GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9053/1
Permit Holder:	City of Swan
Duration of Permit:	From 2 February 2021 to 2 February 2026

The permit holder is authorised to clear native vegetation subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear native vegetation for the purpose of road widening.

2. Land on which clearing is to be done

Midland Road reserve (PINs 11452249, 11841091 and 11841799), Hazelmere and Bushmead

Talbot Road reserve (PIN 11841098), Hazelmere

Leeuwin Road reserve (PIN 12430712), Bushmead

3. Clearing authorised

The permit holder must not clear more than 0.027 hectares of native vegetation within a footprint of 4.42 hectares within the area cross-hatched yellow in Figures 1, 2 and 3 of Schedule 1.

4. Clearing not authorised

The permit holder must not clear standing trees identified with coordinates in Schedule 2.

PART II – MANAGEMENT CONDITIONS

5. 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.

6. 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.

PART III - RECORD KEEPING AND REPORTING

7. 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 location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (b) the date that the area was cleared; (c) the size of the area cleared (in hectares); and the number of trees cleared; (d) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; and (e) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 6.

8. Reporting

The permit holder must provide to the *CEO* the records required under condition 7 of this permit when requested by the *CEO*.

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*.
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.
fill	means material used to increase the ground level, or to fill a depression.
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.
EP Act	*Environmental Protection Act 1986* (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
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

Meenu Vitarana
A/SENIOR MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

8 January 2021

Schedule 1

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

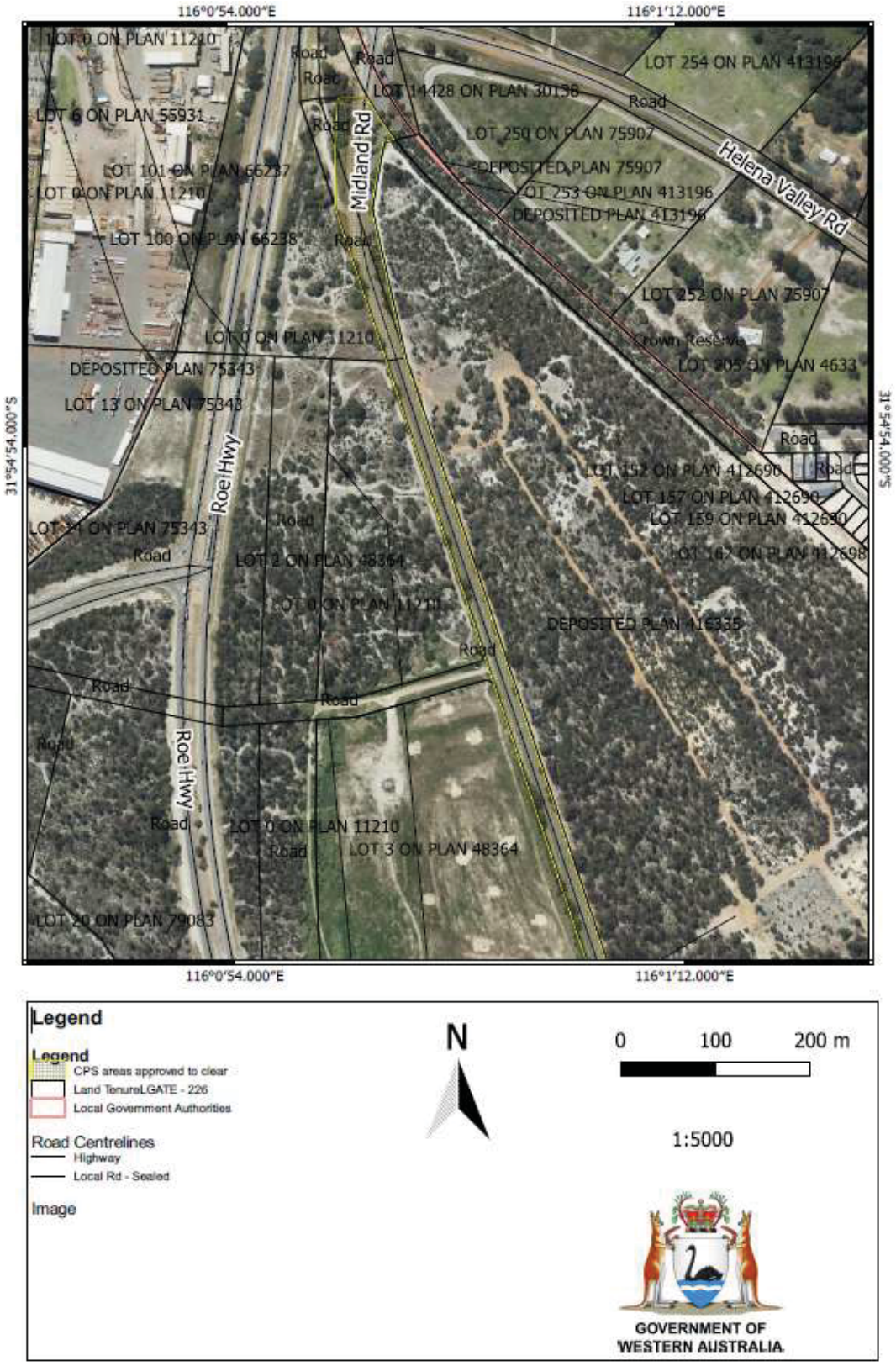

Figure 1: Map of the boundary of the area within which clearing may occur

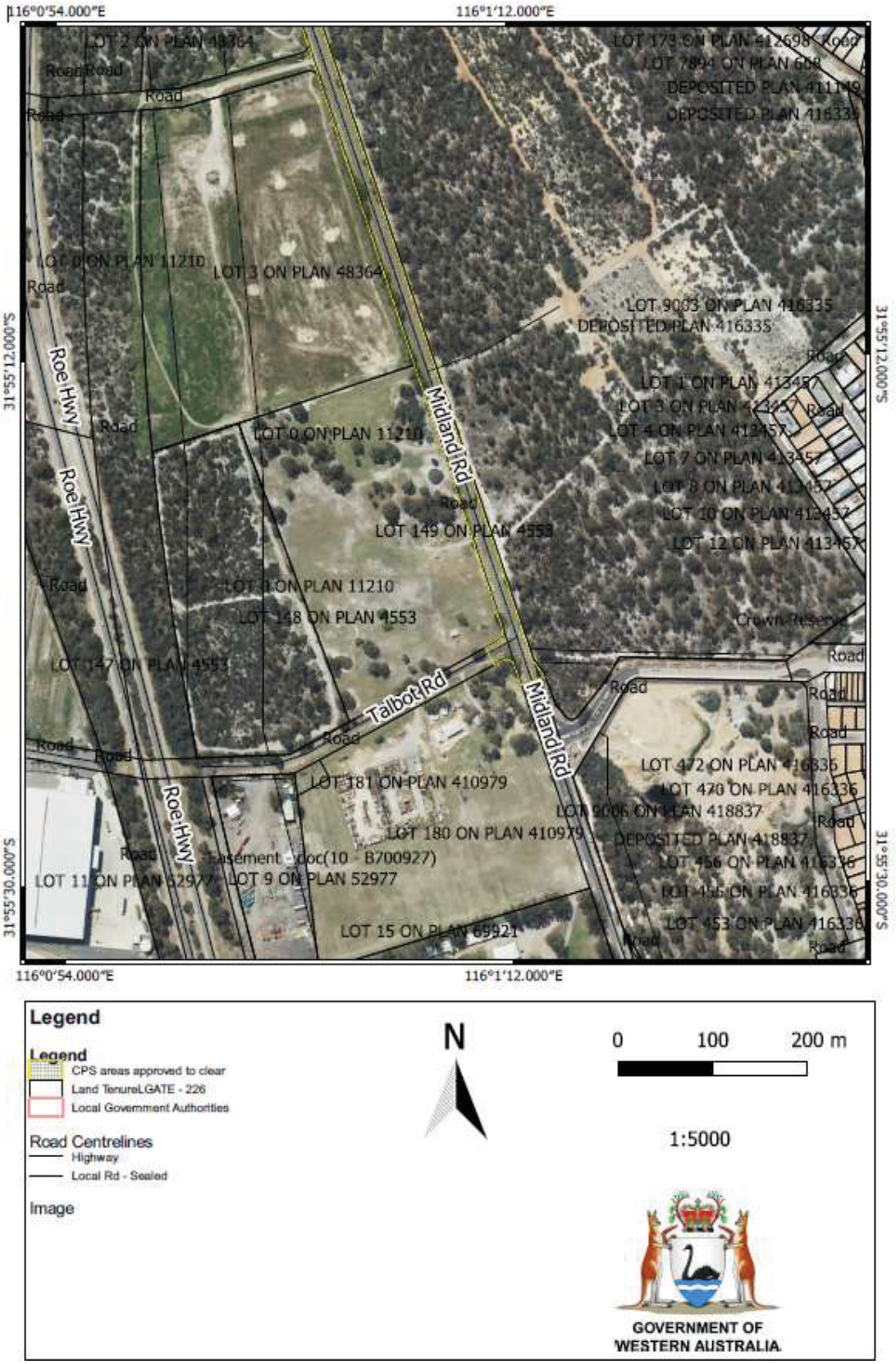

Figure 2: Map of the boundary of the area within which clearing may occur

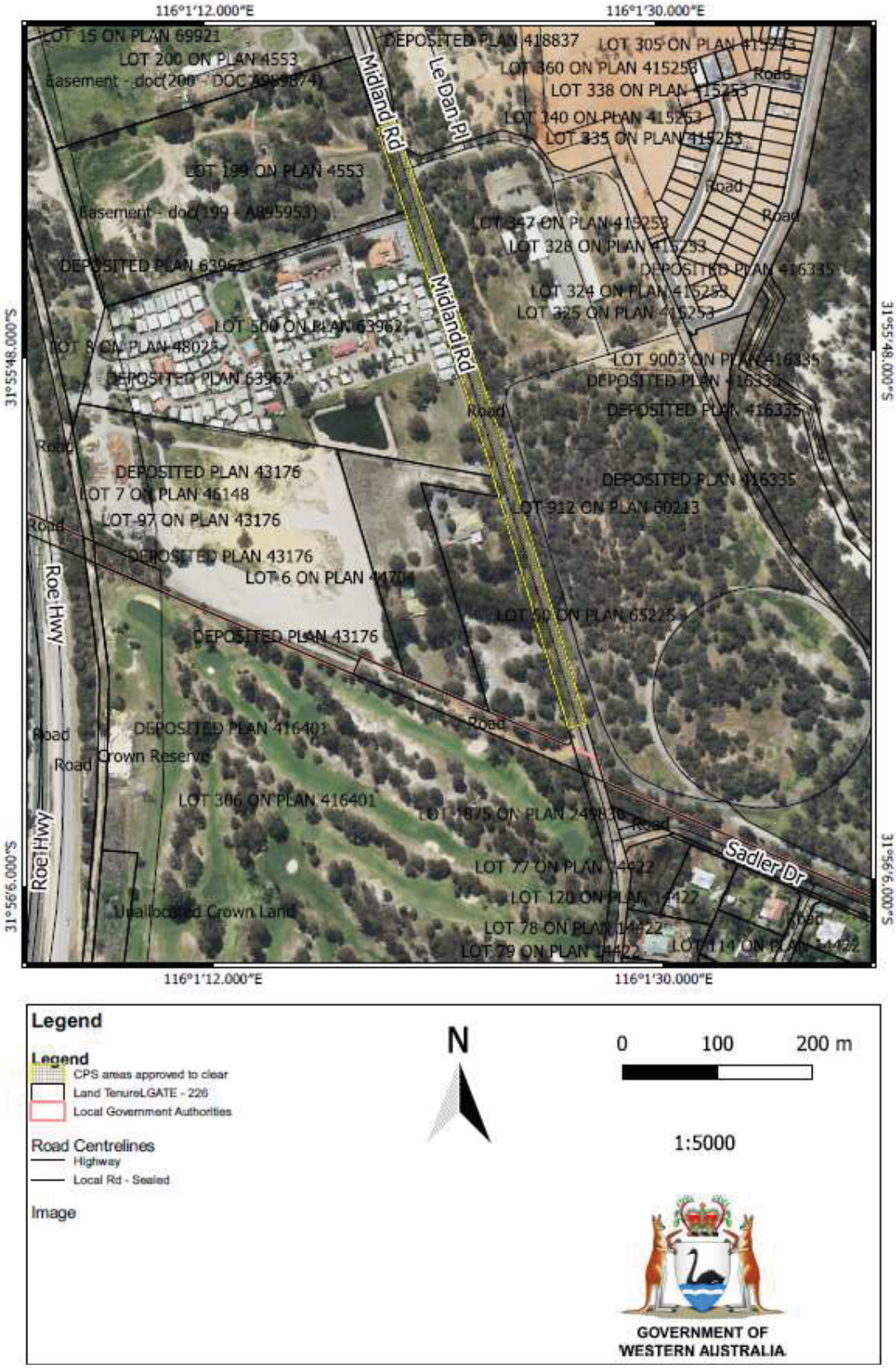

Figure 3: Map of the boundary of the area within which clearing may occur

Schedule 2

Tree species	Northings	Eastings
Eucalyptus marginata	-31.916297	116.017591
Banksia menziesii	-31.917342	116.018154
Banksia attenuata	-31.917369	116.018172
Banksia attenuata	-31.918106	116.018437
Allocasuarina fraseriana	-31.918293	116.018517
Allocasuarina fraseriana	-31.918383	116.018545
Eucalyptus marginata	-31.918343	116.018375
Allocasuarina fraseriana	-31.918470	116.018591
Allocasuarina fraseriana	-31.918728	116.018681
Eucalyptus marginata	-31.919406	116.018755
Eucalyptus marginata	-31.919550	116.018817
Corymbia calophylla	-31.928755	116.022301
Corymbia calophylla	-31.929863	116.022720
Corymbia calophylla	-31.929431	116.022545
Corymbia calophylla	-31.929522	116.022578
Eucalyptus marginata	-31.931253	116.023216
Corymbia calophylla	-31.929906	116.022730
Corymbia calophylla	-31.929999	116.022763
Eucalyptus marginata	-31.932949	116.023869
Eucalyptus marginata	-31.932972	116.023815

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 9053/1
Permit type:	Purpose permit
Applicant name:	City of Swan
Application received:	17 September 2020
Application area:	0.027 hectares of native vegetation within a footprint of 4.42 hectares
Purpose of clearing:	Road widening
Method of clearing:	Mechanical
Property:	Midland Road reserve (PINs 11452249, 11841091 and 11841799) Talbot Road reserve (PIN 11841098) Leeuwin Road reserve (PIN 12430712)
Location (LGA area/s):	City of Swan
Localities (suburb/s):	Hazelmere and Bushmead

1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across along the road reserves as listed above (see Figure 1, Section 1.5).

The application was revised during the assessment process, in response to a request to clarify the trees proposed to be cleared. The changes included identifying that only two mature trees within the road reserves are required to be cleared to achieve the road design.

1.3. Decision on application

Decision:	Granted
Decision date:	8 January 2021
Decision area:	0.027 hectares of native vegetation within a footprint of 4.42 hectares, 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 one submission was received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix G.1) and a site inspection (see Appendix F), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values

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 proposed clearing is unlikely to have long-term adverse impacts on the surrounding vegetation or localised land degradation and can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures.

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
- Avoid 20 of mature trees from the permit to clear to reduce impacts on current and future values for black cockatoo species

1.5. Site maps

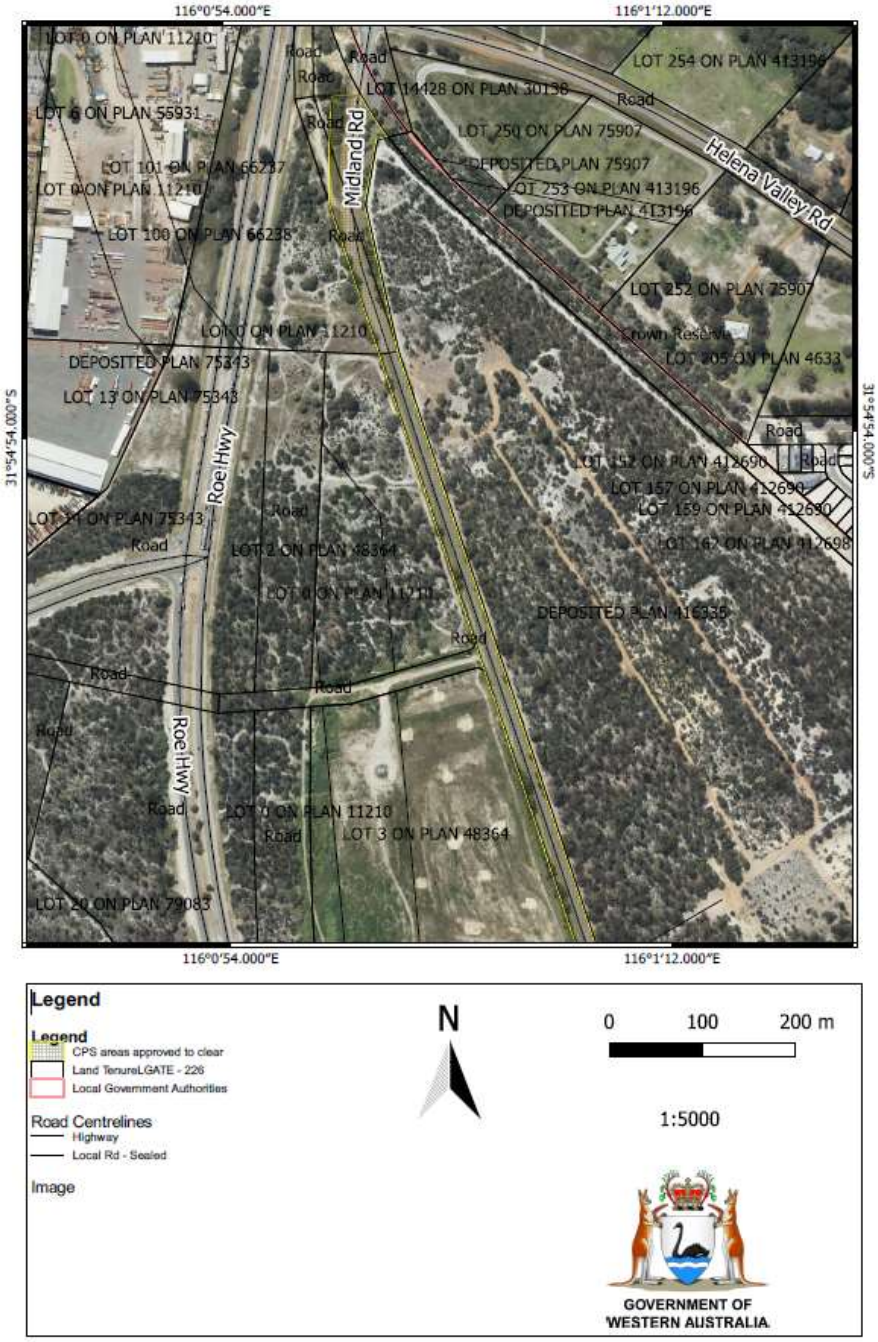

Figure 1 Map of the application area

The areas crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

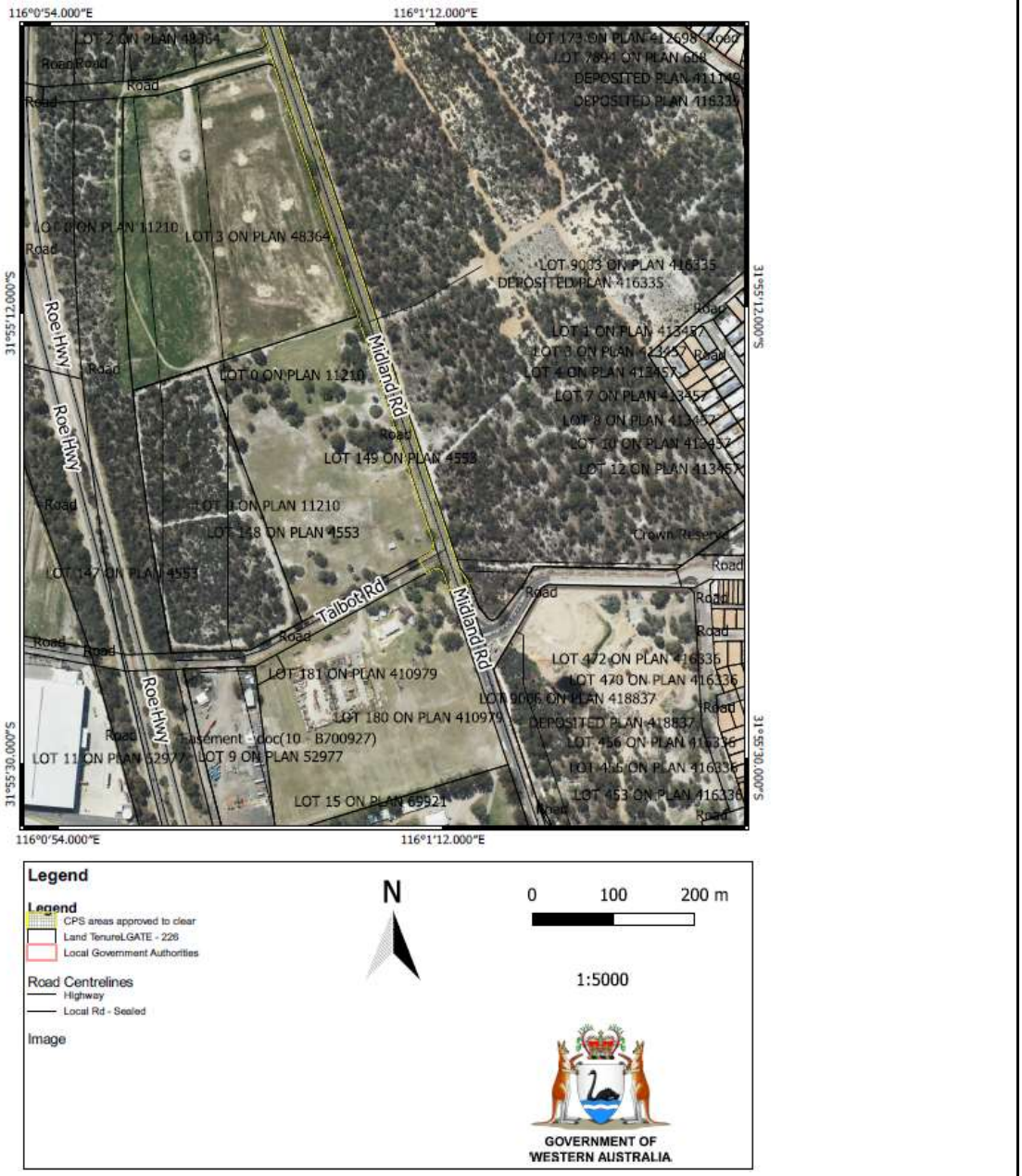

Figure 2 Map of the application area

The areas crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

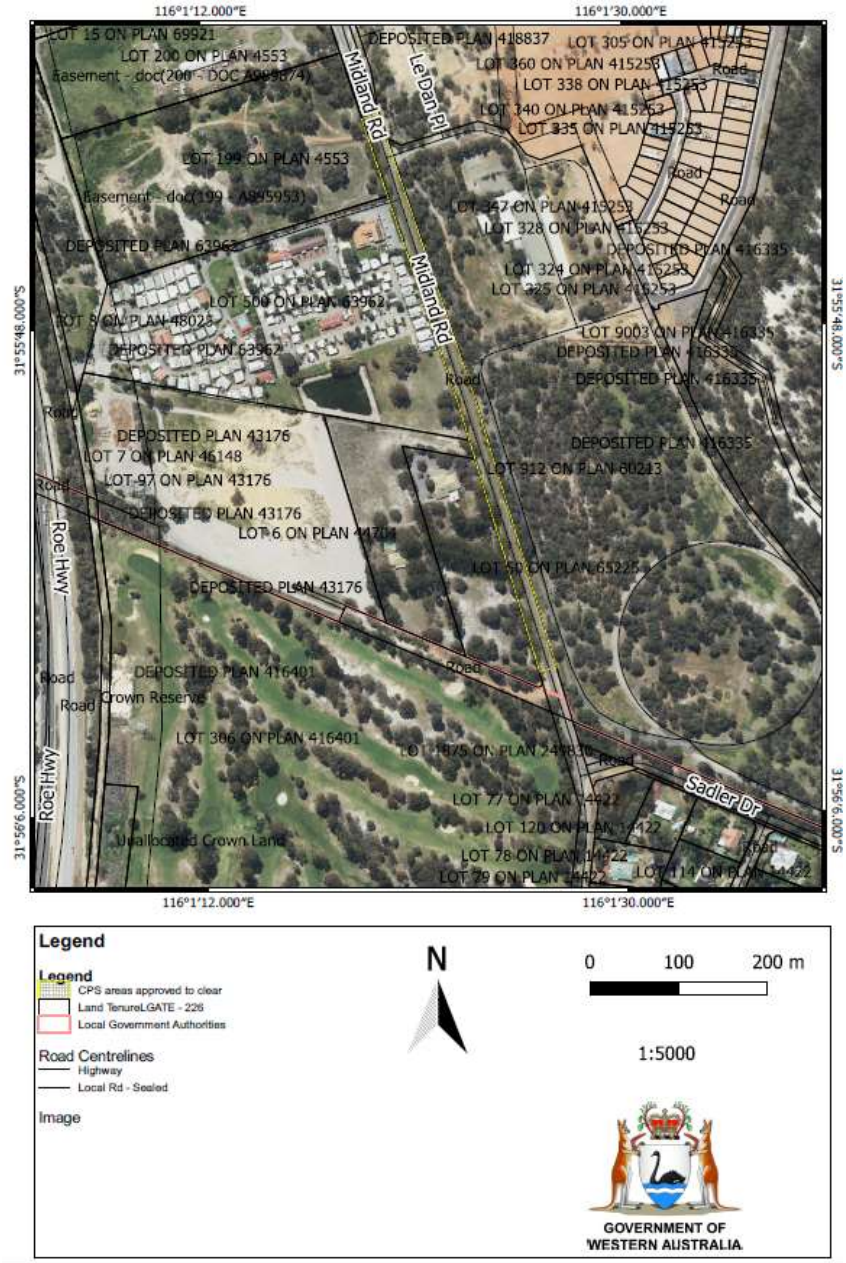

Figure 3 Map of the application area

The areas crosshatched yellow indicate the area 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:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

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)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant provided information demonstrating consideration of avoidance and minimisation measures. The original application was for the proposed clearing of 0.11 hectares within a footprint of 4.42 hectares and had included numerous mature trees within the roadside which were unable to be avoided within the original road design due to the location of utilities.

A revised design by the City consisted of a narrower road design and a reduction of clearing to 0.027 hectares within a footprint of 4.42 hectares which included two mature trees (described in Appendix A) and some species which are likely to have been planted. The City also stated "the City has selected drainage locations to avoid and minimise the removal trees. Additionally the footpath where possible will meander and narrow up (within reason) to save trees. With regards to shifting the road east to save trees on the western side this is not really a feasible option due to utility services in the eastern verge. In particular the overhead transmission lines that run the entire length of the road and are already quite close based on the current design (poles approx. 2m from kerb)" (Applicant, 2020b).

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, with particular regard to the value of mature trees within the road reserve.

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 **Error! Reference source not found.**) identified that the impacts of the proposed clearing may present a risk to biological values, fauna, adjacent and vegetation and land degradation. 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. Fauna - Clearing Principle (b)

Assessment

Within the local area, there are records of 48 conservation significant fauna species. A number of these species are associated with waterbodies such as the Swan and Helena Rivers, of which no similar habitat is found within the application area. Noting observations made within the site inspection (Appendix F), the application area consists of large trees and shrubs and has little to no understory. The absence of understory limits the ability of the vegetation to provide habitat for ground dwelling species such as the southwestern brown bandicoot, southern death adder and the black-striped burrowing snake. The most frequently occurring fauna species within the local area include the three species of black cockatoo; *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo).

Cockatoo breeding habitat: The application area is within the breeding range of Carnaby's cockatoo, the core habitat of the forest red tail cockatoo and the distribution of Baudin's cockatoo. The application area contains numerous mature trees and includes seven marri/jarrah trees which have a diameter at breast height (DBH) of >500mm. Although none of the trees observed during the site inspection contained hollows suitable for breeding by cockatoo species (DWER, 2020), the size of the trees (DBH) determines these trees to be considered as breeding habitat as they have the potential to form hollows.

Cockatoo roosting habitat: Noting the presence of various permanent water sources within the local area (the Swan River, Helena River and numerous lakes), many of the trees within the application area may be considered suitable roosting sites for species of black cockatoos. Available data sources show there are four confirmed roost sites for Carnaby's cockatoo within the local area. While the trees within the application area may meet the general requirements for roosting habitat in terms of tree height, distance to water, tree species and available foraging habitat, it is considered unlikely that cockatoo species would have a preference to roost in trees within a busy road reserve.

Cockatoo foraging habitat: The vegetation within the application area presents a small amount of quality foraging habitat for all three species of black cockatoo to different extents. The site inspection (Appendix F) noted observations of foraging by forest red-tailed cockatoos on marri fruits within the application area. Foraging habitat is considered critical for black cockatoos within the Swan Coastal Plain due to diminishing resources. While it is noted that a small quantity of foraging habitat is located within the application area, the adjacent Bush Forever sites, Greenmount National Park, Beelu National Park, Gooseberry Hill National Park and Kalamunda National Park contain similar vegetation types to the application area. Noting the presence of ample foraging habitat in the immediate vicinity of the application area, the proposed clearing of 0.027 hectares of low quality foraging habitat is not considered significant.

Conclusion
Based on the above assessment, and noting that the proposed clearing (as revised) is limited to only two trees with a DBH of >500, both of which do not contain hollows, the proposed clearing will result in a minor loss of foraging habitat for black cockatoos and two trees which may be of future use for breeding if a suitable hollow was to form.

Noting that other mature trees with a DBH of >500 mm will be retained within the road reserve and noting the extent of vegetation within the local area, the proposed clearing is not likely to impact on species of black cockatoo.

Conditions
No fauna management conditions required. Noting the revised application area has been reduced to include two mature trees, the remaining mature trees within the clearing footprint have been conditioned within the permit as clearing that is not authorised.

3.2.2. Conservation areas - Clearing Principle (h)

Assessment

The application area is adjacent to Bush Forever Site 213 and Bush Forever Site 481 both of which contain mapped occurrences of conservation significant ecological communities. Noting the proposed clearing is in close proximity to these conservation areas, the proposed clearing has the potential to introduce weeds and dieback to these areas.

Conclusion:

For the reasons above, the proposed clearing may result in risk to these conservation areas in the form of weeds and dieback which could be controlled with management conditions.

Conditions

A permit to clear contains management conditions for weed and dieback.

3.2.3. Land and water resources - Clearing Principle (g)

Assessment

Much of the application area is mapped within the Pinjarra, Phase Gf7 soil system. As noted in Appendix C.5 below, this soil type has a high risk of wind erosion.

Conclusion
The proposed clearing of vegetation along the roadside has the potential to lead to localised increase in wind erosion. However, noting the amount of clearing authorised is limited to 0.027 hectares it is considered that the clearing is not likely to pose risk of land degradation in the form of wind erosion.

Conditions
No conditions for land degradation management required.

3.3. Relevant planning instruments and other matters

An Aboriginal site 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

The applicant provided an arborists report of the trees within the footprint. The extract below contains descriptions of the two trees proposed to be removed under this application. It is noted that one of the trees is recommended to be removed by the arborist.

Tree no	Species	Height (m)	Canopy Height (m)	Avg. Canopy Spread (m)	DBH (mm)	Health and structural condition	TPZ (m radius)	SRZ (m radius)	Comments & Recommendations	Burnley Valuation $A
1	*Eucalyptus marginata*	14.8	10.0	9	830	Mature. Poor health and fair structural condition with a limited canopy cover and evidence of the dieback of minor limbs throughout. Basal cavity due to previous fire damage and associated bark loss has substantially ring barked the tree. No evidence of root plate movement.	10.0	3.4	Limited life expectancy. Removal recommended due to health and condition	5,565
						from the base. Root plate firm.			disruption/damage.	
8	*Eucalyptus marginata*	22.4	17.0	10.5	1080	Mature. Fair health and poor structural condition. Trunk leans in a northerly direction. A large basal cavity due to previous fire damage and termite damage evident. Sporadic major deadwood throughout. Major forks sound and well-formed. Root plate firm.	13.0	4.0	May tolerate some root disruption /damage. Limited canopy over the road.	22,095
						Mature. Good health and fair structural condition			High retention	

Figure 4: Tree 1 is a *Eucalyptus marginata*

Figure 5: Tree 8 is a *Eucalyptus marginata*

Figure 6: An area of *Conostylis* sp. is required to be cleared to accommodate the footpath.

Appendix B. Details of public submissions

One submission was received in relation to this application. The submission is summarised below, and the consideration given to the concerns raised. The submission related to the original road design which had included numerous mature trees.

Summary of comments	Consideration of comment
The application area includes 20 mature trees including Jarrah and Marri that exceed a DBH of over 500mm. These trees are potentially breeding habitat for black cockatoo species.	The applicant has provided further avoidance and minimisation measures and the number of mature trees to be removed is two Jarrah trees.
The trees within the application area have biodiversity, social and aesthetic value.	Biodiversity values have been considered as part of this decision report. Social and aesthetic values are beyond the scope of this assessment.
The large trees occur within the west side of Midland road and the widening activities should be restricted to the eastern side to avoid clearing the large trees.	The applicant has provided further avoidance and minimisation measures and the number of mature trees to be removed is two Jarrah trees.

Summary of comments	Consideration of comment
	As detailed under section 3.1, the applicant has stated that “shifting the road east to save trees on the western side this is not really a feasible option due to utility services in the eastern verge” (Applicant, 2020b).

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a series of contiguous patches of native vegetation in the intensive land use zone of Western Australia. It is adjacent to two Bush Forever sites, a housing development and light industrial area. The proposed clearing area is on the western extent of the contiguous patches and is within a road reserve which intersects the vegetation patches. Aerial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 29 per cent of the original native vegetation cover.
Ecological linkage	The area proposed to be cleared is not part of any mapped ecological linkage. The absence of understory within the application area indicates the area has limited linkage value for terrestrial fauna but may have value as an ecological linkage for avian species.
Conservation areas	The application area is located adjacent to two Bush Forever sites.
Vegetation description	DWER site inspection indicates the vegetation within the proposed clearing area consists of individual with minimal understory. Representative photos are available in Appendix A and Appendix F. This is consistent with the mapped vegetation type(s): • Forrestfield complex, which is described as vegetation ranges from open forest of Corymbia calophylla (Marri) - Eucalyptus wandoo (Wandoo) - Eucalyptus marginata (Jarrah) to open forest of Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri) - Allocasuarina fraseriana (Sheoak) - Banksia species. Fringing woodland of Eucalyptus rudis (Flooded Gum) in the gullies that dissect this landform. The mapped vegetation type retains approximately 12.29 per cent of the original extent (Government of Western Australia, 2019.
Vegetation condition	DWER site inspection indicates the vegetation within the proposed clearing area is in completely degraded (Keighery, 1994) condition, described as: • 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. The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos of the clearing footprint are available in Appendix F and photographs of the two individual trees to be cleared in Appendix A.
Climate and landform	The application area is within a relatively flat landscape with a change of elevation of approximately 5 meters spread across the extents of the footprint. The mean annual rainfall in the local area is approximately 730 millimeters.
Soil description	The application area is mapped within three soil types with the majority being within the Pinjarra phase Gf7:

Characteristic	Details
	• Pinjarra, Phase Gf7, described as minor rises with deep rapidly drained brownish, siliceous or bleached sands underlain by mottled yellow clay. Low woodland of B. prionotes and some tall E. calophylla with E. rudis along streamlines. • EnvGeol S10 Phase, described as sand, relatively thin veneer over sandy clay to clayey sand of eolian origin.
Land degradation risk	The mapped soil types within the application area have a medium to high risk of phosphorus export and wind erosion but have a low risk of other categories of land degradation risk.
Waterbodies	The desktop assessment and aerial imagery indicated that numerous wetlands are located within close proximity to the proposed clearing. The closest mapped wetland is within 125 meters of the application area. being the Helena River Floodplain/Swan street, which is a palusplain wetland with multiple use values.
Hydrogeography	The application is within the Swan River System, proclaimed under the *RIWI Act 1914*, and the Perth Groundwater Area also proclaimed under the *RIWI Act 1914.*
Flora	16 flora records in local area, with the nearest record located approximately 275 meters from the application area. This species has been recorded on similar soil and vegetation types as those mapped within the application area.
Ecological communities	The application area is adjacent to mapped occurrences of a state listed threatened ecological community Banksia attenuata woodland over species rich dense shrublands and the Commonwealth listed Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region.
Fauna	There are records of 48 fauna of conservation significance within the local area and a known black cockatoo roost site 4 kilometres away.

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	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Heddle vegetation complex (Forrestfield)**	22,812.92	2,803.36	12.29	381.57	1.67
Local area					
10km radius			29.57	-	-

**Government of Western Australia (2019b)

C.3. 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]
Anous tenuirostris melanops (Australian lesser noddy)	EN	N	N	4.86	2	n/a
Bettongia penicillata ogilbyi (Woylie)	CR	N	N	8.3	1	n/a
Botaurus poiciloptilus (Australasian bittern)	EN	N	N	4.2	4	n/a
Cacatua pastinator pastinator (Muir's corella)	CD	Y	Y	3.2	6	n/a
Calidris canutus (red knot)	EN	N	N	9	1	n/a
Calidris ferruginea (curlew sandpiper)	CR	N	N	8.9	12	n/a
Calidris tenuirostris (great knot)	CR	N	N	9.6	1	
Calyptorhynchus banksii naso (Forest red-tailed black cockatoo)	VU	Y	Y	0.1	77	Y
Calyptorhynchus baudinii (Baudins cockatoo)	EN	Y	Y	0.03	114	
Calyptorhynchus latirostris (Carnabys cockatoo)	EN	Y	Y	0.26	1649	
Dasyurus geoffroii (western quoll)	VU	N	N	0	56	
Myrmecobius fasciatus (numbat)	EN	n	Y	7.4	1	
Phascogale tapoatafa wambenger (South-western brush-tailed phascogale)	CD	Y	y	4	23	
Pseudemydura umbrina (Western swamp tortoise)	CR	N	N	3.2	5	
Pseudocheirus occidentalis (Western ringtail possum)	CR	N	N	2.4	2	
Sternula nereis nereis (Fairy tern)	VU	N	N	9.3	1	
Westralunio carteri (Carter's freshwater mussel)	VU	N	N	3.5		

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

C.4. 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 attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994))	EN	Y	Y	Y	0		Y

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 Dominated Woodlands of the Swan Coastal Plain IBRA Region	EN	Y	Y	Y	0		Y

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

C.5. Land degradation risk table

	EnvGeol S10 Phase	*Pinjarra, Phase Gf7*
Wind erosion	30-50% of map unit has a high to extreme wind erosion risk	>70% of map unit has a high to extreme wind erosion risk
Water erosion	10-30% of map unit has a high to extreme wind erosion risk	<3% of map unit has a high to extreme water erosion risk
Salinity risk	10-30% of map unit has a moderate to high salinity risk or is presently saline	<3% of map unit has a moderate to high salinity risk or is presently saline
Phosphorus export risk	30-50% of map unit has a high to extreme phosphorus export risk	>70% of map unit has a high to extreme phosphorus export risk

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 is adjacent to a threatened ecological community 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' This community is listed as 'Endangered' under the EPBC Act. Noting the absence of understory and the vegetation structure and composition noted in the DWER site inspection (Appendix F) and the reduced application area (Appendix A), it is considered the proposed clearing area does not contain species that can indicate a threatened ecological community or priority flora species.	Not 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 (as revised) contains two mature trees which do not contain hollows for black cockatoo species, however, are likely to contribute to the availability of foraging material for these species.	May 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 habitat for flora species listed under the BC Act.	Not likely to be 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: The area proposed to be cleared is adjacent to vegetation mapped as *'Banksia attenuata woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. (1994))'* This community is listed as 'Endangered' under the BC Act. Noting the absence of understory and the vegetation structure and composition noted in the DWER site inspection (Appendix F), it is considered the proposed clearing area	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
does not contain species that can indicate a threatened ecological community.		
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 extent of the mapped vegetation type is inconsistent with the national objectives and targets for biodiversity conservation in Australia, however the proposed clearing of two mature trees and a minimal understorey is not considered to have a significant impact on the mapped vegetation type. 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."* Assessment: Given the proposed clearing is adjacent to Bush Forever Sites, the proposed clearing may have an impact on the environmental values of adjacent conservation areas.	May be at variance	Yes Refer to Section 3.2.2, above.
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: Given no water courses or wetlands are recorded as intercepting the application area, the proposed clearing 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 soil types are highly susceptible to wind erosion. Noting this, the proposed clearing has potential to contribute to land degradation.	May be at variance	Yes Refer to Section 3.2.3, above.
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 water courses or conservation wetlands are recorded 100 meters the application area, 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 topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.	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. DWER site inspection report

The site inspection report below was conducted on the original application area. Following the site inspection and further discussion, the applicant made a reduction of the proposed clearing as discussed in Section 3.1 and detailed in Appendix A.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Application
Site Inspection Report
CPS 9053/1

FIELD INSPECTION DATE:	17/11/2020
LOCATION:	Midland Road (Midland) PINs 11452249, 11841091 and 11841799
AREA UNDER APPLICATION:	0.11 hectares
PURPOSE:	Road widening
APPLICANT:	City of Swan
FILE:	DWERVT6540
AUTHOR:	Andre Schmitz

1. PROPERTY LOCATIONS

Isolated shrubs and trees on the east side and west side of Midland Road.

2. ATTENDEES

Andre Schmitz (DWER) and Juraj Galba (DWER).

3. ACTIONS UNDERTAKEN

A site walk over the application area was undertaken to describe the vegetation, vegetation condition and flora and fauna values. In particular, associations with any Threatened Ecological Community or Priority Ecological Community, and habitat attributes for black-cockatoos; whereby foraging and breeding habitat (hollows) was described. A map of locations (Appendix A), and a spreadsheet of tree and shrub descriptions (Appendix B) was used to facilitate the assessment. Photographs were taken throughout (Appendix C).

4. SITE OBSERVATIONS

Vegetation description:

Vegetation within the application area comprises isolated shrubs of *Adenanthos cygnorum* (Woollybush); small trees of *Banksia attenuata* (Candlestick Banksia), *Banksia menziesii* (Firewood Banksia), and *Allocasuarina fraseriana* (Western Sheoak); and small and large trees of *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri).

Vegetation condition:

The application area was in a Completely Degraded condition (according to the condition scale of Keighery 1994), being either 'parkland cleared' or with an understorey of planted non-native species.

Individual native species of the application area:

Appendix B expands upon the information provided by the applicant, and Appendix C provides photographs of the individual trees; #1 to #26). A number of the identifiers within the original table were incorrect, with Appendix B providing a revision. Species recorded within the application area were the six species listed above. A subset of the species within the listed table had previously been marked in the field with yellow flagging tape for identification purposes. The section of the application area between Tree #19 and Tree #24 contained a stand of predominantly Marri (*Corymbia calophylla*), where there was some uncertainty over which individuals were actually within the application area, as several individual trees were not flagged with the yellow flagging tape.

Values: Flora and vegetation

The vegetation over the application area was Completely Degraded to Degraded (Keighery 1994), with no native understorey and no propensity to support Priority or Threatened flora species. All six flora species recorded are common species.

The vegetation of the application area does not align with any Threatened Ecological Community or Priority Ecological Community. However, three individual Banksias occur within the application area, and the native vegetation to the east of this section is located within Bush Forever site 213 (Bushmead Bushland). The vegetation within the Bushmead Bushland is in Very Good to Excellent condition (Keighery 1994) (**Figure 1**), and the Bushmead Bushland may support the *Banksia Dominated Woodlands of the Swan Coastal Plain* Threatened Ecological Community / Priority Ecological Community. However, the three Banksias in the application area are not located within Bush Forever site 213, and are isolated and disjunct from this larger patch by approximately five metres (**Figure 1**).

Figure 1: Isolated Banksia within the application area (left), and vegetation within Bush Forever Site 213 (Bushmead Bushland) to the east of the application area (right)

Values: Fauna

The vegetation of the application area is Completely Degraded to Degraded (Keighery 1994), with no native understorey and unlikely to support resident fauna species of conservation significance. However, the three vagile species of black cockatoo known from the Perth metropolitan area may utilise the tree canopy present. That is, the Endangered **Carnaby's Cockatoo** *(Calyptorhynchus latirostris)*, the Endangered **Baudin's Cockatoo** *(Calyptorhynchus baudinii)*, and the Vulnerable Forest Red-tailed Black-cockatoo *(Calyptohynchus banksii naso)* - all known from the vicinity of the application area.

Black cockatoo habitat can be considered in terms of breeding habitat, night-roosting habitat, and foraging habitat. No hollows suitable for black cockatoos occur within the application area and breeding habitat is not present. However, during the site inspection a flock of approximately 12 Forest Red-tailed Black-cockatoos was feeding within a stand of Marri (*Corymbia calophylla)* between Tree #19 and Tree #24 Evidence of feeding by the Forrest Red-tailed Black-cockatoo within the application area was recorded by marri fruit exhibiting the distinctive sign of foraging by Forest Red-tailed Black-cockatoos (**Figure 2**), with a flock of cockatoos feeding within the same stand of Marris immediately adjacent to the application area. **Carnaby's Cockatoo and Baudin's Cockatoo** are also likely to occur within the vicinity and also feed on Marri fruit, but were not recorded.

Black cockatoo foraging habitat is present in the form of Marri and Jarrah canopy within the application area and evidence of feeding by the Vulnerable Forest Red-tailed Black-cockatoo was observed. Whether this site acts as a night-roost is unknown. There is no black cockatoo breeding habitat within the application area.

Figure 2: Evidence of the Forrest Red-tailed Black-cockatoo foraging within the application area

Appendix A (Site inspection Report)

Appendix B (Site Inspection Report)

Shire of Swan Supporting Information			DWER Assessment		
ID	Tree	DBH (mm)	Species	Comments	App A: Figure #
1	pine needle shrub	<100	*Adenanthos cygnorum*	Isolated individual Woolybush shrubs at the western end of the application area.	Fig 1 Fig 2 Fig 3
2	pine needle shrub	<100	*Adenanthos cygnorum*		
3	pine needle shrub	<100	*Adenanthos cygnorum*		
4	pine needle shrub	<100	*Adenanthos cygnorum*		
5	Jarrah	600,700	*Eucalyptus marginata*	Two stemmed Jarrah	Fig 5
6	Banksia	500	*Banksia menziesii*	Mature *Banksia menziesii*	Fig 6
7	Banksia	300	*Banksia attenuata*	Immature *Banksia attenuata*	Fig 7
8	Banksia	200	*Banksia attenuata*	Immature *Banksia attenuata*	Fig 8
9	Sheoak	500	*Allocasuarina fraseriana*	Multi-stemmed casuarina	Fig 9
10	Sheoak	500	*Allocasuarina fraseriana*	Multi-stemmed casuarina	Fig 10
11	Jarrah	1000	*Eucalyptus marginata*	Large Jarrah. Hollow at base but no suitable hollows for black cockatoos	Fig 11
12	Sheoak	300	*Allocasuarina fraseriana*	Multi-stemmed casuarina	Fig 12
13	Sheoak	400	*Allocasuarina fraseriana*	Immature casuarina	Fig 13
14	Jarrah	800	*Eucalyptus marginata*	Large Jarrah - no suitable hollows for black cockatoos	Fig 14
15	Jarrah	500	*Eucalyptus marginata*	Immature Jarrah - no suitable hollows for black cockatoos	Fig 15
16	pine needle shrub	<100	*Adenanthos cygnorum*	Isolated individual Woolybush shrub	Fig 16
17	pine needle shrub	<100	*Adenanthos cygnorum*	Isolated individual Woolybush shrub	Fig 17
18	Jarrah	900	*Corymbia calophylla*	Large Marri - no suitable hollows for black cockatoos	Fig 18
19	Jarrah	500	*Corymbia calophylla*	Mature Marri - no suitable hollows for black cockatoos	Fig 19
20	Jarrah	400	*Corymbia calophylla*		Fig 20?
21	Jarrah	500	*Corymbia calophylla*		Fig 21?
22	Jarrah	400	*Eucalyptus marginata*	Immature Jarrah	Fig 22
23	Jarrah	400	*Corymbia calophylla*		Fig 23?
24	Jarrah	300	*Corymbia calophylla*	Immature Marri	Fig 24
25	Jarrah?	300	*Eucalyptus marginata*		Fig 25?
26	Jarrah?	<100	*Eucalyptus marginata*	Dead Jarrah	Fig 26

Appendix C (Site Inspection Report)

Figure 1

Figure 2

Figure 3

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

Figure 19

Figure 20

Figure 21

Figure 22

Figure 23

Figure 24

Figure 25

Figure 26

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

Applicant (2020a) Clearing permit application CPS 9053/1, received 17 September 2020 (DWER Ref: A1935174).

Applicant (2020b) Avoidance and minimisation measures provided by the applicant for CPS 9053/1, received 9 November 2020 (DWER Ref: A1953233).

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed December 2020).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Department of Water and Environmental Regulation (DWER) (2020) *Site Inspection Report for Clearing Permit Application CPS 9053/1,* 17 November 2020. Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1961548).

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) *Vegetation Complexes of the Darling System, Western Australia*. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

Submission (2020) *Public submission in relation to clearing permit application CPS 9053/1,* received 30 October 2020 (DWER Ref: DWERDT358849).

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed November 2020)

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed November 2020)