible, to accommodate the design vehicles and minimise clearing.
- Installation of retaining walls is being considered during detailed design to further reduce the earthworks batters and associated clearing;
- Early consultation was undertaken with utility service providers to ensure design was optimised to minimise relocation of existing services (and associated ground disturbance/clearing); and
- Early consultation with the Department of Biodiversity, Conservation and Attractions (DBCA) was undertaken to ensure design acceptance and determine concerns in relation to minimising impacts to native vegetation and the National Park."

The applicant has prepared a Construction Environmental Management Plan (CEMP) for the larger Mitchell Freeway Extension (Hester Avenue to Romeo Road) and has advised that this CEMP be utilised for the proposed works associated with this application. The applicant notes that the CEMP includes the following measures (GHD, 2020a):

Vegetation Clearing Management

- Vegetation to be retained will be clearly marked with flagging on site
- Additional areas required for construction such as laydown areas, stockpile areas and vehicle turn around, will be located in areas cleared for permanent works.

Fauna Management

- Pre-clearance surveys will be undertaken for all areas of black cockatoo habitat proposed to be cleared within the breeding period of black cockatoos
- Speed limits between 40-80 kilometres per hour will be applied throughout the construction site to reduce the risk of fauna strikes during construction
- Transfer of any injured fauna found on site to an appropriate fauna rescue organisation or individual. A list of local fauna rescue organisations and individuals will be maintained on site.

Other management measures:

- Water carts and/or surface stabilization measures (e.g. hydro mulch) will be used to minimise dust generated from cleared areas
- Topsoil will be harvested, stockpiled and reused in accordance with Main Roads Environmental Guideline Topsoil Management.
- Temporary drainage will be installed to capture and infiltrate surface runoff from construction areas and prevent runoff from entering adjacent native vegetation.
- All heavy plant and machinery will be inspected at entry and exit of the work site and be confirmed to be clean and free of vegetation and soil material.
- The proposal is in a phytophthora dieback susceptible bioregion, with conservation significant protectable vegetation adjacent to the application area. Dieback Management will be undertaken for the larger Mitchell Freeway Extension project including within the application area.
- Revegetation will be undertaken post-construction to prevent soil and wind erosion.
- Weed control will be undertaken during works as part of the CEMP, specifically targeting WoNS and Declared Pests. The application area will also be subject to the yearly Main Roads weed spraying program.

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 at variance with this Principle

Delegated Officer's Key Consideration

It is considered that the application area contains a high level of biodiversity, as it contains the following values:

- 1.30 hectares of native vegetation that is representative of the federally listed Banksia Dominated Woodlands of the SCP threatened ecological community (TEC);
- 0.14 hectares of the state listed Priority 3 Northern Spearwood shrublands and woodlands priority ecological community (PEC);
- 1.91 hectares of significant Carnaby's cockatoo and forest red-tailed black cockatoo foraging habitat; and
- regionally significant ecological linkage values contributing to north south fauna movement between existing remnants and conservation areas.

The applicant has agreed to provide an offset to address the remaining residual impacts to Carnaby's cockatoo and Banksia Woodland PEC/TEC (see Section 5).

In considering impacts to biodiversity the Delegated Officer took into account that the road upgrades are required to ensure road safety and form part of the larger Mitchell Freeway extension upgrades.

Threatened and Priority Flora

According to available databases, three threatened and 27 priority flora species have been recorded within the local area. Threatened flora are discussed further under Principle (c). The survey noted that up to 26 conservation significant flora species (threatened and priority) may occur within the larger survey area on the basis of known records and habitat suitability (GHD, 2019).

The survey identified six priority flora species within the larger survey footprint (see Table 3). All six flora priority flora species have been mapped in vegetation types that have not been mapped in the application area. The closest record of these species to the application area was *Styloidium maritimum*, located approximately 190 metres east of the application area.

Table 3 Priority flora recorded in the larger survey area

Taxon	Conservation Status	Total Number of Known Records	Total Number of individuals recorded in larger survey area (outside of the application area)
<i>Baeckea</i> sp. Limestone (N. Gibson & M.N. Lyons 1425)	Priority (P) 1	20	354
<i>Acacia benthamii</i>	P2	28	15
<i>Pimelea calcicola</i>	P3	28	125
<i>Styloidium maritimum</i>	P3	42	944
<i>Leucopogon</i> sp. Yanchep (M. Hislop 1986)	P3	32	425
<i>Hibbertia spicata</i> subsp. <i>leptotheca</i> (now <i>Hibbertia leptotheca</i>)	P3	36	73

Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, it was determined three additional flora species known from the local area may occur within the application area. These species are shown in Table 4.

Table 4 Additional priority flora with potential to occur in the application area

Taxon	Conservation Status	Total Number of Known Records in the local area	Closest record [km]
<i>Fabronia hampeana</i>	P2	6	3.2
<i>Jacksonia sericea</i>	P4	12	1.7
<i>Sarcosoma bicarinata</i>	P3	4	3.1

No priority flora taxa were recorded within the application area. A likelihood of occurrence assessment was conducted as part of the Flora survey (GHD, 2020). This assessment took into account previous records of surveys from 2014, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species. The likelihood assessment concluded that no priority flora is likely to occur within the application area based on habitat requirements (GHD, 2019).

To confirm the findings of the Survey (GHD, 2019) a follow up targeted survey for the presence of conservation significant flora species determined as likely to occur within the application area was conducted (GHD, 2020c). The Targeted survey (GHD, 2020c) did not identify any threatened or priority flora taxa within the application area.

Threatened and Priority Ecological Communities

According to available databases, two federally listed TEC and one state listed PEC have been mapped within the local area. These TEC/PECs are shown in Table 5 below.

Table 5 TECs and PECs recorded in the local area (GHD, 2019).

TEC/PEC name	Conservation status	Distance from the application area [km]
<p><u>PEC listing:</u> 'Banksia dominated woodlands of the SCP IBRA region'</p> <p><u>TEC listing:</u> 'Banksia woodlands of the SCP'</p> <p>(Herein collectively referred to as Banksia Woodland PEC/TEC)</p>	<p><u>TEC listing:</u> Endangered under the EPBC Act</p> <p><u>PEC listing:</u> P3 classified by DBCA</p>	5.6
<p><u>PEC listing:</u> 'Tuart (<i>Eucalyptus gomphocephala</i>) woodlands of the SCP'</p> <p><u>TEC listing:</u> 'Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the SCP'</p> <p>(Herein collectively referred to as Tuart Woodland PEC/TEC)</p>	<p><u>TEC listing:</u> Endangered under the EPBC Act</p> <p><u>PEC listing:</u> P3 classified by DBCA</p>	0.52
Northern Spearwood shrublands and woodlands (floristic community type 24) (Northern Spearwood Shrublands)	P3 listed by DBCA	0.46

The Survey (GHD, 2019) identified that the vegetation within the application area is representative of two conservation significant ecological communities; being Banksia Woodland PEC/TEC and Northern Spearwood Shrublands.

Banksia Woodland PEC/TEC

The Survey recorded 1.30 hectares of the state listed Banksia Woodland PEC, which corresponds with the recorded Banksia woodland vegetation type. Of this 1.30 hectares, 1.11 was deemed to be representative of the federally listed Banksia Woodland TEC (GHD, 2019). DBCA advice for CPS 8753/1 notes the description, area and condition thresholds that apply to the TEC also apply to the state listed PEC and the area of PEC should match that of the TEC (DBCA, 2020a). Therefore, the proposed clearing may impact on 1.30 hectares of the Banksia Woodland TEC.

The conservation advice for this TEC notes that it comprises a dominant tree layer of *Banksia*, including at least one of four key species; *Banksia attenuata*, *Banksia menziesii*, *Banksia prionotes* and/or *Banksia ilicifolia* (Threatened Species Scientific Community (TSSC), 2016). The tree layer often includes scattered eucalypts and other tree species within or above the *Banksia* canopy. The understorey is species rich, including sclerophyllous shrubs, sedges and herbs (TSSC, 2016).

The extent of this community has declined significantly, and it is estimated that up to 60 percent has been lost, with most remaining patches of small size (TSSC, 2016). Clearing for development has been identified as a key threatening process for this community, and conservation efforts are focused on protecting, managing and restoring the best surviving remnants (TSSC, 2016).

An assessment using the key diagnostic characteristics, which include minimum patch size and condition thresholds, identified that approximately 1.30 hectares of vegetation in the application area is representative of Banksia woodland PEC/TEC (GHD, 2019).

Northern Spearwood Shrublands

The survey recorded approximately 0.14 hectares of the application area comprising the heathland of *Banksia sessilis*, *Calothamnus quadrifidus* and *Schoenus grandiflorus*, with *Hardenbergia comptoniana*, *Melaleuca systema* and *Xanthorrhoea preissii*, which is representative of Northern Spearwood Shrubland PEC. This PEC is known from around 1009.5 hectares and the application area comprises 0.014 percent of the total known occurrence of this PEC. Noting this, the proposed clearing is not likely to significantly impact on the known occurrence of the PEC.

Threatened and Priority Fauna

As discussed under Principle (b), the Survey (GHD, 2019) recorded that the application area provides significant habitat for Carnaby's cockatoo and forest red-tailed black cockatoo, and is suitable habitat for Southern Brown Bandicoot, Western Brush Wallaby, Peregrine Falcon, Black-striped Snake and Jewelled southwest Ctenopus.

Ecological Linkages

The application area forms part of a north south regionally significant ecological linkage (Conceptual Linkage) (ID 53) defined by the Gngangara Sustainability Strategy (2009). Conceptual linkages are proposed ecological linkages based on past studies and new linkages across the landscapes with less than 60 percent native vegetation retained or on core landscapes that are predominantly over private property (Brown et al., 2009). This linkage provides value as a north-south ecological linkage within a highly fragmented landscape, particularly between Neerabup National Park (Bush Forever Site No. 383) and Lake Joondalup (Bush Forever Site No. 299); and therefore, is likely to facilitate the movement of fauna and ecological processes between these areas.

The application area is immediately adjacent to Hester Avenue which fragments two sections of Neerabup National Park (ID 1307 and ID 2139). Noting this, the proposed clearing will not fragment the Conceptual Linkage but will create a wider barrier for fauna movement. It was also noted that the proposed clearing is located approximately 115 metres east of the existing fauna underpass. Considering the distance, the proposed clearing is not likely to have an impact on this underpass.

Conservation Areas

As discussed under Principle (h), approximately 1.71 hectares of the application area occurs within Neerabup National Park and this area is consistent with the mapping of Bush Forever Site No. 383. This area is the subject of a historical Scheme Amendment which included a rezoning process involving the excision of a portion of land from the National Park boundary. As part of a number of agreed excisions and additions from the National Park, the applicant has committed to adding 6.735 hectares of land surplus to the Mitchell Freeway upgrade requirements into Neerabup National Park estate (GHD, 2020b).

Weeds and Dieback

The Survey identified (GHD, 2019) five weed species listed as Declared Pests under the *Biosecurity and Agricultural Management Act 2007*, with three of these species also listed as Weeds of National Significance (WoNS). The Survey notes that Dieback is also likely to be present within the application area (GHD, 2019).

The applicant will be required to undertake weed and dieback management measures to minimise the risk of spread into adjacent native vegetation and nearby conservation areas.

The applicant has also advised that this risk will be managed as part of the CEMP for the larger project, which includes the following measures (GHD, 2020a):

- All heavy plant and machinery will be inspected at entry and exit of the work site and be confirmed to be clean and free of vegetation and soil material
- Weed control will be undertaken during works as part of the CEMP, specifically targeting WoNS and Declared Pests. The application area will also be subject to the yearly Main Roads weed spraying program.

(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 at variance with this Principle

Delegated Officer's Key Consideration

The proposed clearing comprises significant habitat for fauna as it contains the following values:

- 1.91 hectares of significant Carnaby's cockatoo; and
- regionally significant ecological linkage values contributing to north south fauna movement between existing remnants and conservation areas.

The applicant has agreed to provide and offset to address the remaining impacts to Carnaby's and forest red-tailed black cockatoo habitat (see Section 5).

As a condition of the clearing permit, the applicant will be required to undertake slow progressive one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing.

Fauna Habitat Types

The Survey identified five fauna habitat types within the application area which are shown in the table below. Banksia woodland was the dominant habitat type (GHD, 2019):

Table 6 Fauna habitat types recorded within the application area (GHD, 2019).

Fauna Habitat	Area [ha]
Banksia Woodland	1.30
Jarrah Woodland	0.17
Mixed Heathland	0.14
Scattered natives over weeds (highly disturbed)	0.31
Total	1.92

A likelihood of occurrence assessment for conservation listed fauna species was undertaken and the Survey (GHD, 2019) notes that seven species were considered likely to occur in the application area:

- Forest Red-tailed Black cockatoo (*Calyptorhynchus banksia naso*)
- Carnaby's Black cockatoo (*Calyptorhynchus latirostris*)
- Southern Brown Bandicoot (*Isodon fusciventer*)
- Western Brush Wallaby (*Notamacropus Irma*)
- Peregrine Falcon (*Falco peregrinus*)
- Black-striped Snake (*Neelaps calonotos*)
- Jewelled southwest Ctenotus (SCP population) (*Ctenotus gemmula*).

Carnaby's cockatoo

Carnaby's cockatoo generally breeds in flat-topped yate, salmon gum, wandoo, marri, karri, blackbutt, tuart, introduced eucalypts (for example blue gum) and introduced pines (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 Survey identified a single jarrah tree (*Eucalyptus marginata*) with DBH greater than 500mm with no hollows within the application area (GHD, 2019)

The closest confirmed breeding site is approximately 15.2 kilometres north of the application area and there are several confirmed roost sites within the local area.

Carnaby's cockatoo 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 SCP show that *Banksia* species account for nearly 50 percent of the diet for this species (Shah, 2006).

The Survey (GHD, 2019) identified 1.30 hectares of *Banksia attenuata*, *B. menziesii*, *B. grandis*, *B. sessilis*, *Allocasuarina fraseriana*, and *Eucalyptus marginata* that provide high quality foraging habitat for Carnaby's cockatoo. The EPA technical advice for Carnaby's cockatoo notes that *Banksia* species (predominantly *Banksia attenuata*, *Banksia menziesii* and *Banksia sessilis*) provide the most important natural food resource on the SCP (EPA, 2019). The significance of *Banksia* woodland habitat has been confirmed through foraging studies, which determined that Carnaby's cockatoo exploit all areas of available *Banksia* food resources on the SCP (EPA, 2019). *Banksia* woodland in the Perth metropolitan area has been reduced to one third of its pre-European extent. The remaining portions are fragmented, with the majority (82 percent) of remnant patches under 10 hectares (EPA, 2019). Carnaby's cockatoo foraging evidence was recorded within the application area (GHD, 2019).

Noting the above, the application area provides significant habitat for Carnaby's cockatoo as it contains 1.91 hectares of suitable foraging habitat on the SCP, of which 1.30 is *Banksia* woodland and 1.03 hectares is in a very good (Keighery, 1994) to good (Keighery, 1994) condition. Noting this, the application area provides significant habitat for this species.

Forest red-tailed black cockatoo

The forest red-tailed black cockatoo commonly inhabits dense jarrah, karri, and marri forests receiving more than 600 millimetres annual average rainfall (Commonwealth of Australia, 2012). This species also occurs in a range of other forest and woodland types, including blackbutt (*E. patens*), wandoo (*E. wandoo*), tuart (*E. gomphocephala*), Albany blackbutt (*E. staeri*), yate (*E. cornuta*), and flooded gum (*E. rudis*). This species mostly feeds on the seeds of marri and jarrah which comprise around 90 percent of its diet (Commonwealth of Australia, 2012). This species was identified flying over and foraging on flora species identified within the application area (GHD, 2019).

Forest red-tailed black cockatoo breeds within tall jarrah, marri, blackbutt, tuart and introduced eucalypt trees within or on the edges of forests. As for Carnaby's cockatoo, the Survey identified a single jarrah tree (*Eucalyptus marginata*) with DBH greater than 500mm with no hollows within the application area (GHD, 2019)

The application area provides up to 1.91 hectares of suitable foraging habitat for this species, however, preferred foraging habitat for this species is limited to the Jarrah woodland (0.17 hectares) and scattered natives over weeds (0.31 hectares) vegetation types, which are largely in a degraded (Keighery, 1994) and completely degraded (Keighery, 1994) condition. Noting this, the application area is unlikely to provide significant habitat for this species.

Peregrine Falcon

The Peregrine Falcon is listed under the BC Act as other specially protected fauna species. It is found on and near cliffs, gorges, timbered watercourses, riverine environments, wetlands, plains, open woodlands, and pylons and spires of buildings, though less frequently in desert regions (Morcombe, 2004). They are not common but can be found almost anywhere throughout WA and in the southwest, including particularly at Fitzgerald River, Stirling Range, Porongurup National Parks, Kondinin, and Peak Charles, with many more locations north of Perth (Nevill, 2013). Two opportunistic sightings of this species were recorded during the Survey.

The supporting information provided by MRWA notes that the application area provides suitable foraging habitat for this species, however it is not considered to provide core breeding habitat (GHD, 2019).

Noting that this species is a highly mobile species with a large home range that doesn't rely on specialist niche habitats, the proposed clearing is not likely to impact on significant habitat for this species.

Quenda

Quenda, prefers dense scrubby, often swampy, vegetation with dense cover up to one metre high. However, it also occurs in woodlands, and may use less ideal habitat where this habitat occurs adjacent to the thicker, more desirable vegetation. On the SCP, Quenda are often associated with wetlands. The species often feeds in adjacent Jarrah and Wandoo forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover (Van Dyck and Strahan 2008).

Based on the Survey findings, it was concluded (GHD, 2019) that Quenda may utilise the whole application area on a daily basis. However, noting the extent of the proposed clearing and the proximity and the extent of remnant vegetation in the local area, the application area is not significant habitat for this fauna species.

This species may be subject to individual harm should they be present at the time of clearing. Slow progressive one directional clearing will help to allow this species to disperse ahead of the clearing activity should it occur on site at the time of clearing.

Western Brush Wallaby

The Western Brush Wallaby, listed as Priority 3 by DBCA, inhabits open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland. The application area contains woodland habitat (GHD, 2019), and therefore, provides suitable habitat for this species. This species was recorded approximately one kilometre from the application area.

Noting that this species is highly mobile and doesn't rely on specialist niche habitats, the proposed clearing is not likely to impact on significant habitat for this species, particular given that Neerabup National Park (comprises around 950 hectares) is adjacent to the majority of the application area.

As noted for the quenda, this species may be subject to individual harm should they be present at the time of clearing. Slow progressive one directional clearing will help to allow this species to disperse ahead of the clearing activity should it occur on site at the time of clearing.

Black-striped Snake and Jewelled southwest Ctenotus (SCP population)

Both species are known to occur on areas of deep sands with Banksia woodland and Jarrah woodland habitat, which is considered the preferred habitat for these species (Wilson and Swan 2017). Based on this, the application area provides suitable habitat for Black-striped Snake and Jewelled southwest Ctenotus (SCP population).

Higher quality habitat for these species exists in the nearby Neerabup (comprises around 950 hectares) and Yanchep National Park (comprises around 2900 hectares). Therefore, the proposed clearing is not likely to impact on significant habitat for these species.

As noted for the quenda and western brush wallaby, these species may be subject to individual harm should they be present at the time of clearing. Slow progressive one directional clearing will help to allow these species to disperse ahead of the clearing activity should they occur on site at the time of clearing.

Ecological linkages

As detailed under Principle (a), the application area forms part of a north south regionally significant ecological linkage (Conceptual Linkage) (ID 53) defined by the Gngara Sustainability Strategy (2009). This linkage provides value as a north-south ecological linkage within a highly fragmented landscape, particularly between Neerabup National Park (Bush Forever Site No. 383) and Lake Joondalup (Bush Forever Site No. 299); and therefore, is likely to facilitate the movement of fauna and ecological processes between these areas. Noting the location of the application area and the Conceptual Linkage, the proposed clearing will not fragment this ecological linkage but will create a wider barrier for fauna movement.

The application area is immediately adjacent to Hester Avenue which fragments two sections of Neerabup National Park (ID 1307 and ID 2139). Noting this, the proposed clearing will not fragment the Conceptual Linkage but will create a wider barrier for fauna movement. It was also noted that the proposed clearing is located approximately 115 metres east of the existing fauna underpass. Considering the distance, the proposed clearing is not likely to have an impact on this underpass.

(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 with this Principle

According to available databases, there are three species of flora listed as threatened under the BC Act recorded in the local area, being *Eucalyptus argutifolia*, *Marianthus paralius* and *Melaleuca* sp. Wanneroo (G.J. Keighery 16705).

The Flora survey (GHD, 2019) did not identify any threatened flora species within the application area. A likelihood of occurrence assessment was conducted as part of the Flora survey (GHD, 2019).

This assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species. The likelihood assessment concluded that no conservation significant flora taxa are likely to occur within the survey area based on habitat requirements (GHD, 2019).

Given the above and noting the distance to known records of the above species, the proposed clearing is not likely to impact on any of the above species.

(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 with this Principle

According to available databases, there are two TEC listed under the BC Act within the local area, being:

- *Melaleuca huegelii* - Melaleuca systema shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) (Endangered); and
- *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994)) (Endangered) TEC.

The Flora survey (2019) did not record any state listed TEC, and the vegetation types recorded are not considered to be representative of any known state listed TEC.

Banksia woodland, which is federally classified as Endangered TEC, has been recorded within the application area. However noting that this is not a state listed TEC, impacts to this community have been described under Principle (a).

(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 at variance with this Principle

Delegated Officer's Key Considerations

It is considered that the application area is a significant remnant in an extensively cleared area, as it contains the following values:

- 1.91 hectares of native vegetation within a highly cleared landscape which is subject to multiple known large scale future road upgrade developments;
- 1.91 hectares of significant foraging habitat for Carnaby's cockatoo;
- 1.30 hectares of native vegetation that is representative of Banksia Woodlands PEC/TEC; and
- ecological linkage values contributing to north south fauna movement between existing remnants.

While it is acknowledged that the proposed clearing is at variance with this Principle, noting that the application area is within a constrained area, a direct offset is not warranted.

To address the residual impacts to Carnaby's cockatoo habitat and Banksia Woodland PEC/TEC, the applicant has agreed to provide an offset (see section 5).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). Within constrained areas (areas of urban development in cities and major towns) on the SCP, the threshold for representation of the pre-clearing extent of a particular native vegetation complex is 10 percent (EPA, 2008). The application is classified as a constrained area.

As indicated in Table 7, the SCP IBRA bioregion and the SCP vegetation complex mapped within the application area retain greater than the abovementioned 10 percent vegetation threshold for constrained areas (Government of WA, 2019).

Table 7 Remnant vegetation statistics (Government of WA, 2019)

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DBCA Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	850,785.09	276,461.42	32.49	13.25
Swan Coastal Plain vegetation complex **				
Cottesloe And South Complex-Central	45,299.61	14,567.87	32.16	14.58

The local area (taking into account the coastal watermark) retains approximately 35 percent native vegetation cover (approximately 8,568.68 hectares). The application area represents approximately 0.022 percent 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 8,566.66 hectares.

While the remnant vegetation extents for the local area and mapped vegetation complexes are above the 10 and 30 percent vegetation thresholds outlined above, the application area is bordered by significant urban development to the west (extending to the coast) and significant agricultural land uses to the east and is generally considered to occur within an area that has undergone extensive clearing.

Furthermore, the cumulative impact of multiple proposals associated with the larger Mitchell Freeway Extension Project need to be considered. It is estimated that the project will involve the loss of more than 165 hectares of native vegetation from this portion of the SCP (including the proposed clearing for this application), further contributing to the already extensively cleared landscape.

The application area forms part of a corridor of remnant native vegetation recognised as a regionally significant ecological linkage (as detailed under Principles (a) and (b)) within this highly cleared landscape. It also provides habitat for conservation significant fauna species and includes occurrences of a federally listed TEC and a state listed PEC. Therefore, the application area is considered to be a significant remnant within an extensively cleared area.

(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 with this Principle

According to available databases, no watercourses or wetlands are located within close proximity to the application area. The closest waterbody to the application area is the Neerabup Lake Resource Enhancement sumpland that is located approximately 910 metres east of the application area.

Noting the description of the vegetation within the application area (GHD, 2019) and the distance from any known watercourses or wetlands, it is considered that the vegetation within the application area is not growing in association with a watercourse or wetlands.

(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 with this Principle

Primary soils within the application area are mapped by the Department of Primary Industries and Regional Development (DPIRD) (2020). The two mapped soils within the application area are Karrakatta Shallow Soils Phase (approximately 55.8 percent of the application area) and Karrakatta Sand Yellow Phase (approximately 44.2 percent of the application area).

The application area has relatively flat topography, and average rainfall of 800 millimetres per annum and marginal groundwater salinity (Mayer, Ruprecht & Bari, 2005) mapped between 500 – 1000 total dissolved solids (milligrams per litre). Noting this, the porous nature of sandy soils within the application area, the linear shape and size of the application area, and relatively low rainfall, the proposed clearing is unlikely to cause appreciable land degradation through water erosion, waterlogging or salinity.

According to the DPIRD (2020) land degradation summary detailed in Table 8, 30 – 50 percent of Karrakatta shallow soils and more than 70 percent of Karrakatta Sand Yellow Phase have high to extreme wind erosion risk. Considering this, the highly cleared surrounding area and flat topography, the proposed clearing may cause appreciable land degradation in the form of wind erosion.

Table 8 Risk degradation summary

Risk categories	Karrakatta shallow soils	Karrakatta Sand Yellow Phase
Wind erosion	30-50% of map unit has a high to extreme wind erosion risk	>70% of map unit has a high to extreme wind erosion risk
Water erosion	3-10% of map unit has a high to extreme water erosion risk	3-10% of map unit has a high to extreme water erosion risk
Salinity	30-50% of map unit has a moderate to high salinity risk or is presently saline	30-50% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	10-30% of map unit has a high subsurface acidification risk or is presently acid	10-30% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk
Water logging	<3% of map unit has a moderate to very high waterlogging risk	<3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk

To reduce this risk, the applicant will be required to undertake the proposed activities within three months of clearing to reduce the exposure time of sandy soils. In addition, as part of a CEMP associated with the larger proposed Mitchell Freeway upgrades, which this application area is associated with, the applicant has noted that water carts and/or surface stabilisation measures (e.g. hydro mulch) will be used to minimise dust generated from cleared areas, and in turn reduce the potential for wind erosion (GHD, 2020a).

(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 at variance with this Principle

Delegated Officer's Key Consideration

The proposed clearing will impact on the environmental values of a conservation area, as it will result in the following:

- loss of 1.71 hectares of native vegetation within Neerabup National Park;
- loss of 1.71 hectares of native vegetation within Bush Forever Site 383; and
- increase the risk of weeds and dieback spreading into conservation areas.

As a condition of the clearing permit, the applicant will be required to undertake weed and dieback management measures to reduce their risk of spread into surrounding conservation areas.

It is also acknowledged that as part of a number of agreed excisions and additions from Neerabup National Park, the applicant has agreed to excise 1.71 hectares from the application area and committed to adding a total area of 6.735 hectares of land surplus to the Mitchell Freeway upgrade requirements into Neerabup National Park estate.

According to available databases, there are six conservation areas within the local area, being:

- Neerabup National Park (Class A) located within the application area;
- Neerabup Nature Reserve (Class A) located approximately 2.5 kilometres north of the application area;
- Gngangara-Moore River State Forest (Class A) located approximately 4.4 kilometres east of the application area;
- Marmion Marine Park (Class A) located approximately 6.1 kilometres southwest of the application area;
- Lake Joondalup Nature Reserve (Class A) located approximately 6.7 kilometres southeast of the application area; and
- Yanchep National Park (Class A) located approximately 9.2 kilometres northwest of the application area.

The application area includes 1.71 hectares of Neerabup National Park (Class A Reserve, R 27575) and 1.71 hectares of native vegetation (which overlaps with the Neerabup National Park) within Bush Forever Site 383 known as 'Neerabup National Park, Lake Nowergup Nature Reserve and adjacent bushland' (Figure 3). The overlapping portions with Neerabup National Park and Bush Forever Site 383 are largely in a very good to good (Keighery, 1994) condition, and it is therefore considered that the proposed clearing will impact on the environmental values of these areas.

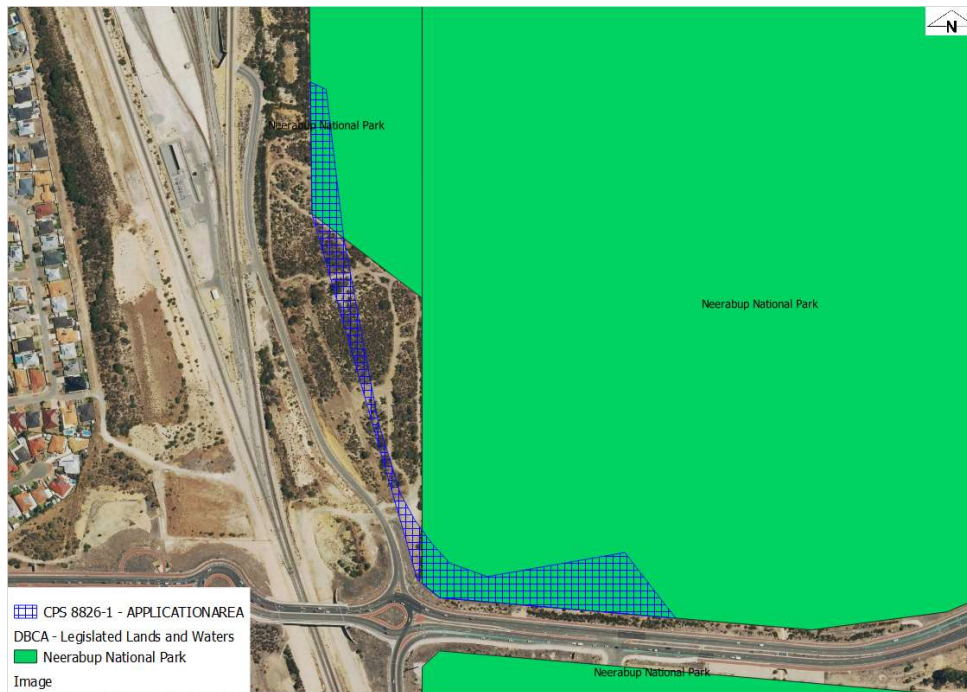


Figure 3 Location of the application area with respect to the Neerabup National Park

The overlapping portions with Neerabup National Park and Bush Forever Site 383 are largely in a good to very good (Keighery, 1994) condition, and it is therefore considered that the proposed clearing will impact on the environmental values of these areas.

The proposed clearing may result in the spread of weeds and dieback into adjacent native vegetation within Neerabup National Park and Bush Forever Site 383.

As described under Section 2, the applicant has advised that it will undertake the following measures to reduce the risk of spreading weeds and dieback into adjacent native vegetation in line with a CEMP for the larger Mitchell Freeway upgrades (GHD, 2020a):

- heavy plant and machinery will be inspected at entry and exit of the work site and be confirmed to be clean and free of vegetation and soil material.
- weed control will be undertaken during works as part of the CEMP, specifically targeting WoNS and Declared Pests.
- The application area will be subject to the annual Main Roads weed spraying program.

As a condition of the Clearing Permit, the applicant will be required to adhere to weed and dieback management measures.

GHD (2020b) advised that a combined area of approximately 4.39 hectares is required to excise parcels of land from the Neerabup National Park and to add approximately 6.735 hectares of surplus land from Neerabup Road to Neerabup National Park for the purpose of extending the Mitchell Freeway and the widening of Hester Avenue. The proposed excision/addition strategy has been supported by DBCA (2020).

(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 with this Principle

According to available databases, no watercourse or wetlands are mapped in the application area.

Noting that the application area is adjacent to the existing Hester Avenue and that no watercourses or wetlands are mapped within the application area, the proposed clearing is not likely to cause deterioration to the surface water quality of this wetland. As part of the overarching CEMP for the Mitchell Freeway Extension Project, that applicant has advised that temporary drainage will be installed to capture and infiltrate surface runoff from construction areas and prevent runoff from entering adjacent native vegetation, which would minimise the risk of increased sedimentation (GHD, 2020a).

Groundwater salinity within the application is mapped between 500 – 1000 milligrams per litre total dissolved solids which is considered to be marginal (Mayer, Ruprecht & Bari, 2005). Between 30-50 percent of the mapped Karrakatta shallow soils and Karrakatta Sand Yellow Phase map units have a moderate to high salinity risk or is presently saline (DPIRD, 2020). Noting the

marginal salinity level and the extent of the proposed clearing, the proposed clearing is not likely to cause deterioration in the quality of underground water in the form of salinity.

Noting this and the extent of the proposed clearing, the proposed clearing is not likely to cause deterioration in the quality of underground water in the form of salinity. Therefore, 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 with this Principle

According to available databases, less than 3 percent of the Karrakatta shallow soils and Karrakatta Sand Yellow Phase map units have a moderate to high flood risk (DPIRD, 2020). Noting this, the extent of the proposed clearing, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

Planning instruments and other relevant matters.

The clearing permit application was advertised on the Department of Water and Environmental Regulation (DWER) website on 11 March 2020 with a 21 day submission period. No public submissions have been received in relation to this application.

Planning

Mitchell Freeway Extension Project

This proposed works relating to this clearing permit application are required as part of Main Roads larger Mitchell Freeway extension project, which has been designed to support the expansion of Perth's outer northern suburbs. The applicant has advised that the greater project will alleviate pressure on the local road network, reduce travel times and ensure safety and connectivity for people living and working in the region (GHD, 2020a). The larger project includes a development footprint of around 250 hectares, of which around 165 hectares requires the clearing of native vegetation. The majority of the project was previously assessed by the EPA under a Metropolitan Regional Scheme Amendment (see 'Other Approvals' section below).

City of Wanneroo Comment

On 10 March 2020, DWER sought advice from the City of Wanneroo (the City) in relation to the proposed clearing. The City (2020) advised that the application area is a Parks and Recreation Reserve in the Western Australian Planning Commission's (WAPC) MRS, and thus, any development within this reserve must be subject to the provisions of the MRS.

The applicant has acknowledged that some of the clearing permit application areas are inconsistent with the current MRS zoning. The applicant has advised that an MRS amendment to align with the clearing permit application areas will follow construction and will likely be part of an omnibus amendment considered by the WAPC in the future. The applicant notes that it is common practice for the MRS to be amended following construction (MRWA, 2020a).

The applicant also acknowledges that Development Approval will be required from the City of Wanneroo where the road works extend outside of the MRS road reservation, with Development Application to be progressed once the land is acquired by MRWA (MRWA, 2020a).

Department of Planning, Lands and Heritage Comment

On 10 March 2020, DWER sought advice from the Department of Planning, Lands and Heritage (DPLH) in relation to the proposed clearing. DPLH advised (2020) that State Planning Policy (SPP) 2.8 Bushland Policy for the Perth Metropolitan Region (SPP 2.8) recommends all proposals and decision making affecting a Bush Forever (BFA) should under section 5.1.1 of SPP 2.8:

- recognise regionally significant bushland protection and its management as a primary purpose and a fundamental planning consideration in its own right as part of an area's essential environmental infrastructure; and
- ensure that all reasonable steps have been taken to avoid, minimise and offset any likely adverse impacts on regionally significant bushland.

DPLH acknowledged that Main Roads has proposed a financial contribution to mitigate clearing impacts, however given the high level of biodiversity of the Bush Forever areas that will be subject to clearing and in accordance with SPP 2.8 section 5.1.1 (ii) and 5.1.2.1 (e), Land Use Planning Policy recommended:

- An offset package is prepared and approved by DWER prior to the clearing of any native vegetation, in accordance with the WA Environmental Offsets Policy (2011) and Appendix 4 of SPP 2.8. In the WA Environmental Offsets Guidelines (2014), it states that offsets should only be applied after avoidance, minimisation and rehabilitation have been pursued. Land Use Planning Policy therefore recommends that rehabilitation occurs within the immediate vicinity of BFA 383, for the 1.91 ha of Bush Forever being cleared, rather than a financial contribution to buy land outside the Perth Metropolitan Region.
- Other than the 1.91 ha of native vegetation proposed to be cleared, the development including construction, access, drainage, battering and ongoing maintenance shall not result in further disturbance or clearing of any native vegetation within BFA 383.
- An approved environmental management plan be developed prior to any clearing, to avoid impacts to conservation significant fauna and vegetation and flora such as dust, introduction and the spread of weeds in conservation areas.
- Fencing, where considered appropriate, be installed to mitigate any adverse impacts from pedestrian traffic on BFA 383.

DBCA advice

On 10 March 2020, DWER sought advice from the DBCA in relation to the proposed clearing. DBCA (2020) advised that MRWA determined that a combined area of approximately 4.39 hectares is required to excise parcels of land from the Neerabup National CPS 8826/1

Park for the purpose of extending the Mitchell Freeway and the widening of Hester Avenue, in Nowergup. DBCA noted that the Nowergup Depot Access Offset Proposal (GHD, 2020) addressed the impacts of the proposed clearing on Banksia woodland PEC/TEC and black cockatoo foraging habitat. This offset proposal and the Neerabup National Park Excision Strategy (GHD, 2020) had been accepted by the Swan Coastal District of DBCA's Parks and Wildlife Service.

On 6 February 2020, the Acting Director of the Conservation and Parks Commission (CPC), under delegated authority, supported the proposal to excise about 4.39 hectares from Neerabup National Park for the extension of the Mitchell Freeway and to add about 6.7348 hectares of surplus land from Neerabup Road to Neerabup National Park.

DBCA was not opposed to the proposed clearing.

Other matters

The application area is located in the Perth Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* and a Priority 3 public drinking water source area (PDWSA), proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909*. Development for road infrastructure is considered to be a compatible land use within Priority 3 PDWSA's.

Advice from MRWA was sought on whether planning approvals from WAPC had been pursued. In response, MRWA (2020b) advised that a development approval to address the lands outside the MRS and for any works that impact Bush Forever areas, will be submitted to WAPC July 2020.

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

Other Approvals

EPA Metropolitan Region Scheme amendment 992/33

The majority of the Mitchell Freeway extension was previously assessed by the EPA, as part of Metropolitan Region Scheme amendment 992/33, approved under Ministerial Statement 629 on 8 July 2003. Under MS 629, large parcels of land (170 hectare development footprint) were rezoned as Primary Regional Road or Other Regional Roads to facilitate the expansion.

The application area forms part of additional works required to facilitate the larger Mitchell Freeway extensions, with these works not considered under Ministerial Statement 629. Therefore, the applicant has applied to clear the application area under Part V of the *Environmental Protection Act 1986*.

The applicant advised that Wanneroo Road was zoned "Primary Regional Road" under the MRS at the time the MRS Amendment was assessed, while Romeo Road was zoned "Other Regional Road" under the MRS. The applicant notes that as Wanneroo Road and Romeo Road were already in the MRS it is assumed that the WAPC did not include them in the MRS Amendment 992/33 (MRWA, 2020a).

Related Clearing Permit Applications

The applicant has also applied to clear under Part V of the EP Act for two other projects associated with the larger Mitchell Freeway Extension, being CPS 8753/1 and CPS 8861/1, which were not considered under Ministerial Statement 629. These applications comprise the following:

- CPS 8753/1 – application to clear 32.86 hectares of native vegetation for road upgrade works at Romeo Road and Wanneroo Road in the City of Wanneroo
- CPS 8861/1 – application to clear 0.5 hectares of native vegetation for the 'Quins Quarry Access' project

DWER has given concurrent consideration to the impacts of these applications through the assessment and decision-making process, including through the calculation of offset monetary contributions.

Department of Agriculture, Water and the Environment (DoAWE)

The Mitchell Freeway Extension Project is also currently being assessed separately by the Commonwealth Department of Agriculture, Water and the Environment (DoAWE) under the EPBC Act (reference 2018/8367). On 5 April 2019, DoAWE determined that the development is a controlled action that requires assessment and approval under the EPBC Act. DoAWE is currently assessing the referral, pending additional information from the applicant.

Neerabup National Park Excision Strategy

Some areas of MRS Amendment 992/33, which was approved under Ministerial Statement 629, included the excision of land from the Neerabup National Park and Nature Reserve and addition of land to the "Parks and Recreation" reservation adjacent to the Park. To document the areas, the MRWA commissioned GHD (2020b) to prepare a mitigation strategy which includes excision or addition of a number of small land parcels to the national park.

It is noted that under MRS 992/33, the combined excisions and additions undertaken following MRS Amendment 992/33 and from previous MRS Amendments has resulted in a net increase in the "Parks and Recreation" zoned land adjacent to the Park of approximately 432 hectares.

It is noted that the proposal involves the excision of approximately 1.29 hectares at Lot 700 on Plan 405358, and approximately 0.42 hectares at Lot 10313 on Plan 219820, Nowergup, from Neerabup National Park (Figure 4). On 14 April 2020, MRWA (2020b)

advised that the Excision Strategy for Mitchel Freeway Extension (GHD, 2020b) has been approved by DBCA, the CPC and is now pending the Minister for Environment endorsement.

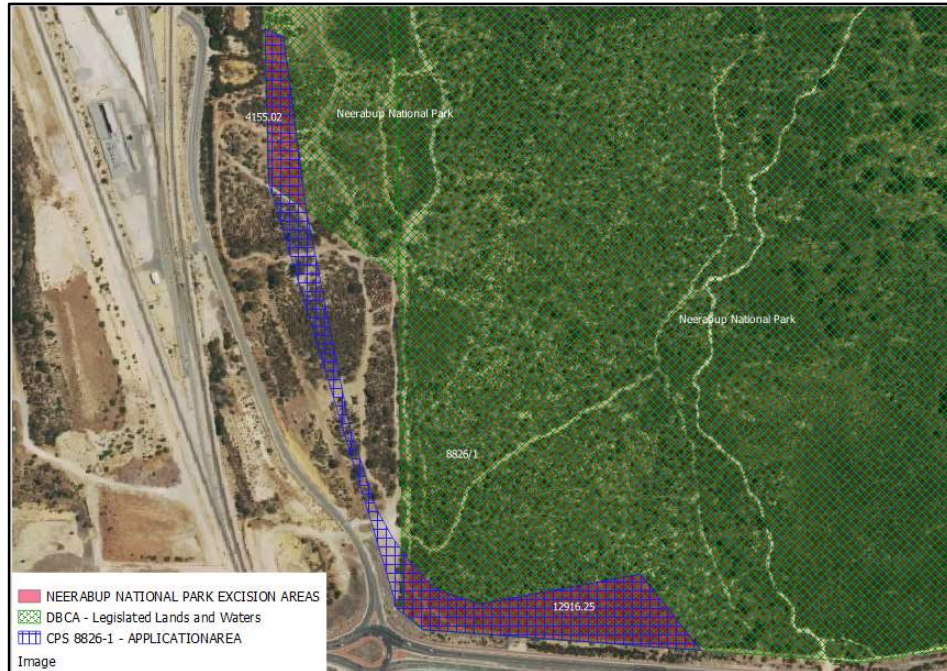


Figure 4 Proposed excision areas from the Neerabup National Park

5. Offset Consideration

Offset Proposal

After avoidance, minimisation and mitigation actions, it is considered that the proposed clearing will result in the following significant residual impacts:

- loss of 1.91 hectares of foraging habitat for Carnaby's cockatoo;
- loss of 1.30 hectares of vegetation representative of Banksia Woodland PEC/TEC;
- loss of 1.71 hectares of native vegetation within Neerabup National Park and Bush Forever Site 383; and
- loss of native vegetation that forms part of a regionally significant ecological linkage.

To counterbalance the above impacts, the applicant has committed to provide monetary offset contribution for purchase of 8.4 hectares of land within the Shire of Gingin to address impacts specific to Banksia Woodland PEC/TEC and Carnaby's habitat. It is acknowledged that DPLH (2020) recommended an offset in form of rehabilitation of vegetation in immediate vicinity of the proposed clearing. The cumulative offset of two other Main Roads clearing permit applications associated with the larger Mitchell Freeway Extension Project included a requirement to revegetate approximately 18 hectares of DBCA managed estate, which includes target completion criteria for DWER's approval. Given the limited options for rehabilitation in the local area, the residual impacts associated with CPS 8826/1 are to be addressed via acquisition of land with similar environmental values to those impacted. The decision is consistent with the WA Environmental Offsets Policy 2011 and guidelines.

Offset Adequacy

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 Offset Assessment Guide. The calculation determined that the allocation of the following areas of native vegetation to be placed to conservation estate is adequate to counterbalance the significant residual impacts:

- 8.4 hectares of native vegetation in a good to excellent condition that provides suitable foraging habitat for Carnaby's cockatoo;
- 5.73 hectares of native vegetation in a good to excellent condition that is representative of the Banksia Woodland PEC/TEC.

The cost of acquiring a 8.4 hectare parcel of land (to acquire land with the Banksia Woodland PEC/TEC and Carnaby's cockatoo habitat) equates to a monetary contribution of \$11,676, determined based on the estimated value per hectare of a 200 hectare vegetated parcel of land in the Shire of Gingin.

Given the above and consistent with the *WA Environmental Offsets Policy September 2011*, a monetary contribution of \$11,676 for the acquisition of 8.4 hectares of native vegetation that contains Banksia Woodland PEC/TEC and Carnaby's cockatoo habitat is considered adequate to counterbalance the significant residual impacts of clearing.

Related Applications and Cumulative Offsets

In the assessment of the proposed offset, the impacts of two other Main Roads clearing permit applications associated with the larger Mitchell Freeway Extension Project have also been considered. Through the assessment of those applications, which were undertaken concurrently with this assessment, the following significant residual impacts were determined to result:

- Romeo Road and Wanneroo Road Upgrade Project (CPS 8753/1) – impacts to 29.39 hectares of critical habitat for Carnaby's cockatoo, 19.31 hectares representative of the Banksia Woodland PEC/TEC and 8.27 hectares representative of Tuart (*Eucalyptus gomphocephala*) woodlands of the SCP (Tuart Woodlands) TEC; and
- Quinns Quarry Access Project (CPS 8861/1) – impacts to 0.5 hectares of Carnaby's cockatoo habitat and 0.5 hectares representative of the Banksia Woodland TEC.

At the time of this assessment it is considered that the following offsets, as committed to by the applicant, are adequate to address the above impacts:

- Romeo Road and Wanneroo Road Upgrade Project (CPS 8753/1) – the rehabilitation of 8 hectares within Neerabup Nature Reserve and 10 hectares adjacent to DBCA managed land, the allocation of 30.5 hectares of a banked offset site representative of the Tuart Woodlands TEC and a monetary contribution for the acquisition of 140 hectares of native vegetation in excellent condition that contains Banksia Woodland PEC/TEC and Carnaby's cockatoo habitat,
- Quinns Quarry Access Project (CPS 8861/1) – a monetary offset contribution for the purchase of 2.7 hectares of native vegetation in excellent condition that provides habitat for Carnaby's cockatoo and is representative of the Banksia Woodlands PEC/TEC.

Taking into account the above, a summary of the total offset required to counterbalance impacts to Banksia Woodland TEC and Carnaby's cockatoo habitat is as follows:

- A monetary contribution of \$210,029 for the purchase of 151.1 hectares of native vegetation in an excellent condition that provides habitat for Carnaby's cockatoo, including 101.43 hectares representative of the Banksia Woodlands TEC.

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- DAFWA Subsystems V5
- Soils of WA
- Vegetation Complexes – Swan Coastal Plain
- Managed Tenure
- Environmentally Sensitive Areas
- TPFL Data June 20
- WAHerb Data June 20
- Aboriginal Sites Register
- IBRA Vegetation WA
- WA TECPEC
- Land Degradation Hazards