GOVERNMENT OF
With PaWESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9377/1

File Number: DWERVT8400

Duration of Permit: From 24 February 2022 to 24 February 2029

PERMIT HOLDER

City of Bunbury

LAND ON WHICH CLEARING IS TO BE DONE

Harris Road reserve (PIN 1292282), Picton

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.17 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorized

The permit holder must not clear any native vegetation after 24 February 2024.

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending 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.

3. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds*

and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, mulch, fill, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner towards adjacent vegetation, to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

5. Revegetation and rehabilitation

The permit holder must *revegetate* within the areas crosshatch red in Figure 1 of Schedule 1 with species representative of the Guildford Complex, as described and mapped by Heddle et al. (1980) as updated by Webb et al. (2016). The permit holder shall:

(a) Within 12 months of clearing at an *optimal time* following the completion of works under this Permit, *revegetate* the areas crosshatch red in Figure 1 of Schedule 1.

(b) The deliberate *planting* of native vegetation shall result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area.

(c) Within 24 months of undertaking *revegetation*, engage an *environmental specialist* to make a determination that the *revegetation* within the areas crosshatch red in Figure 1 of Schedule 1, will survive.

    i. if the determination made by the *environmental specialist* under condition 5(c) that *revegetation* will not survive, the permit holder must undertake additional *planting*.

6. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning

No.	Relevant matter	Specifications
		System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1, (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2, (g) direction of clearing in accordance with condition 3
2.	In relation to *revegetation* pursuant to condition 7 of this permit	(a) species list and density of plants within the area revegetated in accordance with condition 5; (b) determination made by the environmental specialist that revegetation will survive; and (c) remedial actions implemented in accordance with condition 5(c)(i) of this permit.

7. 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 6 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) The permit holder must provide to the *CEO* no later than 90 calendar days prior to the expiry of this permit, a written report of records required under condition 6 of this permit, where these records have not already been provided under condition 6 of this permit.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.

Term	Definition
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.
EP Act	*Environmental Protection Act 1986* (WA)
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from April to June for undertaking *direct seeding*, and the period from May to June for undertaking *planting*;
Planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
weeds	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.

END OF CONDITIONS

Mathew Gannaway
A/SENIOR MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

31 January 2022

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

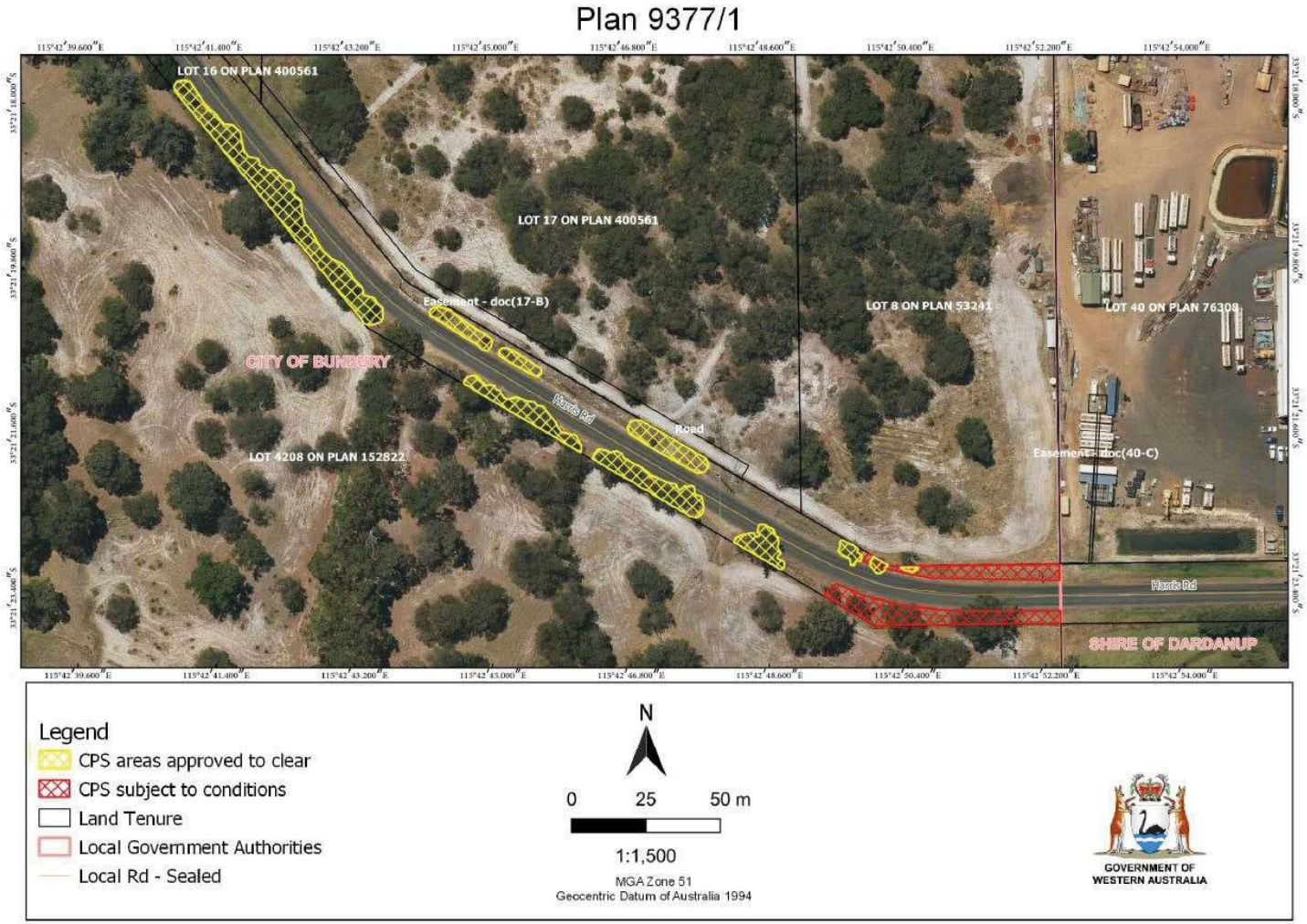

Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9377/1
Permit type:	Area permit
Applicant name:	City of Bunbury
Application received:	6 August 2021
Application area:	0.17 hectares of native vegetation
Purpose of clearing:	Road Widening
Method of clearing:	Mechanical
Property:	Harris Road reserve (PIN 1292282), Bunbury
Location (LGA area/s):	City of Bunbury
Localities (suburb/s):	Picton

1.2. Description of clearing activities

The 0.17 hectares of proposed clearing is for widening Harris Road. The works are intended to make the road safer for cyclists and the project has attained Black Spot funding. The clearing is comprised across 10 separate areas, with five areas distributed along the north and south of the road reserve, covering approximately a 350-meter length of road (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	31 January 2022
Decision area:	0.17 hectares of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a flora / fauna survey (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing was to improve road safety that had received Black Spot funding.

The assessment identified that the proposed clearing will result in:

- The loss of native vegetation that contains suitable foraging habitat for, *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Calyptorhynchus banksii* subsp. *naso* (Forest red-tailed cockatoo) and *Pseudocheirus occidentalis* (Western ringtail possum).

- The clearing of 0.003 hectares of the Guildford Complex, a vegetation type retaining less than 10 per cent of its pre-European extent.

The Delegated Officer considered that the loss of minimal foraging and breeding habitat within the application area was not significant due to its proximity and connection to areas of higher quality habitat in the local area. The small clearing area occurs adjacent to riparian vegetation fringing the Ferguson River where breeding and foraging habitat of better condition is likely to occur. Fauna individuals may be present at the time of clearing however.

Impacts to the highly cleared vegetation complex (the Guildford Complex), will be mitigated by deliberately planting adjacent to the application area as proposed by the applicant. No impacts for flora of conservation significance or impacts to an ecological linkage will occur.

After consideration of the available information, the Delegated Officer decided to grant a clearing permit subject to the following requirements conditioned on the clearing permit, to manage and address the impacts of clearing:

- Undertake slow, progressive clearing towards adjacent native vegetation, allowing terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.
- Deliberately plant 0.05 hectares of vegetation within the Harris Road reserve that resembles the Guildford Complex.

1.5. Site map

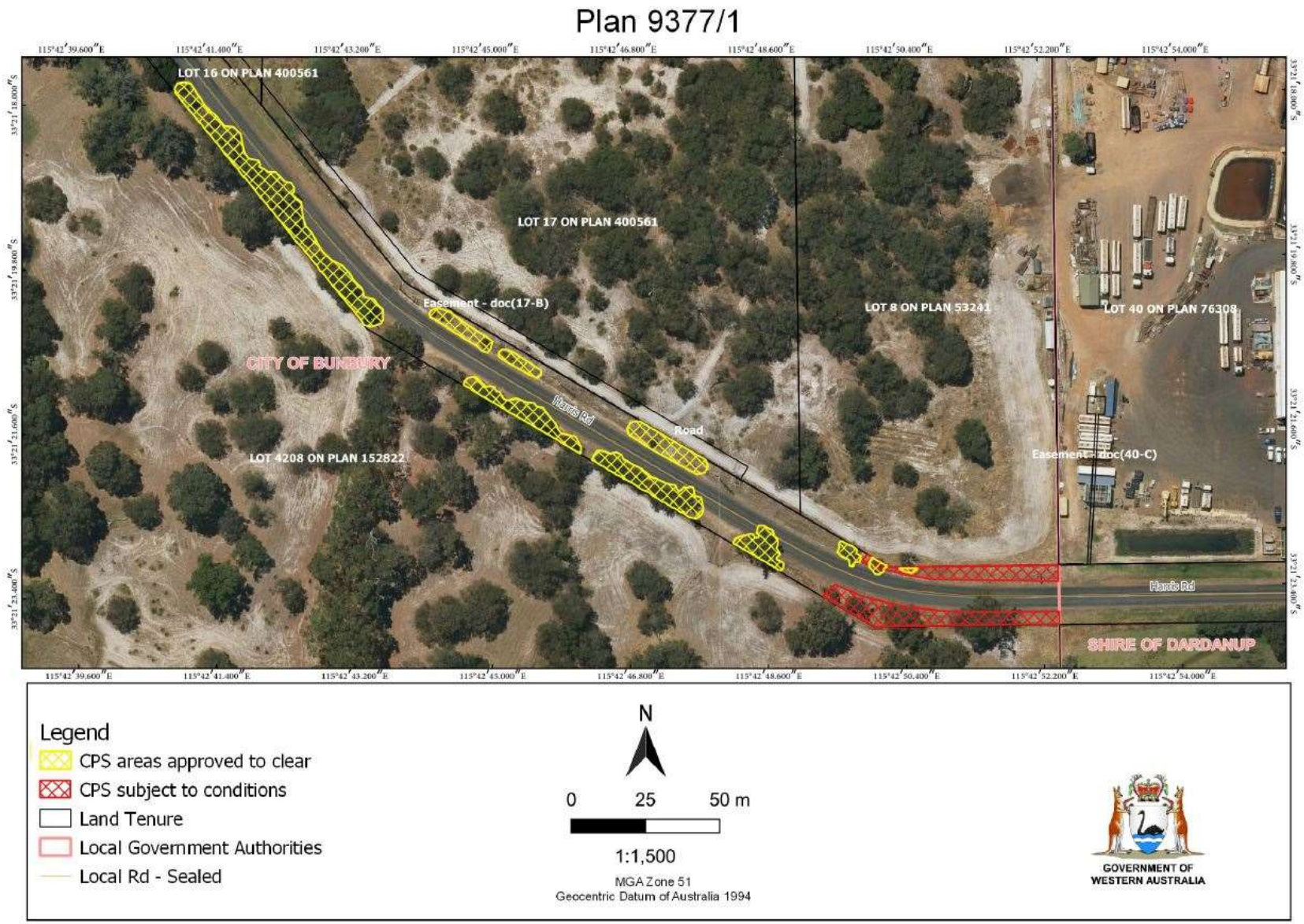

Figure 1 Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit. The areas cross-hatched red indicates areas within which specific conditions apply.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- Detailed assessment of application

2.1. Avoidance and mitigation measures

In support of the application, the applicant advised that the ability to avoid and mitigate native vegetation clearing is heavily constrained with respect to the location of the existing road and the safety requirements. Tree removal has been avoided where possible in the design and where possible pruning will be preferentially undertaken (City of Bunbury 2021a).

During assessment it was identified the proposed clearing will impact 0.003 hectares of the Guildford complex, a highly cleared vegetation type with approximately 5.09 per cent of its pre-European extent remaining. To mitigate the impact to the above vegetation type, the applicant has proposed the revegetation of approximately 0.05 hectares of land adjacent to the application area (City of Bunbury 2021b). The revegetation will include species described in the mapped Guildford complex as described by Heddle et al. (1980) as updated by Webb et al. (2016).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise and mitigate potential impacts of the proposed clearing on environmental values.

2.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see **Error! Reference source not found.**) identified that the impacts of the proposed clearing may present a risk to biological values fauna, and significant remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

2.2.1. Biological values (Fauna) - Clearing Principles (b)

Assessment

Of the 52 conservation significant fauna species recorded in the local area, 40 species are associated with marine or freshwater habitats. As marine or freshwater habitats are not present in the application area, these species have been exempted from the assessment. According to fauna analysis (see appendix A.4) four species were considered likely to occur within the application area based on the habitat available and their known habitat preferences. This included *Pseudocheirus occidentalis* (western ringtail possum, ngwayir), *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale, wambenger), *Calyptorhynchus latirostris* (Carnaby's cockatoo), and *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).

Western Ringtail Possum (WRP)

The Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan outlines strategies to slow the decline in population size, extent and area of occupancy through managing major threatening processes affecting subpopulations and their habitats and allowing the persistence of the species in each of the identified key management zones, comprising Swan Coastal Plain, southern forests and south coast (DPaW 2014). The application area is located within the Swan Coastal Plain management zone.

Peppermint trees (*Agonis flexuosa*) are important habitat for WRP's. Populations in the Swan Coastal Plain management zone are associated with stands of myrtaceous trees, usually peppermint trees (*Agonis flexuosa*) growing near swamps, watercourses or floodplains, and at topographic low points which provide cooler and often more fertile conditions (Jones 2001). Habitat critical to survival for WRP comprises long unburnt mature remnant peppermint woodlands with high canopy continuity and high nutrient foliage with minimal periods of summer moisture stress, and habitat connecting patches of remnants (Jones et al. 1994; Jones et al. 2004; Wayne et al. 2006).

A fauna and vegetation survey provided by the applicant (Natural Area 2021), identified peppermint trees as a component of the vegetation proposed to be cleared (see Appendix D). However, the above trees were immature, with no signs of individual possums, dreys (possum nests), scratch marks on trees or scats were recorded within the application area (Natural Area 2021). It is possible possums may use this area as a transitional zone to get to the higher value habitat areas adjacent to the proposed clearing. Given the limited extent of the clearing at 0.17 hectares, the absence of mature preprint trees with high canopy continuity, and the presence of approximately 23 hectares of better-quality habitat, adjacent to the application area, the proposed clearing is unlikely to have a significant impact on the local population of WRP. Conditions applied to reduce impacts to WRP that may be present at the time clearing, are outlined below.

South-western brush-tailed phascogale

In south-west WA, this species is known to occur in dry sclerophyll forests and open woodlands that contain hollow-bearing trees, with records less common in higher rainfall areas**.** South-western brush-tailed phascogale (phascogale), is known to occur in highest densities in Perup/Kingston area, Collie River valley, Margaret River and Busselton (DEC 2012). This species is known to occur in dry sclerophyll forests and open woodlands that contain hollow-bearing trees with sparse ground cover. The fauna/flora survey provided by the applicant (Natural Area 2021), recorded one hollow possibly suitable for brush-tailed phascogale in a marri tree (see appendix D).

As with WRP, phascogale may range through the application area, as it is adjoined to adjacent, higher quality habitat. However, given the limited extent of the clearing it is unlikely to significantly impact on the conservation status of this species. Conditions applied to reduce impacts to Phascogale that may be present at the time clearing, are outlined below.

Black Cockatoo

According to available datasets, *Calyptorhynchus banksii naso* (Forest red-tailed cockatoo), and *Calyptorhynchus banksii naso (forest red-tailed black cockatoo)*, have been recorded within 1.1 and 4.2 kilometres from the application area respectively.

Twelve black cockatoo roosts have been recorded within the local area. Black cockatoo roost sites are usually located in the tallest trees within a landscape, and in proximity to a food and water supply (Commonwealth of Australia, 2017). Black cockatoo flocks will utilise different roosts, often for weeks, or until the local food supply is exhausted. Black cockatoo flocks show some consistency in roost site preference, with sites used in most years to access high-quality feeding sites. However, not all roosts are used in every year (DPAW, 2013). Foraging resources within six kilometres, and up to 12 kilometres of roost sites are important to sustain populations (Commonwealth of Australia 2017). The nearest roost is recorded 3.8 kilometres from the application area, therefore the vegetation proposed to be cleared likely provides foraging resources to black cockatoos utilising this roost. Based on available datasets, this mapped roost site occurs within less than 12 kilometres of approximately 1000 hectares of native vegetation, mapped as black cockatoo feeding habitat. Given the limited extent of the clearing, it is unlikely to significantly impact foraging and roosting habitat for black cockatoo species utilising the roosts in the local area.

Two white tailed black cockatoo breeding sites are recorded in the local area, with the nearest breeding site at six kilometres east of the application area. Suitable breeding habitat for black cockatoo include trees which either have a suitable nest hollow, or of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, including jarrah and marri trees, a DBH of at least 500 millimetres is required to develop hollows of suitable size for use by black cockatoo (Commonwealth of Australia, 2012). The fauna/vegetation report supplied by the

applicant (see Appendix D) recorded 10 habitat trees including jarrah and marri trees with a DBH of 500 millimetres or above. One tree did contain a hollow, however this was determined to be too small to function as a Black cockatoo nest (Natural Area 2021). The proposed clearing is not considered to impact black cockatoo breeding habitat.

Conclusion

Based on the above assessment, given the small size of the proposed clearing and the availability of suitable habitat in better condition with the adjacent vegetation, the proposed clearing will not result in a significant loss of habitat for the above fauna species. The potential direct impact to fauna present at the time of clearing may be managed by the implementation of a fauna management condition. Weed and dieback management will also assist in ensuring that the adjacent fauna habitat is not impacted by the proposed clearing.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Requiring the permit holder to conduct clearing towards adjacent native vegetation to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- Implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

2.2.2. Biological values (Threatened Flora) - Clearing Principles (c)

Assessment

There are six threatened flora species recorded within the local area, these include *Austrostipa bronwenae Austrostipa jacobsiana*, *Diuris drummondii*, *Drakaea micrantha*, *Eleocharis keigheryi,* and *Synaphea* sp. Fairbridge Farm (D. Papenfus 696)*. Diuris drummondii*, *Austrostipa bronwenae,* and *Austrostipa jacobsiana*, are associated with wetlands, winter wet areas and poorly drained soils (Western Australian Herbarium 1998-). According to available spatial data sets, contours lines indicate water drains away from the proposed clearing into the Ferguson River 0.2 kilometres to the south. Therefore, it is unlikely suitable hydrological conditions occur to support these species within the application area.

According to available datasets *Eleocharis keigheryi* occurs 6.3 kilometres to the east. This species is a freshwater aquatic species dependent on seasonal standing bodies of water. As this habitat does not occur within or in close proximity to the application area, *Eleocharis keigheryi* is unlikely to be impacted by the proposed clearing.

Drakaea micrantha, is known to occur in deep grey sand in banksia or jarrah woodland*. Drakaea micrantha* was not recorded in the botanical survey provided by the applicant (Natural Area 2021). The survey also determined the vegetation within the application area was in a Degraded (Keighery 1994) to completely degraded (Keighery 1994) condition (see Appendix D), with a large proportion of the ground layer dominated by weed species. The introduction of weeds into native vegetation results in the following impacts (DPAW 2015-):

- successfully out-competing native species for resources
- impacting on native plants or animals due to toxins or excluding animals from usual habitats because of thorns or other adverse habit
- providing habitat for introduced animal pests
- altering fire regimes, potentially making fires more intense, and possibly altering their seasonality and frequency.

As all of the above species are perennial herbs or grasses, that tend to be less resistant to above factors, it is unlikely threatened flora listed above could occur within the application area.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to contain habitat for the above flora species listed as ‘Threatened’ under the Commonwealth EPBC Act or state BC Act, due to disturbance and a high abundance of weed species in the ground layer.

Conditions

To address the above impacts, the applicant will be required to implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

2.2.3. Biological values (extensively cleared) - Clearing Principles (e)

Assessment

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 (i.e. pre-European settlement) (Commonwealth of Australia 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level. Impacts resulting from clearing in a highly cleared landscape generally require mitigation or offset. As indicated in Appendix C-2, the local area retains approximately 22.30 per cent of its pre-European native vegetation extent. Considering the above, the application area is located within an extensively cleared landscape. However according to available datasets, the application area is zoned as a 'constrained area' and such area retention areas may vary. Clearing in constrained areas is discussed in further detail in section 2.3.

The application area includes remnants of two vegetation types; the Southern River Complex and the Guildford Complex each type retaining approximately 18.43 and 5.09 of its pre-European extents respectively (Government of Western Australia 2019).

The Guildford Complex retains 5.09 per cent of its pre-European extent. The total area of proposed clearing is 0.17 hectares, which includes .003 hectares of the Guildford complex (see Figure 2). As discussed in Section 2.1, to mitigate the impact to a significant remanent of a highly cleared vegetation type, the applicant has proposed to revegetate an area of 0.05 hectares adjacent to the proposed clearing (see section 1.5). Given the degraded (Keighery 1994) to completely degraded (Keighery 1994) condition of the vegetation proposed to be cleared and the limited extent of clearing, 0.05 hectares of revegetation is considered adequate. Weed and dieback management will also assist in ensuring that the adjacent remanent vegetation is not impacted by the proposed clearing.

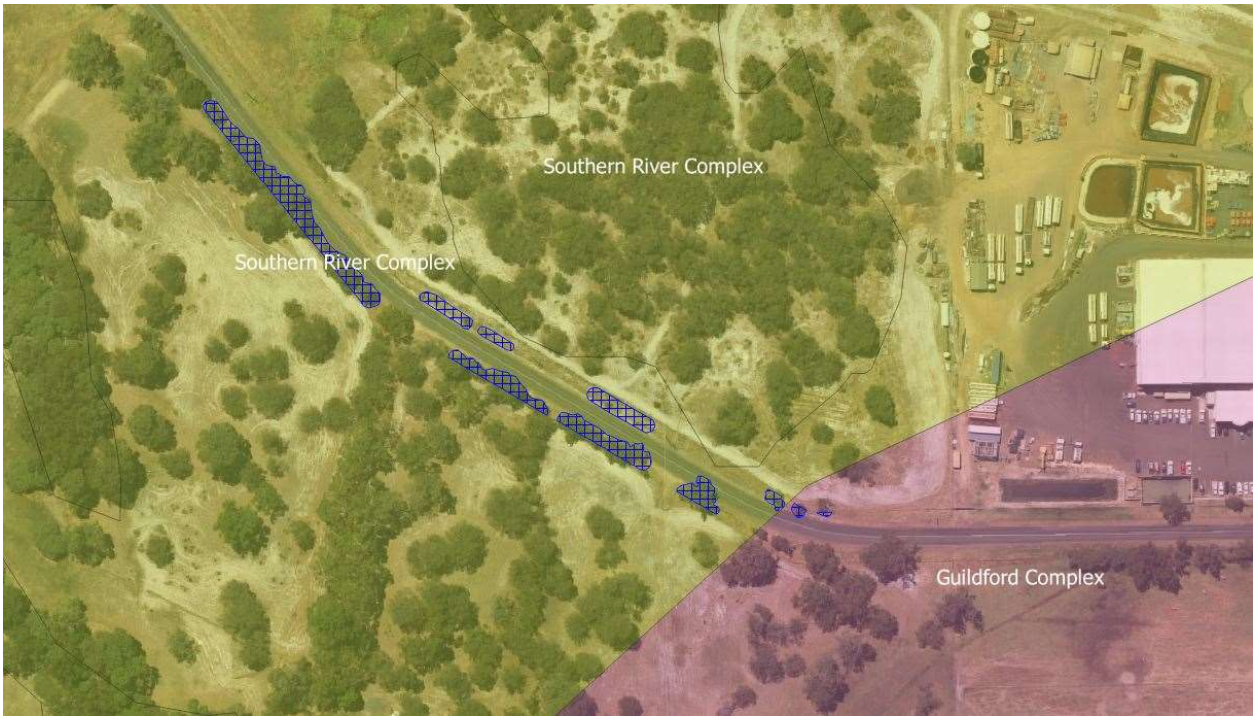

Figure 2 Distribution of vegetation types relative to the application area.

Conclusion

Based on the above assessment, the proposed clearing will impact two vegetation types; the Southern River Complex and the Guildford Complex each type retaining approximately 18.43 and 5.09 of its pre-European extent respectively. The proposed clearing is in a degraded (Keighery 1994) to completely degraded (Keighery 1994) condition.

For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed by replanting approximately 0.05 hectares of vegetation resembling the Guildford complex.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- undertaking the deliberate planting of at least 0.05 hectares of native vegetation in the adjacent road reserve with similar species composition to the adjacent Guilford complex.

- Implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

2.3. Relevant planning instruments and other matters

Black spot Funding

A safety Inspection report commissioned by the City of Bunbury provided a key recommendation to reduce the risk and improve the safety for both cyclists and vehicles (City of Bunbury 2021a). The auditors recommended 6 changes to the current road including the road widening of Harris Road and the removal of all hazards within the application area.

The City has addressed the recommendations and developed a road plan. The Harris Road Black Spot Project has been successful in gaining funding from the Black Spot Program to help reduce the risk currently associated with Harris Road.

Constrained area

In recognition of past land use planning decisions, constrained areas have been identified on the Swan Coastal Plain of the Greater Bunbury Region Scheme, Peel Region Scheme and within the Bush Forever study area. Within these constrained areas, native vegetation retention objectives may be varied to “at least 10%”. However, other principles do apply within these constrained areas, subject to exemptions for assessed schemes and deemed works of subdivisions. This includes the need to recognise locally significant bushland (DER 2013).

Aboriginal Heritage

A portion at the western end of the application area has been mapped as a place of aboriginal heritage (see Figure 4). It is the permit holder’s responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are not damaged through the clearing process.

Figure 3 Blue and pink hashed areas indicate an Aboriginal heritage site where scattered artifacts have been found.

End

Appendix A. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of the assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a fragmented patch of native vegetation surrounded by industrial and agricultural land in the intensive land use zone of Western Australia. Continuous riparian vegetation fringing the Ferguson River occurs approximately 0.2 kilometres to the south. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 22.3 per cent of the original native vegetation cover.
Ecological linkage	The proposed clearing area does not form part of a mapped ecological linkage, but may function as a steppingstone link in a highly cleared landscape.
Conservation areas	The proposed clearing does not form part of a conservation area. The nearest conservation area is an unnamed lot, preserved under the CALM Act 1984, 0.3 kilometres south west of the application area.  Figure 4. Proximity of the unnamed lot, preserved under the CALM Act 1984 (Light blue) and application area, (blue crosshatch). Other conservation areas include: • Kalgulup reginal park approximately 1.7 kilometres west. • Leschenault Peninsula Conservation Park 6.9 kilometres northwest.
Vegetation description	The Vegetation survey (Natural Area 2021) described the vegetation within the proposed clearing area as; Marri, Jarrah and Peppermint Woodland. This also included *Eucalyptus marginata* (Jarrah), *Corymbia calophylla* (Marri) and *Agonis flexuosa* (Peppermint) trees over a sparse middle storey of mixed native shrubs and an understorey dominated by weedy grasses and herbs. Representative photos and the full survey descriptions are available in Appendix D. This is partly consistent with the mapped vegetation types: • **Southern River Complex**, which is described Open woodland of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - *Banksia* species with fringing

Characteristic	Details
	woodland of Eucalyptus rudis (Flooded Gum) – Melaleuca *rhaphiophylla* (Swamp Paperbark) along creek beds. • **Guildford Complex**, which is described as a mixture of open forest to tall open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) and woodland of *Eucalyptus wandoo* (Wandoo) (with rare occurrences of *Eucalyptus lane-poolei* (Salmon White Gum)). Minor components include *Eucalyptus rudis* (Flooded Gum) - *Melaleuca rhaphiophylla* (Swamp Paperbark). Swan Coastal Plain vegetation complexes as described and mapped by Heddle et al. (1980) as updated by Webb et al. (2016).
Vegetation condition	The Vegetation survey (Natural Area 2021) described the vegetation within the proposed clearing area is in Degraded (Keighery 1994) to Completely Degraded (Keighery 1994) condition (see Appendix D). The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos, survey descriptions and mapping are available in Appendix D.
Climate and landform	The climate is classified as Mediterranean, with dry, hot summers and cool, wet winters. • average rainfall is 666.2 mm per annum, with the majority falling between May and August. • average maximum temperature ranges from 20.2 degrees centigrade in winter (July) to 31.7 degrees centigrade in summer (February). • average minimum temperatures range from 16.3 degrees centigrade in winter to 28.4 degrees centigrade in summer.
Soil description	The soil is mapped as (Schoknecht et al. 2013): • **Bassendean B1a Phase,** described as extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1 m of the surface; marri and jarrah dominant. • **Pinjarra P5a Phase**, described as poorly drained flats. Cracking clays similar to P5 with a thin veneer of grey sand.
Land degradation risk	A large amount of variation occurs between the two soil types. Bassendean B1a Phase is categorised as 50-70 of the mapped soil type having high risk of wind erosion, and Pinjarra P5a Phase at less than three percent high risk. Both soil types indicated moderate low (less than three percent) to water erosion risk. Both soil types also indicate above 70 percent Subsurface Acidification. Land degradation risks are presented further in Table A.5
Waterbodies	The Ferguson River runs parallel to the application area, approximately 0.1 kilometres southwest of the application area. An unnamed wetland linked to the Preston River flood plain occurs 0.7 kilometres to the southwest.
Hydrogeography	Application area occurs in a the RIWI Act, Groundwater Areas (DWER-034).
Flora	The local area includes six Threatened flora and 31 Priority flora. The nearest conservation significant flora species to the proposed clearing is the Priority 3 sedge; *Carex tereticaulis.* See Section A3 for a flora habitat suitability analysis of conservation significant flora recorded in the local area.
Ecological communities	The TEC 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region', listed as Priority 3 PEC by DBCA and federally listed as Endangered under the EPBC Act occurs directly adjacent to the northern portion and approximately 0.08 kilometres south of the southern portion of the application area. Other threatened ecological and priority communities in the local area include:

Characteristic	Details
	• Critically Endangerer, *Corymbia calophylla* woodlands on heavy soils of the southern Swan Coastal Plain (floristic community type 1b as originally described in Gibson et al. (1994). • Vulnerable, Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. (1994 • Vulnerable, Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994) • Vulnerable, Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994)) • Vulnerable, Shrublands on calcareous silts of the Swan Coastal Plain (floristic community type 18 as originally described in in Gibson et al. (1994) • Endangered, Shrublands on dry clay flats (floristic community type 10a as originally described in Gibson et al. (1994). • Vulnerable, Subtropical and Temperate Coastal Saltmarsh. • Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain.
Fauna	A total of 52 conservation significant fauna are recorded in the local area. The nearest record is for *Pseudocheirus occidentalis* (western ringtail possum, ngwayir) approximately 0.3 kilometres from the application area. The local area includes 28 unspecified records for white-tailed black cockatoo, the nearest at 0.18 kilometres from the application area. Black cockatoo habitat within the local area includes: • One white tailed black cockatoo breeding site occurs 6 kilometres southwest of the application area. • A total of 12 black cockatoo roosts sites. The nearest is 4.1 kilometres south-west of the application area. • Approximately 75 percent of all remnant vegetation in the local area, is mapped as cockatoo feeding habitat. Habitat suitability analysis is provided in table A.3. A number of fauna species dependent on marine and freshwater habitats have been omitted from the table as these species are highly unlikely to utilise the habitats within the application area.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
**IBRA bioregion					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
*Southern River Complex	58,781.48	10,832.18	18.43	940.36	1.6
*Guildford Complex	90,513.13	4,607.91	5.09	287.49	0.32
Local area					
10 km radius	27,828.75	6,208.00	22.30	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Carex tereticaulis	P3	no	no	no	1	4	yes
Diuris drummondii	T	no	yes	no	1.6	4	yes
Verticordia attenuata	3	no	yes	no	1.6	6	yes
Pultenaea skinneri	4	no	yes	no	1.6	6	yes
Lasiopetalum membranaceum	3	no	no	no	2.7	10	yes
Aponogeton hexatepalus	4	no	no	no	3.15	17	yes
Acacia flagelliformis	4	no	no	no	3.54	10	yes
Ornduffia submersa	4	no	no	no	3.96	1	yes
Caladenia speciosa	4	no	no	no	4	18	yes
Platysace ramosissima	4	no	yes	no	4.1	1	yes
Eucalyptus rudis subsp. cratyantha	4	no	yes	no	4.2	1	yes
Angianthus drummondii	3	no	no	no	4.3	1	yes
Schoenus capillifolius	3	no	yes	no	4.3	1	yes
Chamaescilla gibsonii	3	no	yes	no	4.3	3	yes
Microtis quadrata	4	no	yes	no	4.5	1	yes
Austrostipa bronwenae	T	no	yes	no	4.6	3	yes
Stylidium longitubum	4	no	no	no	4.7	2	yes
Schoenus benthamii	3	no	no	no	5.1	3	yes
Thelymitra variegata	2	no	yes	no	5.1	1	yes
Gastrolobium whicherense	2	no	no	no	5.1	1	yes
Chamelaucium erythrochlorum	4	no	no	no	5.8	1	yes
Synaphea odocoileops	1	no	yes	no	6.1	2	yes
Eleocharis keigheryi	T	no	no	no	6.3	4	yes
Austrostipa jacobsiana	T	no	no	no	6.3	3	yes
Puccinellia vassica	1	no	no	no	6.7	4	yes
Schoenus loliaceus	2	no	yes	no	6.9	1	yes
Grevillea rosieri	2	no	yes	no	7	3	yes
Acacia semitrullata	4	no	yes	yes	7.2	10	yes
Leucopogon sp. Busselton (D. Cooper 243)	2	no	yes	no	7.2	1	yes
Boronia tetragona	3	no	yes	yes	7.2	1	yes
Drakaea micrantha	T	no	yes	no	7.5	2	yes
Craspedia sp. Waterloo (G.J. Keighery 13724)	2	no	yes	no	7.9	2	yes
Leptomeria furtiva	2	no	yes	no	8.1	1	yes
Adelphacme minima	3	no	yes	no	8.1	1	yes
Rumex drummondii	4	no	yes	no	9.2	1	yes
Franklandia triaristata	4	no	yes	no	9.4	1	yes
Synaphea sp. Fairbridge Farm (D. Papenfus 696)	T	no	no	no	9.9	1	yes

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Pseudocheirus occidentalis (western ringtail possum, ngwayir)	CR	yes	Yes	0.36	1237	yes
Phascogale tapoatafa wambenger (South-western brush-tailed phascogale, wambenger)	CR	Yes	Yes	0.78	47	yes
Calyptorhynchus latirostris (Carnaby's cockatoo)	CR	yes	yes	0.67	98*	yes
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	yes	yes	0.93	15	yes
Ctenotus ora (Coastal Plains skink)	P3	no	no	1.79	2	yes
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	no	yes	2.67	28	yes
Notamacropus irma (western brush wallaby)	P4	no	no	3.17	17	yes
Calyptorhynchus baudinii (Baudin's cockatoo)	EN	no	no	3.19	7	yes
Falco peregrinus (Peregrine falcon)	OS	no	no	3.98	1	yes
Idiosoma sigillatum (Swan Coastal Plain shield-backed trapdoor spider)	P3	no	yes	4.4	14	yes
Psophodes nigrogularis nigrogularis (western whipbird)	EN	no	no	6.43	2	yes
Setonix brachyurus (Quokka)	VU	yes	yes	9.97	2	yes

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority * includes 28 unspecified records recorded as White tailed black cockatoo

A.5. Land degradation risk table

	Bassendean B1a	Pinjarra P5a Phase
Risk as a percentage of mapped soil unit		
Wind erosion	50-70% of map unit has a high to extreme risk	<3% of map unit has a high risk
Water erosion	<3% of map unit has a high risk	<3% of map unit has a high risk
Salinity	<3% of map unit has a high risk	50-70% of map unit has a high to extreme risk
Subsurface Acidification	>70% of map unit has a high to extreme risk	>70% of map unit has a high to extreme risk
Flood risk	<3% of map unit has a high risk	10-30% of map unit has a high to extreme risk
Water logging	<3% of map unit has a high risk	50-70% of map unit has a high to extreme risk
Phosphorus export risk	30-50% of map unit has a high to extreme risk	3-10% of map unit has a high risk

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The desktop study indicates the local area is of high biodiversity including nine conservation significant ecological communities, and relatively high numbers of conservation significant flora (37 species) and fauna (52 species). However, photographs provided by the applicant (City of Bunbury 2021) and a flora/fauna survey carried out by Natural Area (2021), indicate the application area is in a degraded (Keighery 1994) to completely degraded (Keighery 1994) condition. The flora survey did not identify any conservation significant flora in the application area. The area proposed may contain low quality fauna foraging habitat. No assemblages of plants to indicate a TEC or PEC and no threatened or priority flora are likely to occur in the application area due to the degraded nature of the site.	Not likely to be at variance	No
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."* Assessment: The area proposed to be cleared contains foraging habitat for conservation significant fauna.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain suitable habitat for threatened flora.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*
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."* Assessment: Vegetation directly adjacent to the application area is mapped as Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' (Priority 3) PEC, federally listed as an Endangered TEC. However, a floristic survey carried out on behalf of the applicant (Natural Area 2021) determined the vegetation within the application area does not represent the above TEC. As the proposed clearing is minimal, it is unlikely to impact the buffer zone for the above community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
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."* Assessment: The application area is mapped as comprising two vegetation types: Southern River Complex and the Guildford Complex. According to available data sets the above vegetation types have only 18.43 and 5.09 percent of their original	May be at variance	Yes *Refer to Section 3.2.4, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
extent remaining, respectively. However, the applicant has proposed replanting areas adjacent to the application area as a mitigation measure.		
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."* Assessment: The application area occurs approximately 0.3 kilometres north of an unnamed reserve (see Section A figure 2). However, given the limited extent (0.17 hectares) of the clearing and poor linkage to the reserve, the clearing is unlikely to have any significant impact to the conservation valuate of the adjacent reserved lot.	Not at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The Ferguson River runs parallel to the application area approximately 0.22 kilometres southwest of the application area. A floristic survey carried out on behalf of the applicant (Natural Area 2021) did not identify any riparian vegetation within the application area, also given the limited extent of the clearing, it is unlikely to impact on - or off-site hydrology and water quality.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils have low susceptibility to water erosion, nutrient export, salinity and water logging and moderately to high susceptibility to wind and subsurface acidification. Given the limited extent of clearing (0.17 hectares) that has previously been disturbed, the condition of the vegetation and the road construction methodologies used, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not at variance	No
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."* Assessment: Given no wetlands or Public Drinking Water Source Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.	Not at variance	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Biological survey information excerpts / photographs of the vegetation (Natural Area 2021)

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Totals
Area (ha)	0	0	0	0	0.0237	0.797	0.8207
Area (%)	0	0	0	0	2.88	97.11	100

Figure 5: Vegetation within the application area (Natural Area 2021)and vegetation condition rating according to Keighery (1994). Image to the right shows' young peppermint trees (*Agonis flexuosa*).

Figure 6 Examples of ground layer vegetation within the application area, dominated by weed species.

Figure 7 Example of vegetation within the application area.

Figure 8 Example of vegetation within the application area.

Figure 9 Examples of weed species within the application area.

Figure 10 *Pseudocheirus occidentalis* (western ringtail possum, ngwayir) food trees *Agonis flexuosa* (peppermint tree) recoded in the application area.

Figure 11 The location of trees with suitable diameters at breast height (DBH) to potentially develop a nest hollow. For most tree species, including jarrah and marri trees, a DBH of at least 500 millimetres is required to develop hollows of suitable size for use by black cockatoo

Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)

- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

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