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 10308/1
Permit type:	Area permit
Applicant name:	City of Swan
Application received:	17 August 2023
Application area:	0.39 hectares of native vegetation
Purpose of clearing:	Road improvements
Method of clearing:	Mechanical
Property:	Raphael Road reserve (PIN 1343305), Bullsbrook
Location (LGA area/s):	City of Swan
Localities (suburb/s):	Bullsbrook

1.2. Description of clearing activities

The City of Swan (the City) is proposing to undertake the clearing of 0.39 hectares of native vegetation within Raphael Road reserve (PIN 1343305), Bullsbrook. The proposed clearing will facilitate improvements to Raphael Road. The proposed clearing is distributed across multiple separate areas along Raphael Road (see Figure 1, Section 1.5). The application was revised during the validation process in response to clarification of the nature of the clearing within the road reserve. The reduction of the clearing was from 0.527 hectares to 0.39 hectares.

1.3. Decision on application

Decision:	Granted
Decision date:	26 March 2024
Decision area:	0.39 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 C), relevant datasets (see Appendix G.1), the findings of a flora and vegetation assessment (PGV Environmental, 2023a), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), a revegetation management plan, relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the intended works to improve the safety of heavy vehicles moving through Raphael Road.

The assessment identified that the proposed clearing will result in:

- The loss of approximately 0.222 hectares of native vegetation which provides foraging habitat for *Zanda latirostris* (Carnaby's black cockatoo) and *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) (collectively known as black cockatoos),
- the loss of native vegetation which may provide habitat for *Dasyurus geoffroii* (Chuditch, western quoll) and *Isoodon fusciventer* (Quenda, southwestern brown bandicoot), and
- the potential introduction and spread of weeds and dieback, including *Zantedeschia aethiopica* (Arum lily), into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

To mitigate the loss of foraging habitat for black cockatoos, the City will be revegetating 0.59 hectares of Raphael Road reserve (PIN 1343305) with species that provide foraging habitat for black cockatoos.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the applicant has suitable demonstrated avoidance and minimisation measures and that the impacts of the proposed clearing listed above can be minimised and managed to unlikely lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity, and
- revegetate 0.59 hectares of Raphael Road reserve (PIN 1343305) with species that provide foraging habitat for black cockatoos.

1.5. Site maps

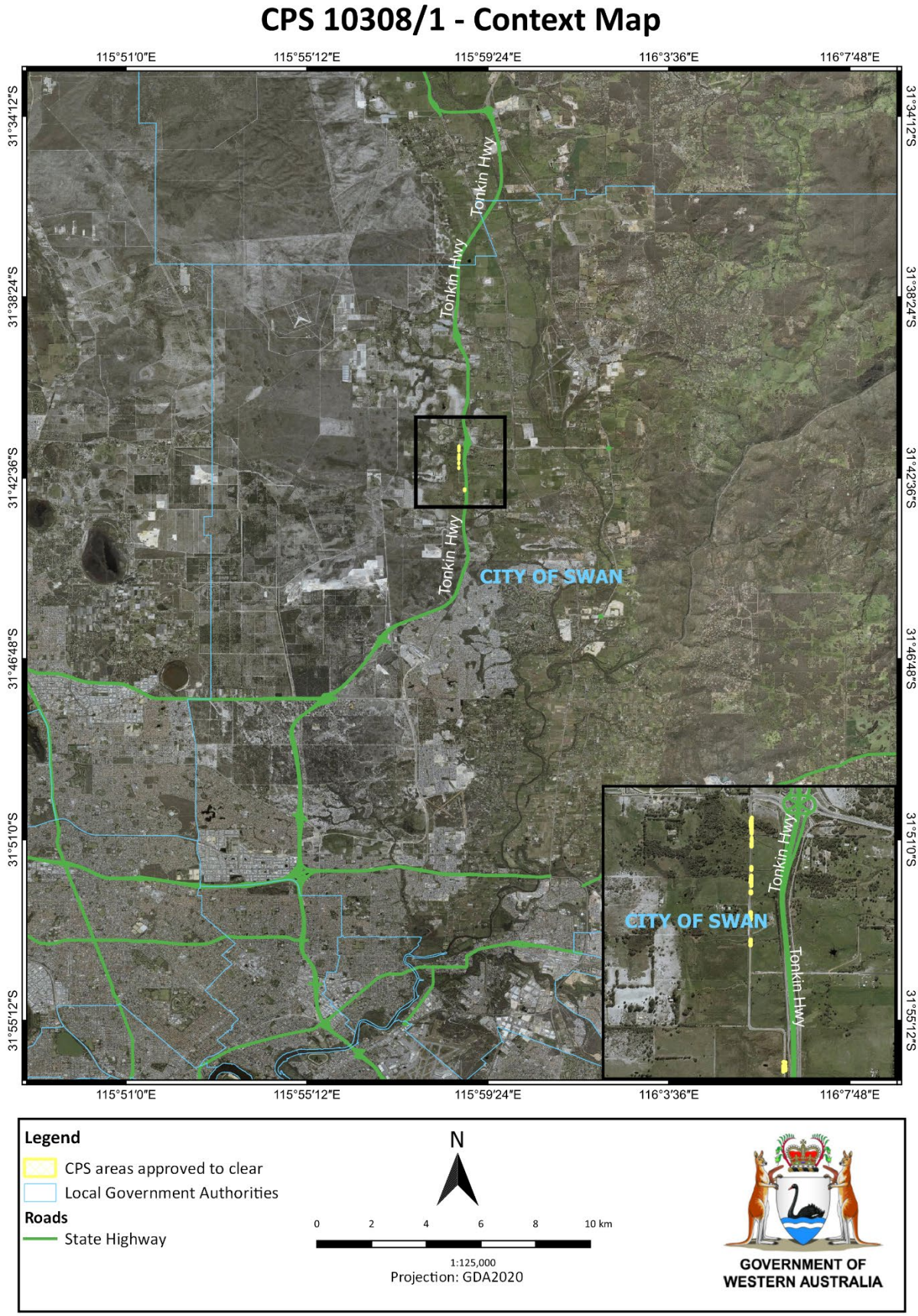


Figure 1: Context map of the application area. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

CPS 10308/1 - Map

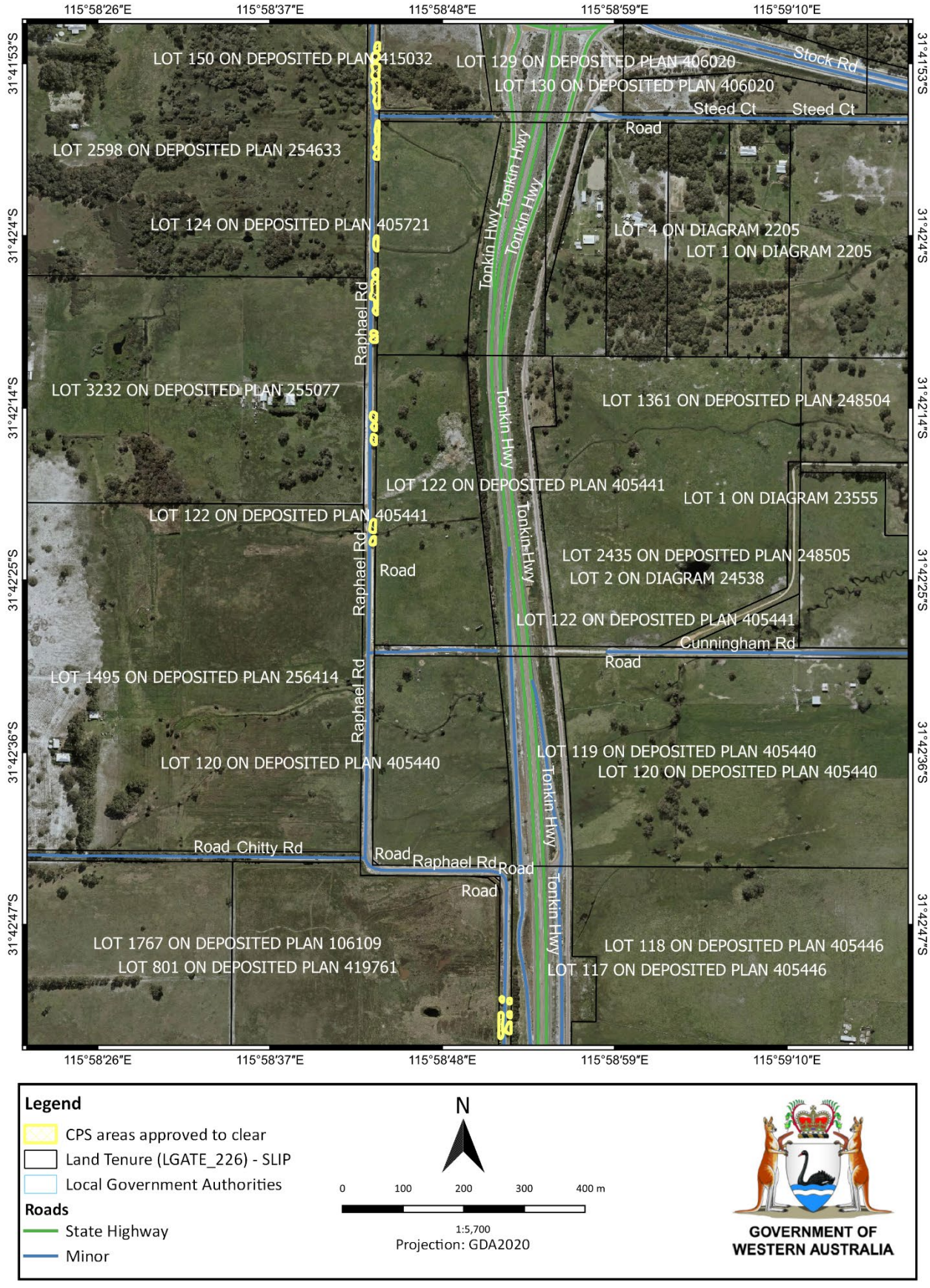


Figure 2: Map of the application area. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

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:

- *Aboriginal Heritage Act 1972*
- *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)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *A Guide to Preparing Revegetation Plans for Clearing Permits* (DWER, March 2018).

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Avoidance
The City has stated that the proposed works are to improve the safety of Raphael Road, particularly for large trucks. Where possible any trees on the edge of the proposed extent of road works will be retained (City of Swan, 2023).

Mitigation
The City proposed mitigation planting of native vegetation could be undertaken within other large locations of road reserve (PGV Environmental, 2023c). DWER identified that the revegetation and maintenance of 0.59 hectares of native vegetation that provides black cockatoo foraging habitat is required. The City has committed to planting 160 *Banksia littoralis* (Acorn Banksia), 40 *Corymbia calophylla* (Marri), and 160 *Hakea varia* (Variable-leaved Hakea) within an area of 0.59 hectares within Raphael Road reserve (PIN 1343305), Bullsbrook, and has prepared a revegetation management plan to maximise the environmental benefits of the required revegetation (PGV Environmental, 2023c).

An assessment of the revegetation was undertaken using the WA Environmental Offsets Metric and having consideration for the Environmental Offsets Policy (2011) and the Environmental Offsets Guidelines (2014). DWER determined the revegetation and maintenance of 0.59 hectares of native vegetation that provides black cockatoo foraging habitat would be sufficient to ensure that no significant residual impacts remain from the loss of 0.222 hectares of native vegetation that provide foraging habitat for black cockatoos.

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

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 Appendix D) identified that the impacts of the proposed clearing present a risk to biological values (fauna habitat). 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.

3.2.1. Biological values (biodiversity and fauna) - Clearing Principles (a) and (b)

Assessment

The application area is located within the Swan region of the Swan Coastal Plain. The flora and vegetation assessment (PGV Environmental, 2023a) identified that the vegetation within the application area consists of vegetation in a Degraded to Completely Degraded (Keighery, 1994) condition.

According to available databases, 32 conservation significant fauna species have been recorded within the local area comprising four Priority 3, six Priority 4, six Endangered, four Vulnerable, two critically endangered, nine migratory, and one specially protected species (OS) fauna taxa. Noting the habitat requirements, the distribution of the recorded species, the mapped vegetation types, and the condition of the vegetation within the application area, the application area may comprise of suitable habitat for the following species:

- *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) (VU)
- *Dasyurus geoffroii* (Chuditch, western quoll) (VU)
- *Isoodon fusciventer* (Quenda, southwestern brown bandicoot) (P4)
- *Zanda latirostris* (Carnaby's cockatoo) (EN)

Black cockatoos

When considering the habitat of Black Cockatoos, it can be categorized into three distinct groups: breeding, foraging, and roosting. Black Cockatoos typically forage within a 12-kilometre radius of their active breeding site (Commonwealth of Australia, 2022). Following breeding, they will flock in search of food sources within six kilometres of their night roost (Commonwealth of Australia, 2022). However, they may travel up to 20 kilometres or more (Commonwealth of Australia, 2022). To maintain their populations, it is crucial to have an abundance of food resources within the range of breeding and roosting sites. Consequently, foraging resources are evaluated based on known breeding and night roosting sites, primarily within 12 kilometres of a breeding or roosting site (Commonwealth of Australia, 2022).

Breeding Habitat

The application area is located within the modelled potential breeding range of Carnaby's cockatoo and the core distributed range of the Forest Red-tailed Black-cockatoo. The range of black cockatoo species has contracted west and south from its historical range. Black cockatoo species are known to nest in hollows of live and dead trees, including *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), *Eucalyptus diversicolor* (karri), *Eucalyptus wandoo* (wandoo), *Eucalyptus gomphocephala* (tuart), *Eucalyptus rudis* (flooded gum), and other *Eucalyptus spp*. (Commonwealth of Australia, 2022). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is ≥ 50 centimetres (cm) for most tree species (Commonwealth of Australia, 2022). During PGV Environmental's (2023a) flora and vegetation assessment, two Marri trees with a diameter at breast height greater than 50cm were identified and considered potential breeding habitat for black cockatoos. However neither of the trees were found to contain hollows for black cockatoo breeding. No hollows suitable for black cockatoos were identified during the survey (PGV Environmental, 2023a). The loss of the trees due to the proposed clearing is unlikely to significantly impact the availability of potential breeding habitat for Carnaby's or Forest red-tailed black cockatoo.

Foraging habitat

Carnaby's and Forest Red-tailed Black-cockatoo forage on a variety of seeds, nuts, flowers, and plants, including Proteaceous species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri, and a range of introduced species (Valentine and Stock, 2008). Although the application area occurs within the predicted occurrence and breeding range of the Carnaby's and FRBC, no evidence of foraging on site has been observed (PGV Environmental, 2023a). Black Cockatoo's generally forage within a 6- to-12-kilometre radius of their nesting site (Commonwealth of Australia, 2022). Following breeding, black cockatoo's will assemble into flock and move through the landscape searching for suitable food resources, usually foraging within 6 kilometres of a night roost (Commonwealth of Australia, 2012). According to spatial data, there is no records of black cockatoo breeding within 12 kilometres of the application area. There are 24 known roost sites within the local area (12-kilometre radius). The closest known roost site for black cockatoo species is approximately 2.61 kilometres from the application area. Due to the ongoing loss of black cockatoo foraging habitat, all foraging recourses within the known distribution of black cockatoo's species are classified as significant foraging habitats, in particular when in close proximity to either

a breeding or roosting location. There is approximately 0.222 hectares of foraging habitat for black cockatoo mapped within the application area (PGV Environmental, 2023a). Based on the above assessment, the application area is likely to provide significant foraging habitat for black cockatoos and would require mitigation or offsetting.

Table 1: Hectare amount of tree species and their representation of black cockatoo habitat within the app area (PGV Environmental, 2023a).

Scientific name	Common name	Area in (ha)	Black cockatoo habitat F (Foraging), R (Roosting), N (Nesting), B (Blank).
Acacia saligna	Orange Wattle	0.012	F (CBC)
Corymbia calophylla	Marri	0.114	F,N,R (All three)
Eucalyptus rudis	Flooded Gum	0.096	R (CBC)
Melaleuca preissiana	Modong	0.068	B
Melaleuca rhaphiophylla	Swamp Paperbark	0.099	B

To mitigate the loss of 0.222 hectares of foraging habitat for black cockatoo, the City suggested mitigation planting and a revegetation management plan of 0.59 hectares within the road reserve, to ensure that the clearing will not contribute to the decline of black cockatoo foraging habitat within the local area (see Appendix A). DWER determined this to be a suitable mitigation measure (see Section 3.1).

Roosts

Black cockatoo species will utilise a wide range of native and non-native trees situated within a variety of land-use types to roost. Black cockatoo's will usually roost in tall (average of >25 metres) trees species that have a relatively thick trunk (DBH of 1 metre) and medium foliage density (average of 50%) (Le Roux, 2017). Roosting typically occurs within suitable trees that are in close proximity to an important water source and within an area of quality foraging habitat (Commonwealth of Australia, 2022). Noting, the application area contains some larger trees and quality foraging habitat nearby, the application area may provide roosting habitat for black cockatoos. Noting not all of the large trees within the road corridor will be removed and the proposed mitigation revegetation proposed by the City, the proposed clearing is not likely to lead to a significant impact to roosting habitat for black cockatoos.

Quenda

In their natural habitat, quenda's live in dense understories in swampland areas, Banksia and Jarrah woodlands. However, quendas have adapted to urban and suburban habitats in recent years (DBCA, 2018). According to available databases, the closest quenda on record is 1.41 kilometres from the application area. As the application area predominantly consist of vegetation along the road side, quenda may occasionally traverse the application area as they move through the landscape. Given the footprint of the clearing proposed, and the amount of remnant native vegetation immediately adjacent, the application area is not considered significant habitat for Quenda.

Chuditch

Chuditch are carnivorous marsupials, typically associated with riparian jarrah forest or other forest, woodland or shrubland habitats that contain suitable den sites, including hollow logs and tree hollows, and sufficient prey biomass (DEC, 2012). There are seven records of this species within the local area, with the closest being 0.36 kilometres from the application area recorded in 2006. Given the application area includes Eucalyptus woodland and surrounding riparian vegetation, it may provide minimal suitable habitat for chuditch as they traverse through the landscape. However, noting the extent of cleared areas surrounding the application area, the small extent of clearing area, and the presence of higher quality remnant vegetation to the west of the application area, the proposed clearing is unlikely to result in impacts to significant habitat for this species.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.222 hectares of native vegetation that provides significant foraging habitat for black cockatoos. Undertaking revegetation within the road reserve will mitigate the loss of foraging habitat. The proposed clearing is not likely to impact the Chuditch or Quenda as the species has a large home range and the area surrounding the application area is extensively cleared. However both species as well as other fauna may use the application area as transitional habitat only. Mechanical clearing activates may pose a risk for any fauna species that may transitionally use the application area. Undertaking clearing in a slow, directional manner towards any adjacent vegetation will minimise impacts to individuals that may be present at the time of clearing.

Conditions

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

- avoidance and minimisation to reduce the impacts and extent of clearing
- undertake slow progressive directional clearing to allow fauna to move ahead of clearing;
- weed and dieback management to minimise impacts to adjacent vegetation; and
- revegetation of 0.59 hectares of Raphael Road with species that provide foraging habitat for black cockatoos.

3.3. Relevant planning instruments and other matters

Several Aboriginal sites of significance have been mapped within the application area. 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 damaged through the clearing process.

End

Appendix A. Additional information provided by applicant

During the assessment, the applicant responded to requests for information with the following (see below).

Summary of comments	Consideration of comment
Revegetation plan for the proposed revegetation onsite	The applicant provided a revegetation plan for the proposed revegetation of 0.59 hectares of Raphael Road with species that provide foraging habitat for black cockatoos (PGE Environmental, 2023c). This information is presented in Section 3.1.

Appendix B. Details of public submissions

One public submission was received in relation to the proposed clearing (Submission, 2023).

Summary of comments	Consideration of comment
• The loss of native vegetation should be avoided or replaced if possible. • The trees proposed to be cleared should be offset with replacement vegetation in close proximity to Raphael Road, for example at Bullsbrook recycling centre. • The revegetation planting should consist of *Eucalyptus Rudis* (500), *Melaleuca viminea* (500) and understories species (500).	DWER has imposed a condition on the permit which requires the City to avoid, minimise and reduce impacts and extent of clearing. DWER determined that the impacts of the proposed clearing can be adequately mitigated through the revegetation of 0.59 hectares of native vegetation along Raphael Road that provide foraging habitat for black cockatoos. The quantum of revegetation required was determined using WA Environmental Offsets Calculator (see Section 3.2.1).

Appendix C. Site characteristics

C.1. 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 this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix D.

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Local context</td><td>The area proposed to be cleared is 0.39 hectares of native vegetation along Raphael Road reserve (PIN 1343305), Bullsbrook, within the intensive land use zone of the Swan region of Western Australia. The area proposed to be cleared is separated between multiple locations distributed across Raphael Road reserve and is surrounded by rural industry, farms, dwellings and patches of intact remnant vegetation.

The application area is located within the eastern portion of the Swan coastal plain IBRA bioregion. Aerial imagery indicated that the local area (a 10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 35.26 per cent of the original native vegetation cover.</td></tr>
<tr><td>Ecological linkage</td><td>The application area is not a part of any formal ecological or roadside linkages. The closest ecological linkages to the application area are a Bush forever conceptual linkage, approximately 1.10 kilometres west of the application area and the Perth regional ecological linkage (ID 31), approximately 0.73 kilometres north of the application area. The proposed clearing will not sever or impact these linkages.</td></tr>
<tr><td>Conservation areas</td><td>The application area does not overlap with any reserves or conservation areas.

The closest conservation areas and reserves to the application area are the following:
<table>
<tr><th>Conservation area type</th><th>Name/ID</th><th>Approximate Distance from application area (km)</th><th>Direction from application area</th></tr>
<tr><td>Gnangara-Moore River State Forrest</td><td>1202</td><td>1.37</td><td>West</td></tr>
<tr><td>Conservation covenant</td><td>4636</td><td>1.44</td><td>South-West</td></tr>
<tr><td>Conservation covenant</td><td>4619</td><td>1.72</td><td>West</td></tr>
<tr><td>Conservation covenant</td><td>4618</td><td>2.01</td><td>West</td></tr>
<tr><td>Twin Swamps Nature Reserve</td><td>1246</td><td>2.53</td><td>South-East</td></tr>
<tr><td>Lexia Wetlands</td><td>9198</td><td>2.99</td><td>South</td></tr>
<tr><td>Neaves Road Nature Reserve</td><td>10088</td><td>5.47</td><td>North-west</td></tr>
<tr><td>Ellen Brook Nature Reserve</td><td>10940</td><td>6.15</td><td>South-East</td></tr>
<tr><td>Walyunga National Park</td><td>1203</td><td>6.73</td><td>East</td></tr>
<tr><td>Bullsbrook Nature Reserve</td><td>1249</td><td>7.98</td><td>North-East</td></tr>
</table></td></tr>
<tr><td>Vegetation description</td><td>Photographs supplied by the applicant (PGV Environmental, 2023a) indicate the vegetation within the proposed clearing area consists of the following species:
<table>
<tr><th>Scientific name</th><th>Common name</th><th>Area in (ha)</th></tr>
<tr><td>Acacia saligna</td><td>Orange Wattle</td><td>0.012</td></tr>
<tr><td>Corymbia calophylla</td><td>Marri</td><td>0.114</td></tr>
<tr><td>Eucalyptus rudis</td><td>Flooded Gum</td><td>0.096</td></tr>
<tr><td>Melaleuca preissiana</td><td>Modong</td><td>0.068</td></tr>
<tr><td>Melaleuca rhaphiophylla</td><td>Swamp Paperbark</td><td>0.099</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>This is likely to be a very degraded remnant of the mapped vegetation type being Yanga Complex (38), described as predominantly a closed scrub of Melaleuca species and a low open forest of Casuarina obesa on the flats subject to inundation.

The mapped vegetation type retains approximately 16.31 per cent of the original extent (Government of Western Australia, 2019).</td></tr>
<tr><td>Vegetation condition</td><td>Photographs supplied by the applicant and PGV Environmental (2023a) report indicate the vegetation within the proposed clearing area is in a degraded to completely degraded (Keighery, 1994) condition, described as native trees and paperbark with no native understory.

The full Keighery (1994) condition rating scale is provided in Appendix E and representative photos are available in Appendix F.</td></tr>
<tr><td>Climate and landform</td><td>The climate experienced in the application area is Mediterranean, characterized by hot and dry summers and cool and wet winters. According to the Bureau of Meteorology (2023), the proposed clearing area has an average annual rainfall of 655.6 millimetres and average monthly maximum temperatures ranging from 18.0°C to 33.6°C. The data was gathered from the closest open Metalogical site (ID 009053) located approximately 5.10 kilometres north east of the application.

The elevation of the application area is relatively level with the surrounding area, ranging from 40 meters Isohyet on the east of the application area rising to 45 meters Isohyet to the west of the application area.</td></tr>
<tr><td>Soil description</td><td>The application area is listed on three different soil complexes including the following;

Approximately 10 per cent of the application area is mapped as.
<table>
<tr><td>Name</td><td>Yanga 13 Subsystem</td></tr>
<tr><td>Soils</td><td>213Ya13</td></tr>
<tr><td>Description</td><td>Drainage depressions in very gently sloping plain. Deep white humic sands overlying siliceous and humic pans. Woodland of E. rudis, E. camaldulensis and Melaleuca spp..</td></tr>
</table>
Approximately 10 per cent of the application area is mapped as.
<table>
<tr><td>Name</td><td>Yanga 8x Phase</td></tr>
<tr><td>Soils</td><td>213Ya_8x</td></tr>
<tr><td>Description</td><td>Flat plain with occasional low dunes. Subject to seasonal inundation. Deep white and pale-yellow sands interspersed with swamp and generally underlain by siliceous/humic pans at depth.</td></tr>
</table>
Approximately 80 per cent of the application area is mapped as.
<table>
<tr><td>Name</td><td>Yanga 9x Phase</td></tr>
<tr><td>Soils</td><td>213Ya_9x</td></tr>
<tr><td>Description</td><td>Flat plain with occasional low dunes. Subject to seasonal inundation. Humic and peaty sands, wet and semi-wet soils generally underlain by siliceous / humic pans at depth. E. rudis, Melaleuca spp., reeds and some Banksia on dunes.</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The degradation risk factors mapped over the application area are detailed below:
<table>
<tr><th></th><th>Yanga 13 Subsystem</th><th>Yanga 8x Phase</th><th>Yanga 9x Phase</th></tr>
<tr><td>Wind erosion</td><td>L1</td><td>H2</td><td>M1</td></tr>
<tr><td>Water erosion</td><td>H2</td><td>L1</td><td>L1</td></tr>
<tr><td>Salinity risk</td><td>M1</td><td>L1</td><td>M1</td></tr>
<tr><td>Phosphorous export</td><td>H2</td><td>H2</td><td>H2</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>
<table>
<tr><td>Waterlogging</td><td>H2</td><td>H2</td><td>H2</td></tr>
</table>
<table>
<tr><td>Subsurface acidification</td><td>H2</td><td>H2</td><td>H2</td></tr>
<tr><td>Acid sulphate soils</td><td>No known to moderate to Low</td><td>Moderate to Low</td><td>High to Moderate to Low</td></tr>
</table>
<table>
<tr><td>Flooding</td><td>H2</td><td>H2</td><td>H2</td></tr>
<tr><td>Floodplains</td><td>No</td><td>No</td><td>No</td></tr>
</table>
Key
<table>
<tr><td>L1</td><td>Low</td><td><3%</td><td>of the map has a high to extreme risk</td></tr>
<tr><td>L2</td><td>Low</td><td>3-10%</td><td>of the map has a high to extreme risk</td></tr>
<tr><td>M1</td><td>Medium</td><td>10-30%</td><td>of the map has a high to extreme risk</td></tr>
<tr><td>M2</td><td>Medium</td><td>30-50%</td><td>of the map has a high to extreme risk</td></tr>
<tr><td>H1</td><td>High</td><td>50-70%</td><td>of the map has a high to extreme risk</td></tr>
<tr><td>H2</td><td>High</td><td>>70%</td><td>of the map has a high to extreme risk</td></tr>
</table>
</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment and aerial imagery indicate that the application area lies on top of the Ellen Brook Floodplains, a Palusplain flat. Furthermore, the northern part of the application area is mapped as an unnamed inland perennial swamp. Two other perennial swamp wetlands border the application area, being approximately 233 meters and 313 meters, respectively from the application area. Inland water lines, both natural and artificial, intersect multiple locations of the application area that flow through to Ellen Brook.</td></tr>
<tr><td>Hydrogeography</td><td>
<table>
<tr><td>Hydrological Zone</td><td>Coastal Plain</td></tr>
<tr><td>Basin</td><td>Swan Coastal (616)</td></tr>
<tr><td>Hydrographic Catchment</td><td>SwanAvon_Lower Swan</td></tr>
</table>
<table>
<tr><td>RIWI Act Surface Water and Irrigation District</td><td>Yes</td><td>Swan River System</td></tr>
<tr><td>RIWI Act Rivers</td><td>No</td><td></td></tr>
<tr><td>RIWI Act Groundwater Areas</td><td>Yes</td><td>Swan Groundwater Area</td></tr>
<tr><td>CAWS Act Clearing Control Catchment</td><td>No</td><td></td></tr>
<tr><td>Public Drinking Water Source Areas</td><td>No</td><td></td></tr>
<tr><td>Wellhead Protection Zone</td><td>No</td><td></td></tr>
<tr><td>Reservoir Protection Zone</td><td>No</td><td></td></tr>
</table>
The salinity of the application area is mapped at 500-1000 total dissolved solids milligrams per litre.
</td></tr>
<tr><td>Flora</td><td>According to available database, 45 conservation significant flora species have been recovered within the local area (10-kilometre buffer). Comprising one Priority 1, seven Priority 2, 20 Priority 3, ten Priority 4, and seven threatened flora taxa.

Only one conservation-significant species was found to have a similar vegetation type, environmental conditions and soil type to the application area. Cyathochaeta teretifolia is recorded approximately 3.92 kilometres from the application area.

Based on the PGV Environmental (2023a) vegetation assessment, it is unlikely that the clearing will negatively impact any conservation significant flora. No threatened or priority</td></tr>
</table>

Characteristic	Details
	flora species have been recorded in the application area, with the area comprised of trees over weeds (PGV Environmental, 2023a). According to the site photos (see Appendix F) the *Zantedeschia aethiopica* (Arum lily), a Weed of National Significance (WONS), dominates the application area. The proposed clearing is likely to contribute to the spread the weeds.
Ecological communities	According to spatial data, there are no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the application area. No TEC or PECs were recorded within the application area (PGV Environmental, 2023a).
Fauna	According to available databases, 32 conservation significant fauna species have been recorded within the local area comprising four Priority 3, six Priority 4, six Endangered, four Vulnerable, two critically endangered, nine migratory, and one specially protected species (OS) fauna taxa. Of the 32 conservation-significant species, 16 are avian species, with the closest record being the Carnaby's Cockatoo (*Zanda latirostris),* which has been recorded approximately 1.46 kilometres from the application area. The application area is within the distribution of Carnaby's Cockatoo and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso).* The application area is also approximately 5.48 kilometres from the Baudin's Cockatoo (*Zanda 13audinii*) known distribution maps. There are 288 records of Carnaby's Cockatoo, 21 records of Forest Red-tailed Black-cockatoo, and no records of Baudin's Cockatoo within 10 kilometres of the application area. There are approximately 24 records of black cockatoo roosts within 12 kilometres of the application area, the closest of which is approximately 2.61 kilometres from the application area. No Black cockatoo hollows have been recorded within 12 kilometres of the application area. Of the remaining 16 species, one was a marine-only species and is unlikely to be negatively affected by the proposed clearing. The closest non-avian species are the Chuditch (*Dasyurus geoffroii),* being 0.36 kilometres and the quenda (*Isoodon fusciventer)* being, 1.41 kilometres from the application area. The critically endangered Western swamp tortoise (*Pseudemydura umbrina)* is within 1.38 kilometres east of the application area, however as the application area is unlikely to negatively affect any waterways flowing into the surrounding wetlands due to the minimum size of the clearing footprint, it is unlikely that the clearing will effect the Western swamp tortoise.

C.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 - 831	1,501,221.93	579,813.47	38.62	222,916.97	17.98
IBRA bioregion Pre Euro*					
Swan Coastal Plain – BASSENDEAN_949	115,119.15	69,992.31	60.80	36,766.71	44.83
Swan Coastal Plain – BASSENDEAN_1018	8,008.39	1,195.13	14.92	23.77	0.31
Vegetation complex (Swan Coastal Plain vegetation complex **)					
Yanga Complex 38	26,176.45	4,268.78	16.31	522.52	2.00
Local area					
10km radius	35,342.12	12,462.86	35.26	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), 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]
Acacia anomala	T	N	Y	N	3.46	17	NA
Acacia oncinophylla subsp. *oncinophylla*	3	N	N	N	9.60	5	NA
Adenanthos cygnorum subsp. *chamaephyton*	3	N	Y	N	5.35	2	NA
Anigozanthos humilis subsp. *chrysanthus*	4	N	N	Y	6.66	2	NA
Beaufortia purpurea	3	N	Y	N	9.29	2	NA
Caladenia huegelii	T	N	N	N	2.94	9	NA
Calectasia elegans	2	N	N	Y	3.89	7	NA
Cyanicula ixioides subsp. *ixioides*	4	N	Y	N	6.65	1	NA
Cyathochaeta teretifolia	3	Y	Y	Y	3.92	11	NA
Darwinia foetida	T	N	N	N	4.87	14	NA
Drosera occidentalis	4	Y	Y	N	3.46	4	NA
Drosera x badgerupii	2	N	N	N	4.85	1	NA

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]
Eleocharis keigheryi	T	N	N	N	2.75	7	NA
Eryngium pinnatifidum subsp. Palustre (G.J. Keighery 13459)	3	N	Y	N	4.75	3	NA
Grevillea althoferorum subsp. *fragilis*	T	N	N	N	9.11	9	NA
Grevillea curviloba	T	N	Y	N	3.36	51	NA
Guichenotia tuberculata	3	N	Y	N	3.46	1	NA
Haemodorum loratum	3	N	Y	Y	4.22	2	NA
Halgania corymbosa	3	N	Y	N	7.59	1	NA
Hydrocotyle lemnoides	4	Y	Y	N	3.46	6	NA
Hydrocotyle striata	1	Y	Y	N	5.74	1	NA
Hypolaena robusta	4	N	N	Y	5.57	2	NA
Lasiopetalum glutinosum subsp. *glutinosum*	3	N	Y	N	9.50	1	NA
Millotia tenuifolia var. *laevis*	2	N	N	Y	3.52	2	NA
Netrostylis sp. Chandala (G.J. Keighery 17055)	2	Y	Y	N	5.57	1	NA
Persoonia rudis	3	N	Y	N	7.98	3	NA
Persoonia sulcata	4	N	Y	N	7.57	1	NA
Phlebocarya pilosissima subsp. *pilosissima*	3	N	N	Y	3.16	2	NA
Platysace ramosissima	3	N	N	N	8.54	3	NA
Poranthera moorokatta	2	N	N	Y	3.52	3	NA
Schoenus capillifolius	3	N	N	N	5.09	6	NA
Schoenus griffinianus	4	N	N	N	6.81	1	NA
Schoenus natans	4	N	N	N	6.89	1	NA
Schoenus sp. Bullsbrook (J.J. Alford 915)	2	N	N	N	3.37	1	NA
Schoenus sp. Waroona (G.J. Keighery 12235)	3	N	Y	N	7.76	1	NA
Stenanthemum sublineare	2	N	N	N	9.91	2	NA
Stylidium aceratum	3	N	N	N	7.98	6	NA
Stylidium longitubum	4	N	Y	N	3.32	12	NA
Stylidium paludicola	3	N	Y	N	3.32	4	NA
Stylidium trudgenii	3	N	Y	N	4.33	3	NA
Styphelia filifolia	3	N	N	N	3.14	1	NA
Tetratheca pilifera	3	N	N	N	8.68	3	NA
Trithuria occidentalis	T	N	N	N	3.69	7	NA
Verticordia lindleyi subsp. *lindleyi*	4	N	N	Y	9.42	1	NA
Verticordia serrata var. *linearis*	3	N	N	N	3.46	1	NA

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

C.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]
Birds						
Calidris ferruginea (curlew sandpiper)	CR	Y	N	7.04	1	N
Calidris ruficollis (red-necked stint)	MI	Y	N	7.04	2	N
Calonectris leucomelas (streaked shearwater)	MI	N	N	7.04	1	N
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	2.91	21	N
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	1.46	288	N
Calyptorhynchus sp. 'white-tailed black cockatoo' (white-tailed black cockatoo)	EN	Y	Y	2.61	15	N
Falco peregrinus (peregrine falcon)	OS	N	N	8.39	1	N
Glareola maldivarum (oriental pratincole)	MI	Y	N	7.04	1	N
Limosa lapponica (bar-tailed godwit)	MI	Y	N	7.04	2	N
Oxyura australis (blue-billed duck)	P4	Y	N	7.04	3	N
Plegadis falcinellus (glossy ibis)	MI	Y	N	7.04	2	N
Pluvialis squatarola (grey plover)	MI	Y	N	7.04	1	N
Rostratula australis (Australian painted snipe)	EN	Y	N	3.97	1	N
Thalasseus bergii (crested tern)	MI	Y	N	7.04	1	N
Tringa glareola (wood sandpiper)	MI	Y	N	7.04	1	N
Tringa nebularia (common greenshank)	MI	Y	N	7.04	2	N
Mammals						
Dasyurus geoffroii (chuditch, western quoll)	VU	N	Y	0.36	7	N
Hydromys chrysogaster (water-rat, rakali)	P4	Y	N	6.61	3	N
Isoodon fusciventer (quenda, southwestern brown bandicoot)	P4	Y	Y	1.41	205	N
Macrotis lagotis (bilby, dalgyte, ninu)	VU	N	N	3.97	2	N
Notamacropus eugenii derbianus (tammar wallaby)	P4	N	N	7.79	6	N
Notamacropus irma (western brush wallaby)	P4	N	N	4.01	1	N
Petrogale lateralis lateralis (black-flanked rock-wallaby, black-footed rock-wallaby, moororong)	EN	N	N	9.65	3	N
Reptiles						
Ctenotus gemmula (jewelled southwest Ctenotus (Swan Coastal Plain population))	P3	N	N	3.11	2	N
Neelaps calonotos (black-striped snake, black-striped burrowing snake)	P3	N	N	3.05	19	N
Pseudemydura umbrina (western swamp tortoise)	CR	N	N	1.38	107	N
Invertebrates						
Hylaeus globuliferus (woolybush bee)	P3	Poorly known	Poorly known	8.38	4	N

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]
Leioproctus contrarius (a short-tongued bee)	P3	Poorly known	Poorly known	5.30	2	N
Leioproctus douglasiellus (a short-tongued bee)	EN	Poorly known	Poorly known	4.73	2	N
Synemon gratiosa (graceful sunmoth)	P4	N	N	6.82	2	N
Westralunio carteri (Carter's freshwater mussel)	VU	N	N	4.76	5	N
Fish						
Galaxiella nigrostriatal (black-stripe minnow, black-striped dwarf galaxias)	EN	N	N	7.53	1	N

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

C.5. Ecological community analysis table

Community 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]
Banksia Woodlands of the Swan Coastal Plain ecological community	Priority 3	N	N	Y	0.33	481	NA
Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain)	CR	Y	Y	N	5.56	5	NA
Corymbia calophylla – Kingia australis woodlands on heavy soils (floristic community type 3a as originally described in Gibson et al. 1994)	CR	N	N	N	8.85	1	NA
Corymbia calophylla — Xanthorrhoea preissii woodlands and shrublands, Swan Coastal Plain (floristic community type 3c as originally described in Gibson et al. 1994)	EN	N	N	N	4.51	11	NA
Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain (floristic community type 15 as originally described in Gibson et al. 1994)	CR	N	N	N	3.07	3	NA
Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. 1994)	EN	N	N	N	8.39	1	NA
Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. 1994)	EN	N	N	N	5.04	2	NA
Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain	EN	N	N	N	4.82	3	NA

Community 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]

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

Appendix D. 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 area proposed to be cleared consists of a small footprint of roadside remnant native vegetation in a Degraded to Completely Degraded (Keighery, 1994) condition and is not likely to be floristically diverse. The application area is not mapped as any TEC/PEC or contain threatened or priority flora. The vegetation comprised of trees over weeds. The application area contains foraging habitat fauna species.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
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 application area provides suitable habitat for several conservation significant fauna species including the Forest red-tailed black cockatoo and Carnaby's cockatoo. Fauna may use the application area to traverse the landscape.	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 habitat for threatened flora species. No threatened flora have been recorded within the application area (PGV Environmental, 2023a).	Not at variance	No
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: According to spatial data, the area proposed to be cleared is not mapped as a TEC and does not contain species that can indicate a TEC (PGV Environmental 2023a).	Not 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 classified as a constrained area on the Swan Coastal Plain, where the threshold for representation of the pre-clearing of native vegetation is 10 per cent. The extent of native vegetation in the local area is consistent with this threshold. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not at variance	No
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."*	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Assessment: Given the separation distance to the nearest conservation area is approximately 1.37 kilometres, the proposed clearing is not likely to have an impact on the environmental values of any adjacent or nearby conservation areas.		
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 application area is mapped within the Ellen Brook Floodplain, furthermore a small portion of the application area is mapped as an unnamed inland perennial swamp wetland. However, given the small extent of clearing within the mapped perennial wetland being approximately 0.049 hectares of native vegetation, and the small extent of clearing within the floodplain, the proposed clearing is unlikely to significantly impact an environment associated with a watercourse or wetland.	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 are highly susceptible to wind and water erosion and nutrient export. All other land degradation risks are low. Noting the extent of the clearing (0.39 hectares), and the clearing is adjacent to an existing road, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be 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: As only a small portion of the application area is mapped as inland perennial swamp wetland (0.049 hectares), the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be 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 topographical contours in the surrounding area indicate that the application area is susceptible to flooding; additionally, the application area is mapped within the Ellen Brook Floodplains. However, noting the small extent of the proposed clearing, it is unlikely that the clearing will increase incidences or intensity of flooding/ waterlogging than what already occurs within the surrounding area.	Not likely to be at variance	No

Appendix E. 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 F. Biological survey information excerpts and photographs of the vegetation

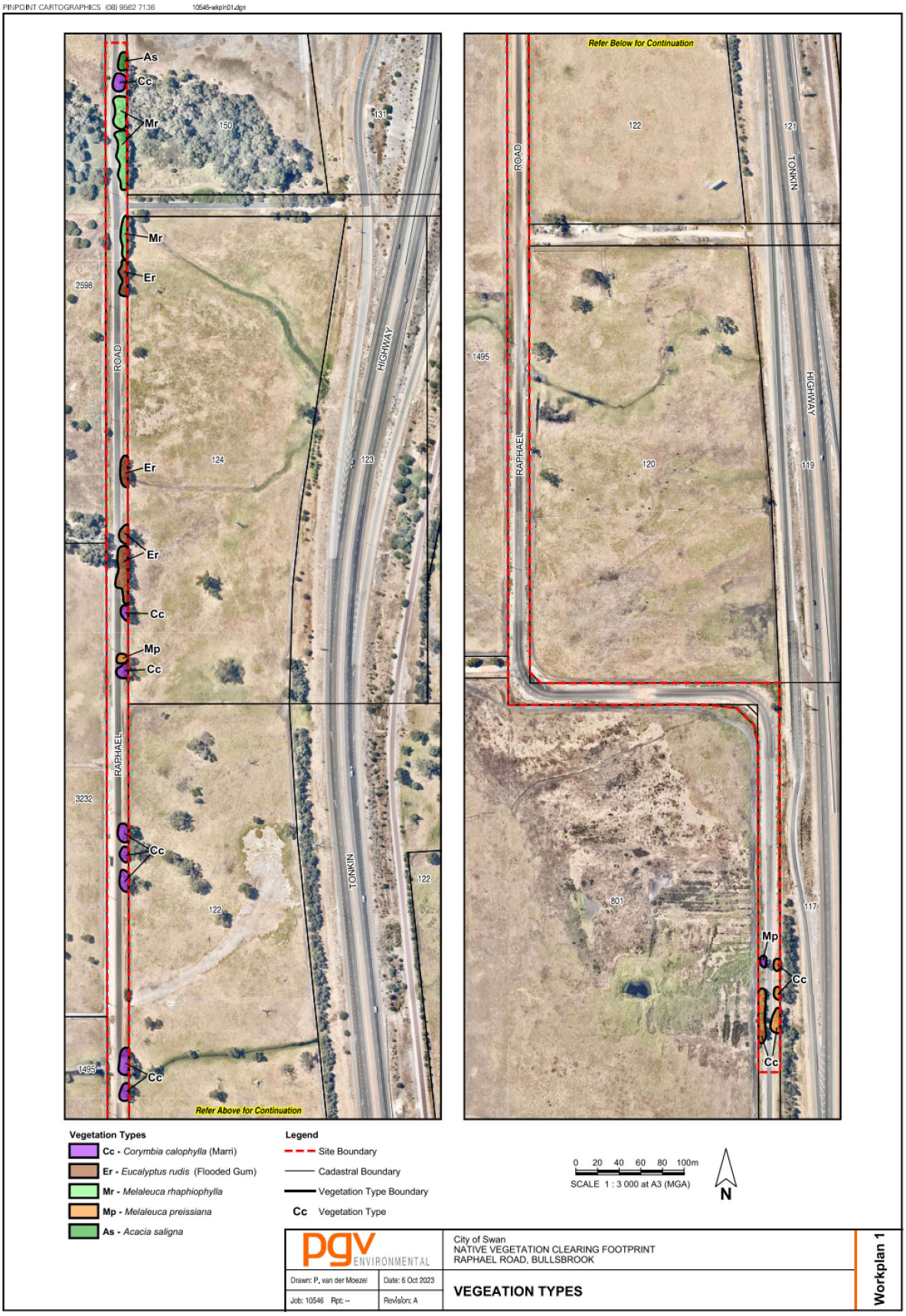


Figure 3: Map of the application area species composition (PGV Environmental, 2023b)



Figure 4. Plate 1 Marri trees north of stock road junction photos of application area from PGV Environmental (2023a).



Figure 5. Two *Eucalyptus rudis* (Flooded Gum). PGV Environmental (2023a).



Figure 6: *Melaleuca rhaphiophylla* (Swamp Paperbark) stand south of the stock road junction. PGV Environmental (2023a).



Figure 7: Photo of application area facing southeast, *Acacia Saligna* (Google, 2021).



Figure 8: Photo of application area facing east, *Corymbia calophylla* (Google, 2021).



Figure 9: Photo of application area facing southeast, *Corymbia calophylla* (Google, 2021).



Figure 10: Photo of application area facing southeast, *Melaleuca rhaphiophylla* and Typha (Google, 2021).



Figure 11: Photo of application area facing east, *Melaleuca rhaphiophylla* (Google, 2021).



Figure 12: Photo of application area facing south east, *Melaleuca rhaphiophylla* and *Zantedeschia aethiopica* (Google, 2021).



Figure 13: Photo of application area facing east, *Melaleuca rhaphiophylla, Eucalyptus rudis and Zantedeschia aethiopica* (Google, 2021).



Figure 14: Photo of application area facing east, *Eucalyptus rudis and Zantedeschia aethiopica* (Google, 2021).



Figure 15: Photo of application area facing east, *Corymbia calophylla* and *Zantedeschia aethiopica* (Google, 2021).



Figure 16: Photo of application area facing south east *Corymbia calophylla* (Google, 2021).



Figure 17: Photo of application area facing south east *Eucalyptus rudis, Melaleuca rhaphiophylla , and Corymbia calophylla* (Google, 2021).



Figure 18: Photo of application area facing east *Corymbia calophylla* (Google, 2021).



Figure 19: Photo of application area facing east, *Corymbia calophylla, Melaleuca preissiana, Melaleuca rhaphiophylla, and Zantedeschia aethiopica* (Google, 2021).



Figure 20: Photo of application area facing east, *Corymbia calophylla* (Google, 2021).



Figure 21: Photo of application area facing east, *Corymbia calophylla* (Google, 2021).



Figure 22: Photo of application area facing east *Corymbia calophylla* (Google, 2021).



Figure 23: Photo of application area facing east *Corymbia calophylla* (Google, 2021).



Figure 24: Photo of application area facing east *Melaleuca rhaphiophylla* (Google, 2021).



Figure 25: Photo of application area facing west *Melaleuca rhaphiophylla* (Google, 2021).



Figure 26: Photo of application area facing west *Melaleuca rhaphiophylla and Zantedeschia aethiopica* (Google, 2021).



Figure 27: Photo of application area facing south east *Melaleuca rhaphiophylla and Zantedeschia aethiopica* (Google, 2021).



Figure 28: Photo of application area facing west *Melaleuca rhaphiophylla* (Google, 2021).



Figure 29: Photo of application area facing northeast *Melaleuca rhaphiophylla* (Google, 2021).

Appendix G. Sources of information

G.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)

G.2. References

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