



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	8851/1
Permit Holder:	Shire of Boyup Brook
Duration of Permit:	26 August 2020 – 26 August 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of road widening and improving road sightlines.

2. Land on which clearing is to be done

Kulikup Road South Road reserve (PIN 1380325), Scotts Brook.

3. Area of Clearing

The Permit Holder must not clear more than 0.8 hectares of native vegetation within the area cross hatched yellow on attached Plan 8851/1a, Plan 8851/1b and Plan 8851/1c.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

7. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean 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

8. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this permit:

- (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 or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares or hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and the extent of clearing in accordance with condition 6 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 7 of this Permit.

9. Reporting

The Permit Holder must provide to the *CEO* the records required under Condition 8 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION






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of the Environmental Protection Act 1986*

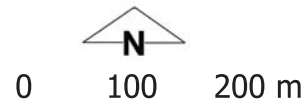
3 August 2020

Plan 8851/1a




Legend

-  CPS areas approved to clear
-  base layers
-  Local Government Authorities
- Roads - Landgate 012
-  Main
-  Minor
- Image



MGA 94
Geocentric Datum of Australia 1994

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of the Environmental Protection Act 1986








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Plan 8851/1b

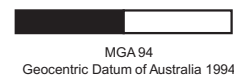



Legend

-  CPS areas approved to clear base layers
-  Local Government Authorities
-  Roads - Landgate 012
-  Minor
-  Image



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of the Environmental Protection Act 1986








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Plan 8851/1c

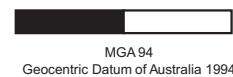



Legend

-  CPS areas approved to clear base layers
-  Local Government Authorities
-  Roads - Landgate 012
-  Minor
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Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8851/1
Permit type:	Purpose permit
Applicant name:	Shire of Boyup Brook (the Shire)
Application received:	1 April 2020
Application area:	0.8 hectares (ha) within a 7.97 ha footprint
Purpose of clearing:	Road widening and improving road line of sight
Method of clearing:	Mechanical removal
Property:	Kulikup Road South Road reserve (PIN 1380325)
Location (LGA area/s):	Shire of Boyup Brook
Localities (suburb/s):	Scotts Brook

1.2. Description of clearing activities

The application is to selectively clear vegetation that is impacting sightlines around bends along the road. The proposed application area consists of 20 large and approximately 50-60 small trees scattered across a four kilometre linear footprint along the existing road.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	3 August 2020
Decision area:	0.8 ha of native vegetation in a 7.97 ha footprint

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 1 April 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking the assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix B), relevant datasets (see Appendix F), planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Sections 3). The Delegated Officer also took into consideration that the purpose of the clearing is to improve road safety of Kulikup Road South by widening the road and improving sightlines.

The assessment identified that the proposed clearing will result in the following:

- loss of vegetation in association with a mapped watercourse
- 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.

The Delegated Officer considered the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the hydrological and ecological values of the watercourse, and that weed and dieback management practices will mitigate any potential impacts from the proposed clearing.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures, the Delegated Officer determined that the impacts of the proposed clearing could be minimised and managed to be environmentally acceptable. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise and reduce the impacts and extent of clearing
- take steps to minimise the risk of the introduction and spread of weeds and dieback.

1.5. Site map

CPS 8851/1 - Site map

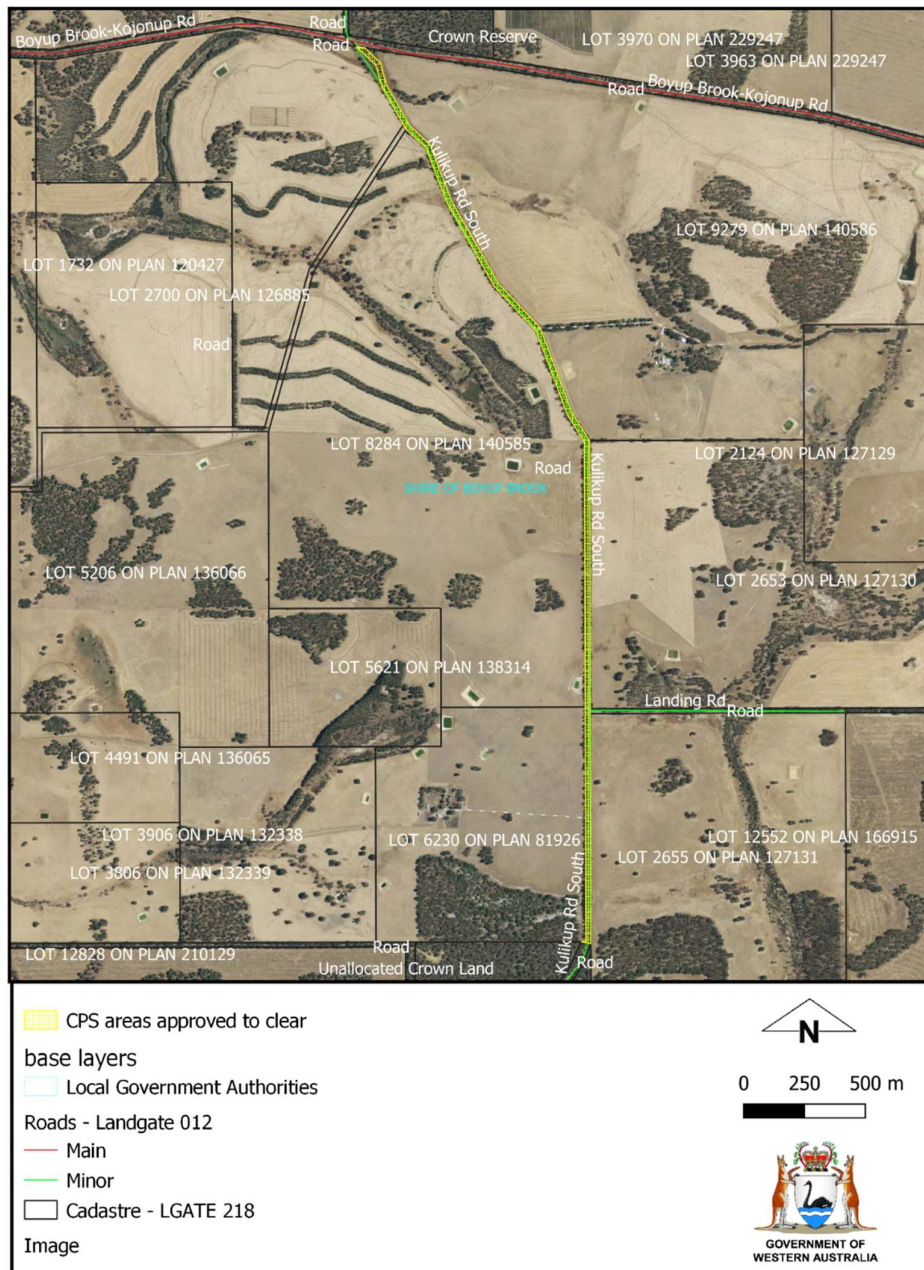


Figure 1. Map of the application area.

The area cross-hatched yellow indicates 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 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. The precautionary principle;
2. The principle of intergenerational equity;
3. The principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*;
- *Biodiversity Conservation Act 2016 (BC Act)*.

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013);
- *Procedure: Native vegetation clearing permits* (DWER, October 2019).

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

To minimise the need for clearing, the Shire has identified particular trees that require removal due to the widening of the existing road. The Shire advised that the identified trees will be marked to ensure that only the trees requiring clearing will be impacted. The Shire also advised that where possible, pruning, instead of clearing will be undertaken (the Shire, 2020). This adequately demonstrated that all reasonable efforts had been taken to avoid and minimise potential impacts of the clearing on environmental values.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and site photographs (Appendix D) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that the clearing may pose a risk to the biological values (flora and fauna), significant remnant vegetation and water resources and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or mitigating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (flora) – Clearing Principles (a), (c) and (d)

Assessment:

Priority flora

According to available databases, four priority flora species have been mapped within the local area. Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, it was determined that the application area may provide habitat for *Chamelaucium floriferum* subsp. *diffusum* and *Caladenia perangusta*.

Chamelaucium floriferum subsp. *diffusum* (Priority 2) is known from 56 populations and the extent of occurrence of these populations is approximately 5,000 km². A single occurrence of this taxon was recorded in the local area approximately 9.3 kilometres west of the application area. The species tends to occupy sand and gravel duplexes within jarrah-marri woodlands (WA Herbarium, 2020).

Caladenia perangusta is known from five populations spread across approximately 300 km². Two populations were recorded in the local area with the closest record approximately 7.3 kilometres southwest of the application area. This taxon typically inhabits brown soils on slopes with gravel or gravelly loam and is associated with *Eucalyptus* sp.

Taking into consideration the extent of the proposed clearing and the sparse weed-dominated understorey in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition, the application area is not likely to provide suitable habitat for the abovementioned flora taxa.

Fauna

As detailed in Section 3.2.2, the proposed clearing will impact foraging habitat for three black cockatoo species. Taking into account the extent of the proposed clearing scattered across approximately a 4 kilometre linear footprint, the proposed clearing will not fragment the foraging habitat. Given the absence of roosting and breeding sites in close proximity of the application area, the vegetation in the application area is not likely to support significant foraging habitat to support black cockatoo breeding and roosting. Given this, the application area does not contain significant habitat for black cockatoos or any other conservation significant fauna.

Threatened flora

According to available databases, a single occurrence of a flora species listed as threatened under the BC Act has been mapped within the local area. *Caladenia dorrienii* is also listed as endangered under the EPBC Act and is

known from 34 populations spread across approximately 2,400 km². Four of these populations occur in the local area with the closest population located approximately 7.8 kilometres southwest of the application area. The species typically grows in clumps on sandy clays or black loamy soil, usually in moist valley sites in open Wandoo (*Eucalyptus wandoo*) or Jarrah (*E. marginata*) woodland. This species grows amongst low, scattered shrubs, annuals and dense low herbs, often on slopes and near streams (Department of Environment, 2020). Considering the presence of sandy and gravelly soils and the sparse weed-dominated understorey in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition in the application area, the application area is not likely to provide suitable habitat for this, or any other threatened flora.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable** in relation to this environmental value.

Conditions: No management conditions required.

3.2.2. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment:

According to available biological databases, 52 conservation significant fauna species have been recorded within the local area (DBCA, 2007). Approximately 80 per cent of these species have been recorded in Tone-Perup Nature Reserve (Class A) located approximately 5.5 kilometres southwest of the application area. Noting the habitat requirements of the recorded species, the mapped vegetation type and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for three black cockatoo species: forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and Baudin's cockatoo (*Calyptorhynchus baudinii*) (collectively referred to as black cockatoo herein this report), western ringtail possum (WRP) (*Pseudocheirus occidentalis*) and south-western brush-tailed phascogale (*Phascogale tapoatafa* subsp. *wambenger*).

Black cockatoos

According to available databases, there are six records of forest red-tailed black cockatoo within the local area, with no records of Baudin's and Carnaby's cockatoo (DBCA, 2007).

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). A review of the photographs of the application area supplied by the Shire did not identify any trees with hollows. Noting this, the application area is not likely to provide suitable breeding habitat.

Foraging habitat for black cockatoos within 7 kilometres of a breeding site is important to adequately support breeding pairs, and individual night roosting sites need food and water within 6 kilometres (EPA, 2019). Overlapping foraging ranges within 12 kilometres also support roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019).

Considering the foraging habitat for black cockatoos, the application area may provide food resources for these species. Forest red-tailed black cockatoo forages within jarrah and marri woodlands and forest, and edges of karri forests including wandoo and blackbutt, within the range of the subspecies. The species largely feeds and seeds on marri and jarrah, as well as other *Eucalyptus* species and *Allocasuarina* cones (Commonwealth of Australia, 2012). Baudin's cockatoo prefer foraging within Eucalypt woodlands and forest, and proteaceous woodland and heath. During the breeding season (October to late January/early February) this species has a preference for marri seeds. Outside the breeding season the species may feed in fruit orchards and tips of *Pinus* spp. (Commonwealth of Australia, 2012). Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008).

The application area is not located within the mapped confirmed breeding area for Carnaby's cockatoo and according to available databases, there are no confirmed breeding points within the local area. The closest confirmed breeding area is located approximately 66.5 kilometres northwest of the application area. Noting this, the application area is not likely to provide significant foraging habitat that supports black cockatoos breeding.

According to available databases, there are no confirmed roosting sites that occur within the local area. The closest confirmed roosting site is located approximately 32 kilometres northwest of the application area. Taking this into account, the application area is not likely to provide significant foraging habitat that supports black cockatoo roosting.

WRP

According to available databases, there are two records of WRP from 2004 located approximately 9.4 kilometres southwest of the application area within Tone-Perup Nature Reserve (DBCA, 2007).

Habitat critical to WRP survival is described as long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients. Other habitats comprise of jarrah/marri forest and woodlands with adequate hollows (Department of Parks and Wildlife, 2014). The application area predominantly contains marri trees with occasional jarrah and wandoo trees. Noting the historical disturbance of the site, lack of a continuous tree canopy linking nearby remnants which would assist this species in avoiding predators and the absence of hollow bearing trees, the application area is unlikely to be significant for this species.

South-western brush-tailed phascogale

According to available databases, there is one record of south-western brush-tailed phascogale in the local area, located approximately 9.4 kilometres southwest of the application area in Tone-Perup Nature Reserve. The preferred habitat for this species in Western Australia is within dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC, 2012). Noting the historical disturbance of the site, lack of a continuous tree canopy linking nearby remnants which would assist this species in avoiding predators and the absence of hollow bearing trees, the application area is unlikely to be significant for this species.

Ecological linkage

According to available databases, the northern end and the southern straight section of the application area are mapped approximately 350 southwest and 500 metres east of a mapped South West Regional Ecological Linkage respectively. Given the presence of remnant vegetation between the application area and the mapped linkage, the proposed clearing may have an impact on the environmental values of this linkage. However, noting that the application is to clear up to 0.8 hectares scattered across 4.74 ha of native vegetation within the road reserve, the impacts are unlikely to be significant. The removal of scattered trees along the length of the proposed clearing is not going to sever the potential linkage values of the road reserve.

It has also been noted that approximately 108,000 ha of remnant vegetation in nearby Kingston National Park, Palgarup State Forest and Tone-Perup Nature Reserve (Figure 2) is likely to provide similar or better habitat for the abovementioned species.

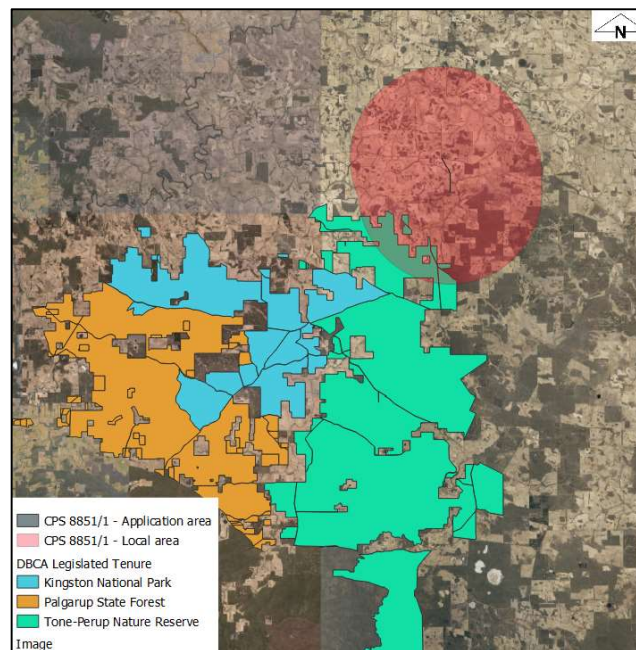


Figure 2 Department of Biodiversity, Conservation and Attractions (DBCA) Legislated Tenures nearby the application area

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable** in relation to this environmental value.

Conditions: No fauna management conditions required.

3.2.3. Environmental value: 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 local area retains approximately 34 per cent vegetation cover (approximately 13,390 ha), which the application representing approximately 0.006 per cent of the remaining vegetation within the local area. The proposed clearing would reduce the extent of native vegetation within the local area to 13,389.2 ha.

The application area is located within the Jarrah Forest IBRA bioregion which retains approximately 53 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The south-west forest vegetation complexes 170, 96, 163 and 31 retain approximately 24, 34, 19 and 16 per cent of their pre-European vegetation extents within the Jarrah Forest bioregion respectively.

It is acknowledged that the extents of three of the four vegetation complexes mapped within the application area (Matiske and Havel, 1998) are inconsistent with the national targets and objectives for biodiversity conservation. The vegetation within these complexes is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition, and therefore, the vegetation is considered a degraded remnant of these vegetation complexes. The proposed clearing is not considered a significant remnant as it is not likely to contain conservation significant flora species, significant habitat for fauna, threatened or priority ecological communities and is not considered to be part of a significant ecological linkage in the local area.

There is a risk of weeds and dieback spreading into remnants of native vegetation adjacent to the proposed clearing and the applicant will be required to adhere to weed and dieback management measures (as conditioned on the clearing permit) to minimise this risk.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable subject to relevant conditions (see below)** in relation to this environmental value.

Conditions: To address the above impacts, it is considered that the impacts of the proposed clearing on adjacent remnant vegetation can be managed to be environmentally acceptable by requiring the applicant to take steps to minimise the risk of the introduction and spread of weeds and dieback.

3.2.4. Environmental value: water resources – Clearing Principles (f)

Assessment:

According to available databases, the application area crosses over two mapped boundaries of non-perennial tributaries of Blackwood River. A review of photographic evidence supplied by the Shire (2020b) did not identify distinctive riparian vegetation, however, it is noted that there is vegetation growing in, or in association with the watercourse.

Noting the proposed clearing will be limited to no more than 20 large and 60 small trees scattered along an approximately four kilometre linear footprint, the proposed clearing is not likely to have a significant impact upon riparian vegetation or the environmental values of the watercourses.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable subject to relevant conditions (see below)** in relation to this environmental value.

Conditions: For the reasons set out above, it is considered the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the hydrological and ecological values of the wetland. No clearing permit conditions are necessary in relation to this matter.

3.3. Relevant planning instruments and other matters

The northern end of the application area is located approximately 35 metres southwest of the Kaniyang people 05 aboriginal site and heritage place (ID 13478). It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Site characteristics

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

1. Site characteristics

Site characteristic	Details
Local context	<ul style="list-style-type: none"> The proposed clearing area is part of approximately a 4.74 ha remnant of native vegetation within the Kulikup Road South reserve. Spatial data indicates the local area (10 km radius of the proposed clearing area, which is equal to 39,315 ha) retains approximately 34.06 per cent (13,390 ha) of the original native vegetation cover. Approximately 3047 ha of remnant vegetation (7.75 per cent of the local area) occurs within DBCA managed estate.
Vegetation description	<p>Photographs supplied by the applicant indicate the application area consists of vegetation dominated by <i>Corymbia calophylla</i> with occasional <i>Eucalyptus wandoo</i> and <i>Eucalyptus marginata</i> over minimal understorey that is dominated by weedy grasses. Representative photos are available in Appendix D.</p> <p>The following vegetation complexes have been mapped within the application area by Matiske and Havel (1998):</p> <ul style="list-style-type: none"> Lukin 2 (170) (approximately 15 per cent of the application area), described as woodland of <i>Eucalyptus wandoo</i> with some mixtures of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and <i>Corymbia calophylla</i> on the valley slopes with occasional <i>Eucalyptus rudis</i> on valley floors in semiarid and arid zones. Dalmore 2 (96) (approximately 9 per cent of the application area), described as woodland of <i>Eucalyptus wandoo</i> – <i>Eucalyptus marginata</i> subsp. <i>marginata</i>, <i>Corymbia calophylla</i> on uplands in semiarid and arid zones Kulikup 2 (163) (approximately 71 per cent of the application area), described as open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> – <i>Corymbia calophylla</i> with some <i>Eucalyptus wandoo</i> and occasional <i>Eucalyptus astringens</i> (near breakaways) over <i>Acacia microbotrya</i> on undulating uplands in the semiarid zone. Brockman (31) (approximately 5 per cent of the application area), described as woodland of <i>Corymbia calophylla</i>-<i>Eucalyptus wandoo</i> over <i>Hakea prostrata</i> and <i>Acacia saligna</i> on valley slopes ranging to sedgelands and heaths on valley floors in the semiarid zone.
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in good (Keighery, 1994) to completely degraded (Keighery, 1994) condition.</p> <p>The full Keighery condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>
Soil description	<p>The application area is mapped within the following land subsystems:</p> <ul style="list-style-type: none"> Lukin shallow Kulikup Phase described as shallow valleys with gentle slopes incised into Eocene sedimentary deposits. Relief 5-20 metre, slopes 3-10 per cent. Soils are gravels and sands (Schoknecht et al., 2004). Dalmore Subsystem described as undulating ridges and hill crests on laterite and granite. Relief 5-20 metre, slopes 5-15 per cent. Soils are gravels, loamy duplex and sandy duplex soils (Schoknecht et al., 2004). Kulikup ironstone gravel flats Phase described as moderately well drained to poorly drained gravels (Schoknecht et al., 2004). Boree Subsystem described as shallow (5-25 meter) major valleys with gentle slopes (3-10 per cent). Soils are sands and sandy gravels (Schoknecht et al., 2004).
Land degradation risk	<p>The mapped land subsystems have low of risk of land degradation in form of soil erosion (water and wind erosion), salinity, eutrophication and flooding (including waterlogging).</p>

Site characteristic	Details
	The full land degradation risk summary for the mapped soil subsystems is provided in Appendix E.
Waterbodies	The desktop assessment and aerial imagery indicated that two tributaries of Blackwood River transect the application area in its northern section.
Conservation areas	The closest conservation area is Tone-Perup Nature Reserve (Reserve 47879, Class A) located approximately 5.18 kilometres southwest of the application area.
Climate and landform	Rainfall: 600 millimetres Evapotranspiration: 600 millimetres Geology: Granite and Gneiss Groundwater Salinity (Total Dissolved Solids): 7000-14000 milligrams per litre total dissolved solids

2. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (see Appendix F), and photographs supplied by the Shire (2020b), the following conservation significant flora and fauna species and ecological communities may be impacted by the clearing.

Species / Ecological Community	Conservation Code	Suitable soil type? (flora, ecological community) Sand, gravel duplex	Suitable vegetation type? (flora, ecological community)	Are surveys adequate to identify? (Y,N, N/A)
Flora				
<i>Caladenia dorrienii</i>	Threatened	No	Yes	N/A
<i>Chamelaucium floriferum</i> subsp. <i>diffusum</i>	Priority 2	Yes	Yes	N/A
<i>Acacia parkerae</i>	Priority 3	No	No	N/A
<i>Wurmbea</i> sp. Cranbrook (A.R. Annels 3819)	Priority 3	No	No	N/A
<i>Caladenia perangusta</i>	Priority 2	No	Yes	N/A
Ecological communities				
Claypans with shrubs over herbs ecological community	Priority 1	No	No	N/A
Fauna				
		Suitable habitat features?		
Quenda, southwestern brown bandicoot (<i>Isoodon fusciventer</i>)	Priority 4	No		N/A
Numbat, walpurti (<i>Myrmecobius fasciatus</i>)	Endangered	No		N/A
Chuditch, western quoll (<i>Dasyurus geoffroii</i>)	Vulnerable	No		N/A
Woylie, brush-tailed bettong (<i>Bettongia penicillate</i>)	Critically endangered	No		N/A
Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii</i> subsp. <i>naso</i>)	Vulnerable	Yes	Yes	N/A
Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>)	Endangered	Yes	Yes	N/A
Baudin's cockatoo (<i>Calyptorhynchus baudinii</i>)	Endangered	Yes	Yes	N/A
Western ringtail possum (<i>Pseudocheirus occidentalis</i>)	Critically endangered	Yes		N/A
South-western brush-tailed phascogale (<i>Phascogale tapoatafa</i> subsp. <i>wambenger</i>)	Conservation dependant	Yes		N/A

Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required
Environmental value: biological values		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> Considering that the understorey in the application area is weed-dominated and in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition, the application area is not likely to provide suitable habitat for conservation significant flora. The application area does not comprise significant habitat for fauna and vegetation in the application area is not representative of a threatened or priority ecological community recorded in the local area.</p>	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u> The application area comprises suitable habitat for three black cockatoo species, western ringtail possum and south-western brush-tailed phascogale. Noting the shape and extent of the proposed clearing, its location in close proximity to patches of remnant vegetation and the sparse weed-dominated understorey, the vegetation proposed to be cleared is not likely to comprise a significant habitat for these or other native fauna.</p>	May be at variance	Yes Refer to Section 3.2.2 above.
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> The application area may provide suitable habitat for <i>Caladenia dorrienii</i>. However, considering that the preferred soil type of this species is not within the application area, and the weed-dominated understorey, the application area is not likely to provide suitable habitat for this species.</p>	Not likely to be at variance	Yes Refer to Section 3.2.1 above
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> According to available databases, there are no state listed threatened ecological communities recorded within the local area.</p>	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The extent of native vegetation in the local area is above the national objectives and targets for biodiversity conservation in Australia. It has been noted that the extents of three of the four vegetation types mapped within the application area are below these thresholds. However, considering environmental values of the vegetation within the application area, the vegetation proposed to be cleared is not significant as a remnant of native vegetation.</p>	May be at variance	Yes Refer to Section 3.2.3 above.
<p><u>Principle (h):</u> “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.”</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required
<p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas.</p>		
<p>Environmental values: land and water resources</p>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> The application area crosses over the two mapped boundaries of non-perennial tributaries of Blackwood River. The application area is growing in an environment associated with a watercourse.</p>	Is at variance	Yes Refer to Section 3.2.4 above
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are not susceptible to soil erosion, nutrient export or salinity. Noting the extent of the proposed clearing and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> Given that the proposed clearing will result in the minimal loss of riparian vegetation scattered along a 7.97 ha footprint, and the non-perennial nature of the watercourse, it is not likely that the proposed clearing will result in significant long-term impacts to surface of underground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> 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.</p>	Not likely to be at variance	No

Appendix C – Vegetation condition rating scale

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

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

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

Appendix D – photographs of the vegetation





Appendix E – Land degradation risk summary

Risk categories	Lukin shallow Kulikup Phase	Dalmore Subsystem	Kulikup ironstone gravel flats Phase	Boree Subsystem
Wind erosion	10-30% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk
Water erosion	10-30% of map unit has a high to extreme water erosion risk	3-10% of map unit has a high to extreme water erosion risk	<3% of map unit has a high to extreme water erosion risk	10-30% of map unit has a high to extreme water erosion risk
Salinity	<3% of map unit has a moderate to high salinity risk or is presently saline	30-50% of map unit has a moderate to high salinity risk or is presently saline	3-10% of map unit has a moderate to high salinity risk or is presently saline	10-30% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	10-30% of map unit has a high subsurface acidification risk or is presently acid	3-10% of map unit has a high subsurface acidification risk or is presently acid	3-10% of map unit has a high subsurface acidification risk or is presently acid	10-30% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	10-30% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk	3-10% of the map unit has a moderate to high flood risk
Water logging	10-30% of map unit has a moderate to very high waterlogging risk	<3% of map unit has a moderate to very high waterlogging risk	30-50% of map unit has a moderate to very high waterlogging risk	10-30% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	10-30% of map unit has a high to extreme phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk	10-30% of map unit has a high to extreme phosphorus export risk	10-30% of map unit has a high to extreme phosphorus export risk

Appendix F – References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- 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)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

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)

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