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 10553/1
Permit type:	Purpose permit
Applicant name:	Mr Michael Saunders
Application received:	1 March 2024
Application area:	0.41 hectares of native vegetation (revised)
Purpose of clearing:	Power line construction
Method of clearing:	Bulldozing
Property:	Lot 8655 on Deposited Plan 133513 Lot 3110 on Deposited Plan 111211 Higham Road reserve (PIN 1527781)
Location (LGA area/s):	Shire of Narrogin
Localities (suburb/s):	Minigin

1.2. Description of clearing activities

The vegetation proposed to be cleared comprises of a small area of remnant native vegetation contained within a single contiguous area (see Figure 1, Section 1.5). The proposed clearing is to provide powerline construction for ongoing access for Western Power (Saunders, 2024). The size of the area and amount of clearing proposed was reduced during assessment.

1.3. Decision on application

Decision:	Granted
Decision date:	17 June 2024
Decision area:	0.41 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 B), relevant datasets (see Appendix F.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the actions taken by the applicant which resulted in the avoidance and minimisation of the extent of the clearing area and the mitigation of the impacts of clearing (see Section 3.1).

The assessment identified that the proposed clearing will result in:

- the loss of native vegetation that is suitable habitat for Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo and is significant as a remnant of native vegetation in an area that has been extensively cleared, and
- the potential introduction and spread of weeds and dieback 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 including direct impacts to individual fauna, and the potential to facilitate the introduction of weeds and dieback can be minimised and managed to unlikely lead to an unacceptable risk to environmental values through permit conditioning. However, impacts to native vegetation that is representative of significant foraging habitat for black cockatoo species remained significant even after the application of minimisation and mitigation measures and constitutes a significant residual impact.

The Delegated Officer determined that the deliberate planting of a minimum of five marri (*Corymbia calophylla)* trees within Lot 8655 on Deposited Plan 133513, Minigin, is sufficient to ensure a significant residual impact no longer exists (see Section 3.2.1). DWER considers the rehabilitation planting aligns with the *WA Environmental Offsets Policy* (2011) and *WA Environmental Offsets Guideline* (2014).

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

- avoid, minimise to reduce the impacts and extent of clearing
- a minimum of five marri (*Corymbia calophylla)* trees will be required to be planted and maintained within Lot 8655 on Deposited Plan 133513, Minigin, as a rehabilitation measure for the clearing of 0.41 hectares of native vegetation that provides habitat value within an extensively cleared landscape, and
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

1.5. Site maps

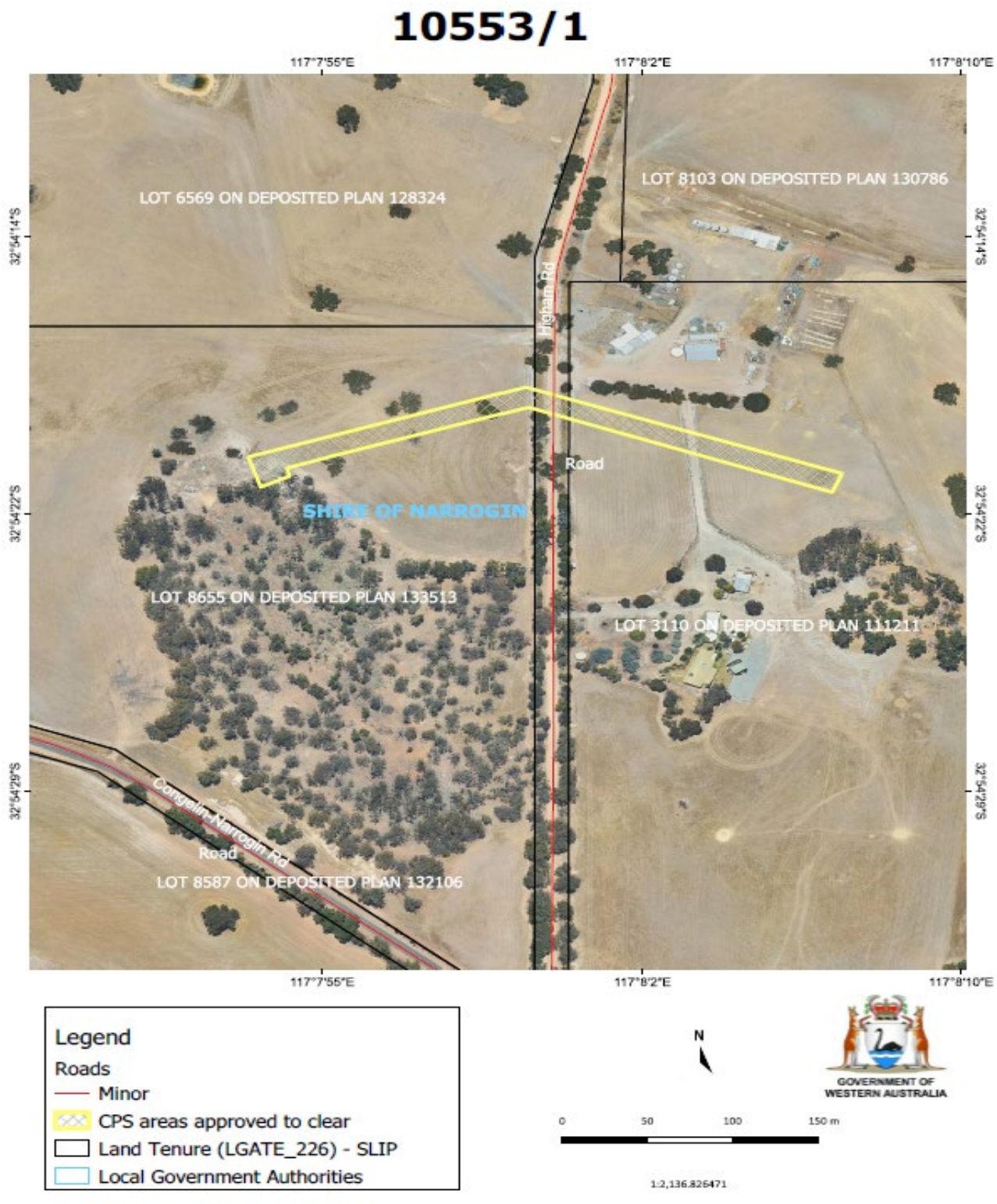

Figure 1. Map of the revised application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit 10553/1.

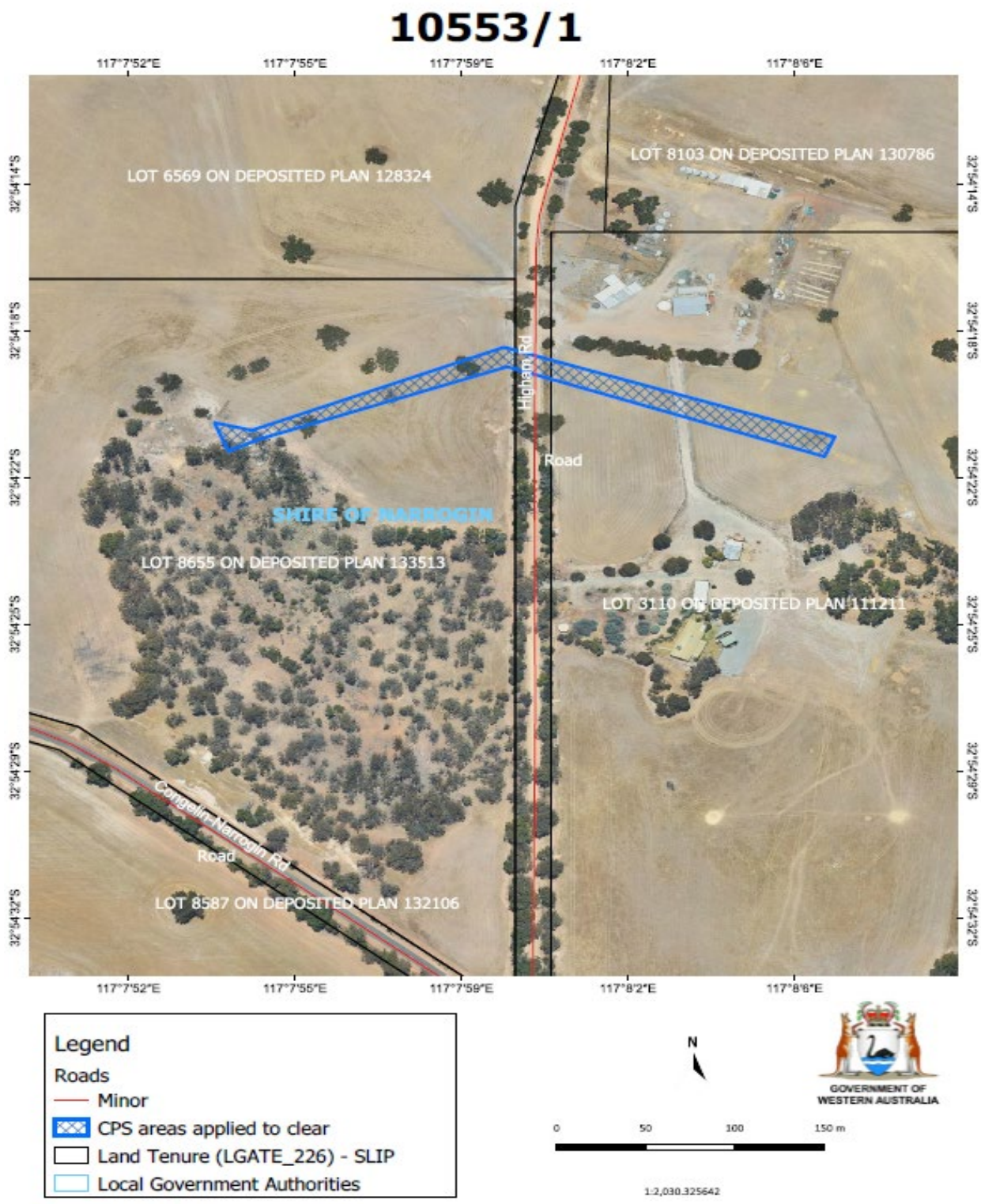

Figure 2. Map of the original application area. The area crosshatched blue indicates the original area applied to be cleared.

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 polluter pays principle
- 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

On 5 June 2024, DWER sent correspondence to the applicant which outlined the environmental impacts identified during the assessment of the proposed clearing. In response, the application was revised and subsequently the changes resulted in a reduction in the proposed clearing from 0.48 hectares to 0.41 hectares which included:

- Avoidance of an occurrence of Eucalypt Woodlands of the Western Australian Wheatbelt threatened ecological community (TEC), which is listed as Critically Endangered under the Commonwealth EPBC Act and is considered a Priority 3 Priority Ecological Community (PEC) by the Department of Biodiversity, Conservation and Attractions (DBCA) in Western Australia, and
- A commitment to plant and maintain five marri (*Corymbia calophylla)* trees that provide foraging value to Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo (black cockatoos) within Lot 8655 on Deposited Plan 133513, Minigin, to reduce the significant residual impact to black cockatoo species within an extensively cleared landscape.

Considering the above, the Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the 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 B) 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 C) identified that the impacts of the proposed clearing present a risk to biological values (fauna), and significant remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

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

Assessment

The application area is located within the Avon Wheatbelt IBRA bioregion. According to available databases, a total of 12 conservation significant fauna species have been recorded within the local area (10-kilometre radius of the application area). Of the conservation significant fauna species recorded within the local area, the application area may provide habitat for the following three species:

- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) VU
- *Zanda baudinii* (Baudin's cockatoo) EN
- *Zanda latirostris* (Carnaby's cockatoo) EN

This assumption is based on habitat requirements, distribution, mapped vegetation type and the condition of the vegetation. Photographs provided by the applicant identified that the vegetation type within the application area was consistent with the mapped vegetation type of the area, consisting of medium woodland and York gum.

Black cockatoos
Collectively known as black cockatoo species, the forest red-tailed black-cockatoo, Baudin's cockatoo and Carnaby's cockatoo are known to nest in hollows of live and dead trees, including marri, jarrah (*Eucalyptus marginata*), karri (*Eucalyptus diversicolor*), wandoo (*Eucalyptus wandoo*), tuart (*Eucalyptus gomphocephala*), flooded gum, and other *Eucalyptus* spp. (Commonwealth of Australia, 2012). '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 500 millimetres for most tree species (Commonwealth of Australia, 2012). While breeding, black cockatoos generally forage within a six kilometre to 12-kilometre radius of their nesting site (Commonwealth of Australia, 2012). According to available datasets, mapped potential black cockatoo feeding habitat is recorded within 12 kilometres of the application area, making it a suitable location for breeding if appropriate hollows are present. The application area is also mapped within the known breeding range of Carnaby's cockatoo and within the predicted occurrence and potential breeding range for both Baudin's cockatoo and the forest red-tailed black cockatoo (Commonwealth of Australia, 2012).

Black cockatoo species are noted to forage on a range of plant species, predominantly the seeds and flowers of marri, jarrah and proteaceous species (e.g., *Banksia* spp., *Hakea* spp. and *Grevillea* spp.) (Commonwealth of Australia, 2012). As the application area contains marri and is mapped within 10 kilometres of known roosting sites (the closest being 3.3 kilometres away), the application area is likely to provide significant foraging habitat for black cockatoo species, by supporting a roosting population.

To reduce the significant residual impact arising from the loss of 0.41 hectares of native vegetation that provides foraging habitat for black cockatoo species, the applicant has proposed to plant and maintain five marri (*Corymbia calophylla)* trees within the Lot to ensure the clearing will not result in a decline in foraging habitat in the extensively cleared local area. The proposed planting was input into the WA Environmental Offsets Metric Calculator to determine the ratio required. It was determined that the planting of five marri (*Corymbia calophylla)* trees was a suitable rehabilitation measure to ensure a significant residual impact does not remain following the proposed clearing. DWER considers the rehabilitation planting aligns with the *WA Environmental Offsets Policy* (2011) and *WA Environmental Offsets Guideline* (2014).

Ecological linkage
The application area may function as an ecological linkage for fauna to move between larger remnants of native vegetation within the local area. The ecological linkage values will not likely be severed by the proposed clearing, noting native vegetation will remain within the Lot. Notwithstanding the above, given that native vegetation remains surrounding the application area, a weed and dieback management condition will be required to assist in mitigating impacts to surrounding vegetation and maintaining ecological linkage values.

Conclusion
Based on the above assessment, the proposed clearing will result in the loss of 0.41 hectares of native vegetation, including two black cockatoo habitat trees, that provides significant foraging habitat for black cockatoo species. However, this is not likely to impact on the conservation status of any species that have the potential to occur within the application area.

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitat can be managed through the avoidance, minimisation, and mitigation measures committed to by the applicant and does not constitute a significant residual impact after the implementation of management conditions as specified on the permit.

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

- Undertake the planting of a minimum of five native marri (*Corymbia calophylla)* trees within Lot 8655 on Deposited Plan 133513, Minigin, and
- Weed and dieback management measures to assist in mitigating impacts to surrounding vegetation that provides fauna habitat.

3.2.2. Significant remnant vegetation - Clearing Principles (e)

Assessment
The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Avon Wheatbelt IBRA bioregion which retains approximately 18.51 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The application area is mapped within Beard vegetation association 352 which has an extent lower than the 30 per cent threshold, either statewide or within the Avon Wheatbelt IBRA bioregion (see Appendix B.2). The vegetation extent in the local area also falls below the national targets, with approximately 18.19 per cent of pre-European vegetation extent remaining within a 10-kilometre radius of the application area. Given the above, and that the application area provides foraging habitat for conservation significant species, the application area is considered to be a significant remnant within an extensively cleared landscape.

The application area has the potential to facilitate the spread of weeds and dieback into other remnant vegetation in the local area. A weed and dieback management condition is considered to minimise this risk, and it is not considered likely that the proposed clearing will have a significant impact of environmental values of any adjacent remnant vegetation patches.

Conclusion
Based on the above assessment, the proposed clearing will result in the loss of two native trees that is significant as a remnant of native vegetation in an area that has been extensively cleared. Impacts to the adjacent native vegetation can be managed through conditions imposed on the permit.

The mitigation measures provided by the applicant including re-planting the native vegetation within the Lot, is considered to minimise the potential impacts of the proposed clearing on remnant vegetation and ensure a significant residual impact does not remain following the rehabilitation planting.

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

- Weed and dieback management measures will be required as a condition on the clearing permit to mitigate impacts to adjacent vegetation.

3.3. Relevant planning instruments and other matters

The application was advertised onDWER's website for 21 days and no submissions were received.

The Shire of Narrogin advised DWER that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing.

Several Aboriginal sites of significance have been mapped within the local 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

Summary of comments	Consideration of comment
The applicant provided a response to the formal request for further information issued by DWER. The applicant confirmed a minimum of five marri *(Corymbia calophylla)* trees will be planted within the Lot.	See Section 3 for rehabilitation planting.

Appendix B. Site characteristics

B.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 C.

Characteristic	Details
Local context	The area proposed to be cleared is two native trees within a 0.41-hectare footprint in the intensive land use zone of Western Australia. It is surrounded by agricultural land and occasional patches of intact remnant vegetation within an extensively cleared landscape. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 18.19 per cent of the original native vegetation cover.
Ecological linkage	The application area intersects Roadside Conservation Linkage 21200. Noting the extent of the vegetation being cleared, the proposed clearing is not likely to significantly impact this linkage.
Conservation areas	The application area is not within a conservation area. In addition, there are no conservation areas adjacent to the application area and no conservation areas within the local area.
Vegetation description	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of two marri *(Corymbia calophylla)* trees. Representative photos are available in Appendix E. This is consistent with the mapped vegetation type: • Beard 352, which is described as medium woodland, York gum (Shepherd et al, 2001) The mapped vegetation type retains approximately 17.27 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Completely Degraded (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos are available in Appendix E.
Climate and landform	The region experiences a Mediterranean climate with cool winters and hot summers with a mean annual rainfall of 470 millimetres.
Soil description	The soil within the application area is mapped as the following systems (DPIRD, 2023):

Characteristic	Details
	• Noombling Subsystem (257NgNB) which is described as gently sloping terrain which may extend over local divides; yellow and red duplex soils and associated granite and dolerite outcrops, • Norrine Subsystem (257NgNO) which is described as a complex of lateritic residuals and associated pediment; gravely sand, sand, duplex yellow soils and duricrust.
Land degradation risk	The soils within the application area are mapped as having a high risk of subsurface acidification (DPIRD, 2024)
Waterbodies and hydrogeography	The desktop assessment and aerial imagery indicated that no wetlands or waterbodies intersect the application area. The closest waterbody to the application area is a minor non perennial river which is located 0.12 kilometres east of the application area. The application area is mapped within the Murray River System Surface Water area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) Groundwater salinity within the application area is mapped at 7000-14000 milligrams per total dissolved solids.
Flora	The desktop assessment identified that a total of 17 conservation significant flora species have been recorded within the local area, comprising of three threatened flora species and 14 priority flora species (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest record being an occurrence of *Verticordia huegelii var. tridens* approximately 0.88 kilometres from the application area. With consideration for the relevant datasets (see Appendix F.1), the habitat preferences and conservation statuses of the aforementioned species, the distribution and extent of existing records, the application area is unlikely to provide habitat for conservation significant flora species and did not require further consideration.
Ecological communities	The desktop assessment identified that the application area is mapped at its western point within an occurrence of the Eucalypt Woodlands of the Western Australian Wheatbelt TEC, which is listed as Critically Endangered under the Commonwealth EPBC Act and is considered a Priority 3 PEC by DBCA in Western Australia. With consideration for the site characteristics, relevant datasets (see Appendix F.1), site plans from Western Power (Saunders, 2024), the application area is not considered likely to contain vegetation representative of a TEC or PEC.
Fauna	The desktop assessment identified that a total of 12 conservation significant fauna species have been recorded within the local area including eight threatened species and four priority species. None of these existing records occur within the application area, with the closest being an occurrence of *Zanda latirostris* approximately 3.3 kilometres of the application area (DBCA, 2007-). With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1) and the habitat preferences of the aforementioned species, the application area is likely to provide significant habitat for conservation significant fauna species and impacts to these fauna species required further consideration (see Section 3.2.1).

B.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*					
Avon Wheatbelt	9517109.95	1761187.42	18.51	174980.68	1.84
Vegetation complex					
Beard vegetation association 352 *	724268.73	142012.22	19.61	2672.52	1.75
Vegetation Complex within IBRA bioregion					
Narrogin_352	630577.61	108887.52	17.27	10191.45	1.62
Local area					
10km radius	32181.88	5854.06	18.19	-	-

*Government of Western Australia (2019a)

B.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]
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	4.1	9	N/A
Zanda baudinii (Baudin's cockatoo)	EN	Y	Y	5.6	1*	N/A
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	3.3	19*	N/A
Zanda sp. 'white-tailed black cockatoo' (white-tailed black cockatoo)	EN	Y	Y	3.3	16	N/A

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

* An additional 16 records of Zanda sp 'white-tailed black cockatoo' (White-tailed black cockatoo) were recorded in the local area, which may comprise either of these species.

B.4. Ecological community analysis table

Community name	Conservation status (WA)	Conservation status (COMM)	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
Eucalypt Woodlands of the Western Australian Wheatbelt	P3	CR	Y	N	Y	0.01	N/A

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

Appendix C. 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 contains habitat for conservation significant fauna including Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo. Noting the proposed clearing is restricted to trees over weeds, no conservation significant flora or vegetation communities will likely occur within the application area.	May 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 area proposed to be cleared contains significant foraging habitat for Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo.	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.	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: The area proposed to be cleared does not contain species that can indicate a TEC.	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 extent of the mapped vegetation type in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	At variance	Yes *Refer to Section 3.2.2, above.*
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 distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of adjacent or nearby conservation areas.	Not at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
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 subsurface acidification. Noting the extent of the application area and the condition of the vegetation, 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: Given no water courses or wetlands are recorded within 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 at variance	No

Appendix D. 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

Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.

Condition	Description
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Photographs of the vegetation, (Saunders, 2024)

Figure 3. Photograph of Marri *(Corymbia calophylla)* tree proposed to be cleared (Saunders, 2024)

Figure 4. Photograph of Marri *(Corymbia calophylla)* tree proposed to be cleared (Saunders, 2024)

Appendix F. Sources of information

F.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)
- 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)
- 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)

F.2. References

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

Commonwealth of Australia (2012) *EPBC Act Guidelines for Three Threatened Black Cockatoo Species. Now superseded by Referral guideline for 3 WA Threatened black cockatoo species: Carnaby's cockatoo, Baudin's cockatoo and the Forest Red-tailed Black Cockatoo* (DAWE, 2022).

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 24 April 2024).

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

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

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