



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9162/1
File Number: DWERVT7239
Duration of Permit: From 15 May 2022 to 15 May 2024

PERMIT HOLDER

Shire of West Arthur

LAND ON WHICH CLEARING IS TO BE DONE

Bowelling Duranillin Road reserve (PIN 11013810), Duranillin

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.78 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS.

1. 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.

2. 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.

3. Clearing not authorised

This permit does not authorise the Permit Holder to *clear* one tree at the location specified in Table 1.

Table 1: Location of trees not authorised to *clear*

Latitude	Longitude
33.522253681° S	116.756519669° E

4. 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 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<p>(a) the species composition, structure, and density of the cleared area;</p> <p>(b) 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;</p> <p>(c) the date that the area was cleared;</p> <p>(d) the size of the area cleared (in hectares);</p> <p>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1;</p> <p>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 2; and</p> <p>(g) actions taken in accordance with condition 3.</p>

5. Reporting

The permit holder must provide to the *CEO* the records required under condition 4 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 <i>Environmental Protection Act 1986</i> .
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 <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994 (WA)</i> and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
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 <i>Biosecurity and Agriculture Management Act 2007</i> ; 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/Manager

NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

21 April 2022

SCHEDULE 1

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



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



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9162/1
Permit type:	Area permit
Applicant name:	Shire of West Arthur
Application received:	23 December 2020
Application area:	0.78 hectares of native vegetation
Purpose of clearing:	Road Widening
Method of clearing:	Mechanical
Property:	Bowelling Duranillin Road reserve (PIN 11013810)
Location (LGA area/s):	Shire of West Arthur
Localities (suburb/s):	Duranillin

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous strip along the northern side of Bowelling Duranillin Road reserve (see Figure 1, Section 1.5).

The application is to selectively clear trees and shrubs that are within 6.5 meters of the current extend of the bitumen road to enable road widening on the north side only.

1.3. Decision on application (delete this section if RFI)

Decision:	Granted
Decision date:	21 April 2022
Decision area:	0.78 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.2), and photographs provided by the applicant (see Appendix E), 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 road is the main supply route between Bowelling and Duranillin.

The assessment identified that the proposed clearing:

- is unlikely to have a significant impact on habitat for the brush tailed phascogale or red-tailed phascogale, and a condition requiring the retention of one tree with a hollow potentially suitable for use by phascogale species will mitigate impacts to phascogale individuals;

- may impact foraging habitat for red-tailed black cockatoos and Carnaby's cockatoo (less likely), and may contain roosting habitat for all three black cockatoo species, however the impacts are not likely to be significant;
- is unlikely to significantly impact conservation significant flora species or ecological communities, given weed and dieback conditions imposed on the permit;
- is not considered to be a significant remnant in a highly cleared landscape;
- is unlikely to significantly impact the Capercup Road North nature reserve; and
- is unlikely to impact a palusplain wetland to the north and south of the application area.

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 lead to an unacceptable risk to environmental values and that 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;
- retain a tree containing a hollow potentially suitable for use by phascogales to mitigate impacts to phascogale individuals;
- weed and dieback management conditions to manage impacts to adjacent vegetation likely to contain the Eucalypt woodlands of the Western Australian Wheatbelt ecological community, and nearby nature reserve.

1.5. Site map



Figure 1. Map of the application area. The area crosshatched 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 1.4), 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)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that the proposed clearing includes the minimal amount of vegetation possible and the selective location of the northern side of the road due to the southern not having capacity to facilitate the widening. The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix 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 risks of the proposed clearing to biological values (fauna, flora and vegetation), significant remnant vegetation, conservation areas and wetlands and water quality. 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

Phascogales

Two small arboreal species have been recorded within the local area; *Phascogale calura* (red-tailed phascogale) and *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale).

The Red-tailed Phascogale inhabits Wandoo (*Eucalyptus wandoo*) and Sheoak (*Allocasuarina huegeliana*) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which they line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead sheoaks, skirts of live (or stumps of dead) grass trees (*Xanthorrhoea* spp.) (Department of Conservation, 2012). The application area is within the western extent of the mapped recordings of this species with a local recording being located within the Capercup Nature reserve adjacent to the application area.

Phascogale tapoatafa wambenger have been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees. Records are less common in high rainfall areas (Department of Conservation, 2012b). The application area is toward the eastern extent of recordings of the species. The closest recording of the species to the application area is not dated though an additional record within 10 kilometres of the application area is dated as 2008.

The two species of phascogales listed above have similar habitat requirements and have been recorded within the local area. Noting the application area contains eucalypt trees with some small hollows and appears to be within a linked intact remnant with the adjacent Capercup Nature reserve, it is considered the application area may contain habitat for the two species. A habitat tree assessment encompassing the application area found that one tree within the application area contains a hollow that may be suitable for phascogale species, however it was not possible to determine whether this hollow was actually suitable or currently in use by phascogales (Harewood, 2021).

Given the extent of the proposed clearing (0.23 hectares of native vegetation, taking into consideration already cleared areas within the application area) and that vegetation to the north of the application area will remain as an ecological corridor, the proposed clearing is unlikely to have a significant impact on phascogale habitat. To mitigate impacts to phascogale individuals, the applicant has committed to retaining the one tree with potentially suitable hollows for phascogales. This will be enforced through a condition on the permit.

Black cockatoo species

The application area is within the core distribution for the forest red tail black cockatoo, the likely breeding area for Carnaby's cockatoo and is within the known distribution of Baudin's cockatoo (hereafter collectively referred to as black cockatoo species) (Commonwealth of Australia, 2012). Within the local area, the forest red tail black cockatoo has been recorded 19 times, Carnaby's cockatoo twice and Baudin's cockatoo has been recorded three times. No black cockatoo species breeding sites have been recorded within the local area with the closest breeding location being approximately 22 kilometres from the application area. A forest red-tailed black cockatoo roost site is present approximately 11.8 kilometres south-west of the application area.

Black cockatoo 'breeding habitat' is defined by Commonwealth of Australia (2012) as trees of species known to support breeding within the range of the species 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, suitable DBH is 500 millimetres (mm). For salmon gum and wandoo, suitable DBH is 300 mm. Whilst the application area includes some *Eucalyptus wandoo* (wandoo) (*E. marginata* (jarrah) and *Corymbia calophylla* (marri) trees which may be of large enough size to provide breeding habitat for black cockatoos (Ecoedge, 2022), a habitat tree assessment found that no trees within the application area had suitably large hollows for black cockatoo nesting. As such, and given the extent of the application area, the proposed clearing is considered unlikely to have a significant impact on black cockatoo breeding habitat.

Black cockatoo species may forage on plant species found within the application area, including wandoo, marri, jarrah, *Allocasuarina* species and *Proteaceae* species (Commonwealth of Australia, 2012, Valentine and Stock, 2008). Potential watering points for black cockatoos are also present within 2 kilometre of the application area, increasing the likelihood of foraging occurring within the application area (Commonwealth of Australia, 2017). The application area is not within the known foraging range of Baudin's cockatoo (Commonwealth of Australia, 2017), but is considered possible foraging habitat for forest red-tailed black cockatoo (more likely given the proximity of the roosting location and predominant species) and Carnaby's cockatoo (less likely given the lack of nearby known breeding and roosting locations and vegetation present). However, given the small extent of vegetation to be cleared within the application area and the proximity of the nearby nature reserve which is likely to contain better quality vegetation, the proposed clearing is unlikely to have a significant impact on black cockatoo foraging habitat. Similarly, while larger trees within the application area may provide roosting habitat for all three black cockatoo species, given the small extent of vegetation to be cleared within the application area and the proximity of the nearby nature reserve which is likely to contain better quality vegetation, the proposed clearing is unlikely to have a significant impact on black cockatoo roosting habitat.

Conclusion

The proposed clearing is unlikely to have a significant impact on habitat for the brush tailed phascogale or red-tailed phascogale. A condition requiring the retention of one tree with a hollow potentially suitable for use by phascogale species will mitigate impacts to phascogale individuals. Although the application area may contain foraging habitat for red-tailed black cockatoos and Carnaby's cockatoo (less likely), and may contain roosting habitat for all three black cockatoo species, the impacts are not likely to be significant.

Conditions

Retention of a tree containing a hollow potentially suitable for use by phascogales to mitigate impacts to phascogale individuals.

3.2.2. Biological values – Flora and vegetation - Clearing Principles (a and c)

Assessment

A number of conservation significant flora species have been recorded within the local area, some of which have been recorded within similar mapped soil and vegetation types to the application area (refer to Table B3, Appendix B). However, a flora survey (Ecoedge, 2022) did not record any of these species within the application area. As such, the proposed clearing is unlikely to impact conservation significant flora species.

0.015 hectares of vegetation within the application area (the areas in Degraded to Good or Good condition) is considered to be the Priority 3 Eucalypt woodlands of the Western Australian Wheatbelt ecological community (Wheatbelt woodlands PEC) (Ecoedge, 2022). Vegetation immediately north of this area, including vegetation within Capercup Road North nature reserve, is also likely to be part of the same patch of this ecological community. The removal of 0.015 hectares from a patch of Wheatbelt Woodlands PEC vegetation is unlikely to significantly impact the conservation status of this community, however may result in impacts to the patch by potentially introducing weeds and dieback. A weed and dieback condition applied to the permit will help to mitigate these impacts.

Conclusion

The proposed clearing is unlikely to significantly impact conservation significant flora species or ecological communities, given weed and dieback conditions imposed on the permit.

Conditions

Weed and dieback management conditions to manage impacts to the Eucalypt woodlands of the Western Australian Wheatbelt ecological community.

3.2.3. Biological values – significant remnant vegetation and conservation areas - Clearing Principle (e and h)

The application area is part of an ecological linkage that runs along the northern side of Bowelling Duranillin Road reserve connecting larger remnants such as Capercup nature reserve. Adjacent to the road reserve is a disused rail reserve which appears to be vegetated and is around 60 meters wide. Given the proposed clearing is five meters wide and that a large portion will remain within the rail reserve, the proposed clearing is not likely to impact local or regional ecological linkages.

The application area is mapped within the Darkin 5f and Darkin 4 vegetation associations, and is representative of the Darkin 4 vegetation association (Ecoedge, 2022), of which only 14.89 per cent of the original extent remains. Furthermore, the local area retains approximately 19 per cent remnant vegetation. The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (Commonwealth of Australia, 2001). As such, the extents of the Darkin 4 vegetation type and native vegetation in the local area are inconsistent with the threshold targets for biodiversity conservation. However, noting that most of the 0.23 hectares of vegetation within the application area is in Completely Degraded condition, it is not considered to be a significant remnant in the context of Darkin 4 vegetation type or within the local area. It is also not likely to be significant habitat for fauna species (see 3.2.2 above).

Noting the above, the vegetation proposed to be removed is not considered to be a significant remnant in a highly cleared landscape.

Given the extent of the clearing and that there is approximately 80 metres of native vegetation in similar or better condition between the application area and Capercup Road North nature reserve to the north, the proposed clearing is unlikely to impact upon the reserve. A weed and dieback condition applied to the permit will further prevent any impacts to the reserve.

Conclusion

The vegetation proposed to be cleared is not considered to be a significant remnant in a highly cleared landscape. The proposed clearing is unlikely to significantly impact the Capercup Road North nature reserve.

Conditions

Weed and dieback management conditions to manage impacts to Capercup Road North nature reserve and other adjacent vegetation.

3.2.4. Biological values – Land and water resources - Clearing Principle (f and i)

A portion of the application area is between areas to the north and south that are mapped as palusplain wetlands, and vegetation in vegetation type B mapped by Ecoedge (2022) in this area is consistent with riparian vegetation. However, noting the very small extent (0.022 hectares) and narrow width of this vegetation, it is considered unlikely that the proposed clearing would impact the hydrology, water quality or other environmental values within this wetland may impact on- or off-site hydrology and water quality.

Conclusion

The proposed clearing is unlikely to impact a palusplain wetland to the north and south of the application area.

Conditions

None

3.3. Relevant planning instruments and other matters

No Aboriginal sites of significance have been mapped within the application area, though one site is recorded within 85 meters of 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.

The application area was included in a broader clearing permit application CPS 8201/1 by the Shire in September 2018, however based on advice from DWER, the applicant revised the application area for CPS 8201/1 to exclude clearing Bowelling-Duranillin Road reserves. The Shire advised at the time that the clearing associated with the Bowelling-Duranillin Road will be submitted in a separate clearing permit application.

End

Appendix A. Additional information provided by applicant

The following additional information was provided by the applicant during the assessment period.

Summary of comments	Consideration of comment
Flora survey provided (Ecoedge, 2022)	Results considered in Appendix B, Appendix C and in Section 3.2.2
Habitat tree assessment provided (Harewood, 2021)	Results considered in Appendix B, Appendix C and Section 3.2.1

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of a connected area of linear vegetation which extends east-west connecting various larger patches of native vegetation in the intensive land use zone of Western Australia. It adjoins a disused and vegetated railway reserve which is approximately 60 meters wide.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 19 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area is not within any formal linkages but contributes to the linkage along the road reserve and the disused rail reserve which connect larger remnants in the local area.
Conservation areas	The application area is within approximately 80 meters of Capercup Road North nature reserve and is connected to this reserve by the remnant vegetation within the road and rail reserve.
Vegetation description	<p>A flora and vegetation survey (Ecoedge, 2022) indicates the vegetation within the proposed clearing area consists of the following vegetation types:</p> <ul style="list-style-type: none"> Vegetation Type A - <i>Eucalyptus wandoo</i> (<i>E. marginata</i>, <i>Corymbia calophylla</i>) medium woodland over <i>Allocasuarina huegeliana</i> low woodland over <i>Acacia extensa</i>, (<i>Allocasuarina humilis</i>), <i>Hakea prostrata</i>, <i>Leptospermum erubescens</i>, <i>Petrophile squamata</i> medium open shrubland over Bossia (0.21 ha) Vegetation Type B - <i>Eucalyptus wandoo</i> medium woodland over <i>Melaleuca viminea</i> tall open shrubland over forbland including <i>Aphelia cyperoides</i>, <i>Centrolepis aristata</i>, <i>Drosera glanduligera</i>, <i>*Lythrum hyssopifolia</i>, <i>Stylidium androsaceum</i>, sparse rushland of <i>Juncus articulatus</i>, (0.022 ha); and Cleared (0.55 ha). <p>Representative photos and maps are available in Figures E-1 to E-3 and E-7 to E-10, Appendix E.</p> <p>This is consistent with the vegetation type mapped over the western portion of the application area:</p> <ul style="list-style-type: none"> Darkin_4, which is described as Woodland of <i>Eucalyptus wandoo</i>-<i>Allocasuarina huegeliana</i>-<i>Acacia acuminata</i> on slopes and woodland of <i>Eucalyptus rudis</i> on lower slopes in the arid zone; <p>but not consistent with the vegetation type mapped over the eastern portion of the application area:</p> <ul style="list-style-type: none"> Darkin 5f which is described as Woodland of <i>Eucalyptus rudis</i>-<i>Melaleuca</i> spp. on lower slopes, low forest of <i>Casuarina obesa</i> and shrubland of <i>Melaleuca</i> spp. on broad valley floors in the arid zone (Mattiske et al., 1998).

Characteristic	Details
	The mapped vegetation types described above retain approximately 15 and 27 per cent of their original extents respectively (Government of Western Australia, 2019).
Vegetation condition	<p>A flora and vegetation survey (Ecoedge, 2022) indicates the vegetation within the proposed clearing area (excluding cleared areas) is in Completely Degraded, Degraded to Good, or Good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • Completely Degraded, which is 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. • Degraded, which is described as basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management; and • Good, which is described as 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. <p>The full Keighery (1994) condition rating scale is provided in Appendix D. Maps and representative photos are available in Figures E-4 to E-10, Appendix E..</p>
Climate and landform	The application area is within the 230 meter to 235 meter above sea level isoheight.
Soil description	<p>The soil is mapped as the following soil types:</p> <ul style="list-style-type: none"> • Darkan 5 Subsystem described as Valley flats and narrow alluvial plans (300 - 1000m wide) with mainly grey deep sandy duplex soils. • Darkan 6 footslopes Phase described as Foot slopes with mainly sandy and loamy gravels formed on Eocene sediments. • Darkan 6 ironstone gravel Phase described as Very low rises adjacent to alluvial plains with pale sandy gravels and pale sands, formed on Eocene sediments.
Land degradation risk	<p>Two of the mapped soil types within the application area have a high risk of wind erosion, low risk of water erosion and salinity, a high risk of subsurface acidification, a low flood risk, water logging and phosphorus export risk.</p> <p>The third soil type has a medium risk of wind erosion, salinity, flood risk and phosphorus export risk. The soil type has a high risk of water logging and subsurface acidification.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that the application area intersects a palusplain wetland as mapped by the Geomorphic Wetlands Darkan Duranillin.</p> <p>There are no watercourses mapped within the application area. The closest is a minor non perennial watercourse located approximately 125 meters to the east of the application area.</p>
Hydrogeography	The application area is not within any proclaimed surface or groundwater areas under the RIWI Act and is not within any clearing control areas under the CAWS Act.
Flora	<p>According to available databases, there are 14 conservation significant flora species within the local area, 13 of which are priority flora species and one of which is a threatened flora species. The closest record to the application area is <i>Boronia tenuis</i>, located approximately 1 km to the southwest.</p> <p>A flora survey (Ecoedge, 2022) did not record any of these species within the application area.</p>
Ecological communities	No mapped occurrences of Priority of Threatened Ecological Communities (PEC or TEC) are present within the local area. The closest mapped conservation significant ecological community is the state listed Priority 3 (and EPBC Act listed Critically

Characteristic	Details
	<p>Endangered) Eucalypt woodlands of the Western Australian Wheatbelt ecological community.</p> <p>A flora and vegetation survey (Ecoedge, 2022) identified that 0.015 hectares of vegetation within the application area (the areas in Degraded to Good or Good condition) is considered to be the Priority 3 Eucalypt woodlands of the Western Australian Wheatbelt ecological community (Wheatbelt woodlands PEC).</p>
Fauna	<p>According to available databases, 13 conservation significant fauna species have been recorded within the local area. The nearest record to the application area is a red-tailed phascogale (<i>Phascogale calura</i>). The most frequently occurring species within the local area is the Blue-billed duck associated with a lake over six kilometres from the application area.</p> <p>A habitat tree assessment encompassing the application area found that one tree within the application area contains a hollow that may be suitable for phascogale species, however it was not possible to determine whether this hollow was actually suitable or currently in use by phascogales (Harewood, 2021). No trees within the application area had suitably large hollows for black cockatoo nesting (Harewood, 2021).</p>

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*					
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	1,673,614.25	39.43
Vegetation complex					
Darkin 5f	5,827.42	1,572.25	26.98	237.39	4.07
Darkin 4	9,401.17	1,399.66	14.89	33.65	0.36
Local area					
10 km radius	-	-	19	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Flora analysis table

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

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Boronia tenuis</i>	P4	Y	Y	Y	1	Y
<i>Banksia porrecta</i>	P4	Y	Y	Y	3.7	Y
<i>Eutaxia nanophylla</i>	P3	Y	Y	Y	3.7	Y
<i>Cryptandra beverleyensis</i>	P3	Y	Y	Y	3.7	Y
<i>Leucopogon subsejunctus</i>	P2	Y	Y	Y	4.7	Y

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Tetratheca exasperata</i>	P3	Y	Y	Y	5.3	Y
<i>Logania sylvicola</i>	P2	Y	Y	Y	6.7	Y
<i>Stylidium lepidum</i>	P3	N	N	N	7.7	Y
<i>Acacia ataxiphylla</i> subsp. <i>ataxiphylla</i>	P3	N	Y	Y	8.3	Y
<i>Banksia acanthopoda</i>	P2	N	Y	N	9.1	Y
<i>Lasiopetalum cardiophyllum</i>	P4	N	Y	N	9.1	Y
<i>Bossiaea lalagoidea</i>	P3	N	N	N	9.6	Y
<i>Melaleuca pritzelii</i>	P3	N	N	N	9.6	Y
<i>Commersonia erythrogyna</i>	T	N	N	N	9.7	Y

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

B.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Actitis hypoleucos</i> (Common Sandpiper)	MI	N	N	6.4	N/A
<i>Bettongia lesueur graii</i> (boodie (inland))	EX	N	N	5.9	N/A
<i>Calidris ferruginea</i> (curlew sandpiper)	CR	N	N	6.2	N/A
<i>Calidris ruficollis</i> (Red-necked stint)	MI	N	N	6.2	N/A
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	8.3	N
<i>Calyptorhynchus sp.</i> (White-tailed black cockatoo)	EN	Y	Y	6.6	N
<i>Falco peregrinus</i> (Peregrine falcon)	OS	Y	Y	6.5	N
<i>Macrotis lagotis</i> (bilby)	VU	N	N	3.8	N
<i>Oxyura australis</i> (Blue-billed duck)	P4	N	N	6.4	N/A
<i>Phascogale calura</i> (red-tailed phascogale)	CD	Y	Y	1	N
<i>Phascogale tapoatafa wambenger</i> (south-western brush-tailed phascogale)	CD	Y	Y	3.7	N
<i>Tringa Glareola</i> (Wood sandpiper)	MI	N	N	7.8	N/A
<i>Tringa stagnatilis</i> (Marsh sandpiper)	MI	N	N	6.2	N/A

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

B.5. Ecological community analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation 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	Y	Y	15.5	Y

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

B.6. Land degradation risk table

Risk categories	Darkan 5 Subsystem
Wind erosion	30-50% of map unit has a high to extreme wind erosion risk
Water erosion	<3% of map unit has a high to extreme water erosion risk
Salinity	30-50% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	30-50% of the map unit has a moderate to high flood risk
Water logging	>70% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	30-50% of map unit has a high to extreme phosphorus export risk

Risk categories	Darkan 6 footslopes
Wind erosion	>70% of map unit has a high to extreme wind erosion risk
Water erosion	<3% 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
Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% of the map unit has a moderate to high flood risk
Water logging	<3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	<3% of map unit has a high to extreme phosphorus export risk

Risk categories	Darkan 6 ironstone
Wind erosion	>70% of map unit has a high to extreme wind erosion risk
Water erosion	<3% 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
Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% 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
Phosphorus export risk	<3% of map unit has a high to extreme phosphorus export risk

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p>Principle (a): "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains significant vegetation communities and suitable habitat for conservation significant fauna.</p>	May be at variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2 above.</i>
<p>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."</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The area proposed to be cleared contains potential foraging and roosting habitat for conservation significant fauna.</p>		
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> A flora survey (Ecoedge, 2022) did not record any conservation significant flora species within the application area. As such, the proposed clearing is unlikely to impact threatened flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared contain vegetation consistent with the EPBC Act listed threatened Eucalypt woodlands of the Western Australian Wheatbelt ecological community.</p>	At variance	Yes <i>Refer to Section 3.2.2 above</i>
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extents of both the mapped vegetation type consistent with vegetation present within the application area and native vegetation in the local area are inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to play a significant role as an ecological linkage in the local area.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u> Given there will be a buffer of native vegetation remaining between the application area and the nearest conservation area (Capercup Road North nature reserve), the proposed clearing is unlikely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3 above.</i>
Environmental value: land and water resources		
<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> Vegetation within the application area constitute riparian vegetation and the application area is between a palusplain wetland.</p>	At variance	Yes <i>Refer to Section 3.2.4, above.</i>
<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 susceptible to various forms of land degradation. Noting the extent and linear shape of the application area and that vegetation remains along the road reserve and within the neighbouring private property, 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> Although vegetation within the application area may be associated with a wetland, noting the very small extent and narrow width of the wetland associated vegetation that will be cleared, it is considered unlikely that</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4 above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
the proposed clearing would impact the hydrology, water quality or other environmental values within this wetland.		
<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>: One of the mapped soil types, the Darkan 5 Subsystem has a moderate flood risk and high risk of waterlogging with the mapped soil unit associated with the wetland. Noting the thin and linear shape of the application area and the extent of vegetation remaining in the surrounding road and rail reserve, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.</p>	Not likely to be 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 Keighery (1994).

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 E. Biological survey excerpts and photographs of the vegetation

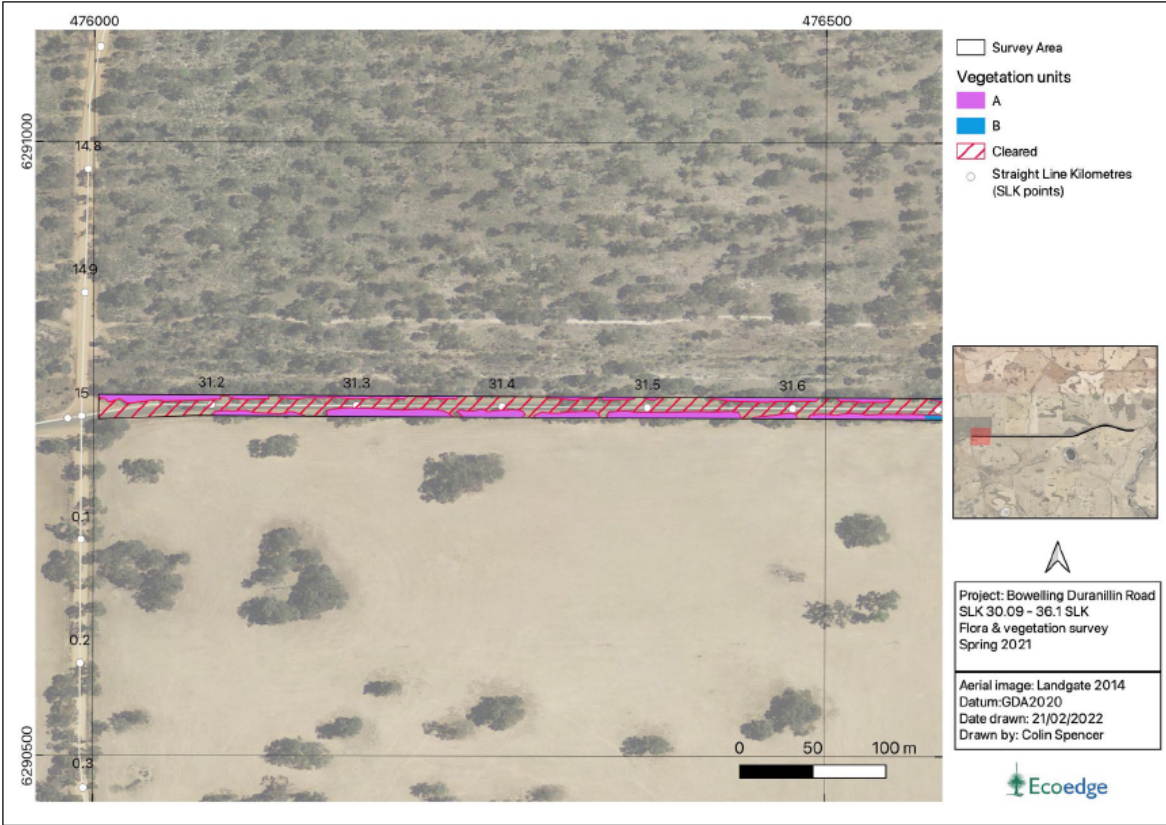


Figure E.1 – Vegetation types within the application area (Map 1 of 3) (Ecoedge, 2022)

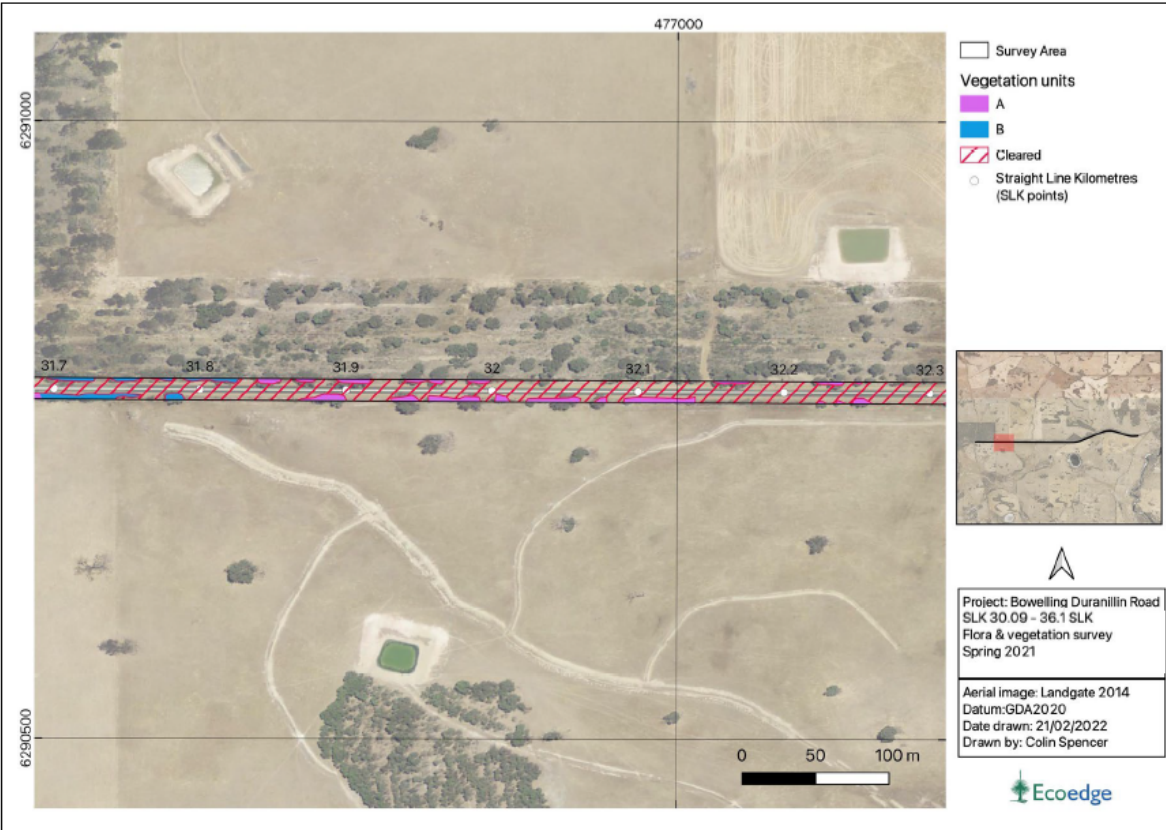


Figure E.2 – Vegetation types within the application area (Map 2 of 3) (Ecoedge, 2022)

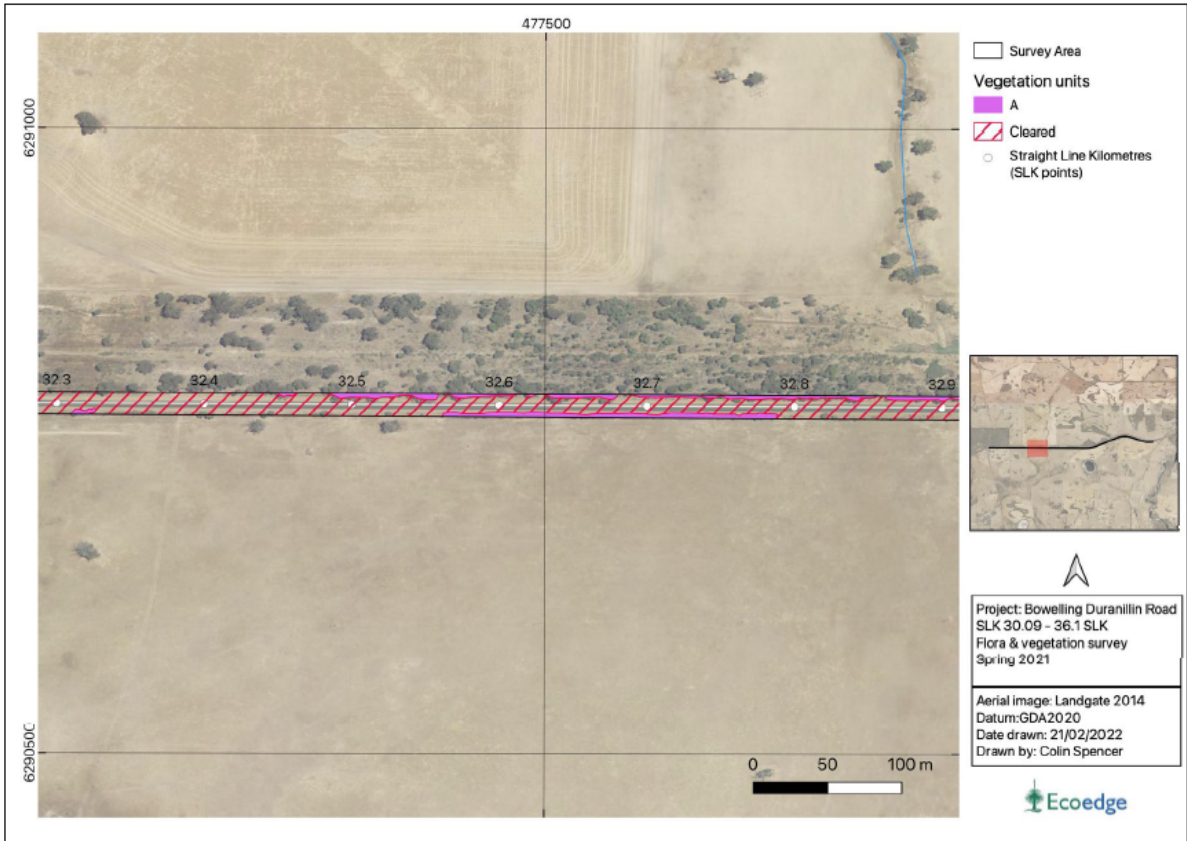


Figure E.3 – Vegetation types within the application area (Map 3 of 3) (Ecoedge, 2022)

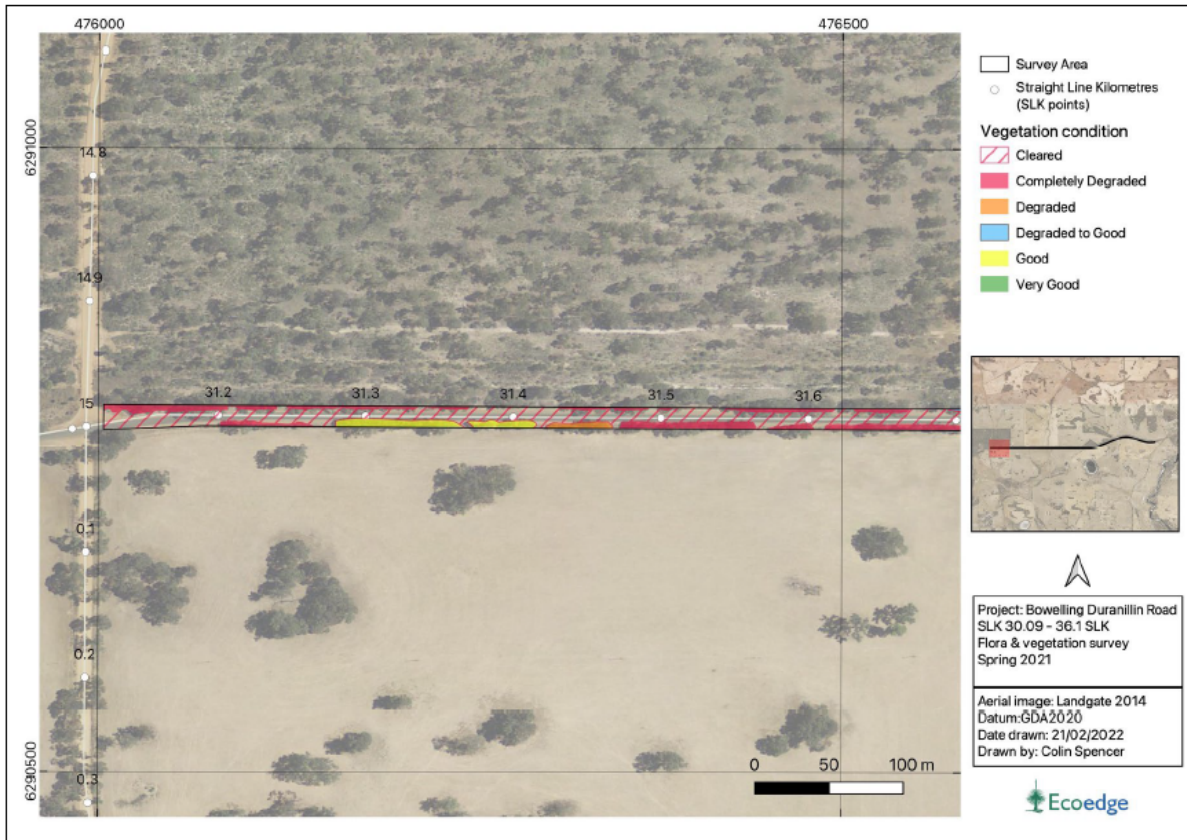


Figure E.4 – Vegetation condition within the application area (Map 1 of 3) (Ecoedge, 2022)

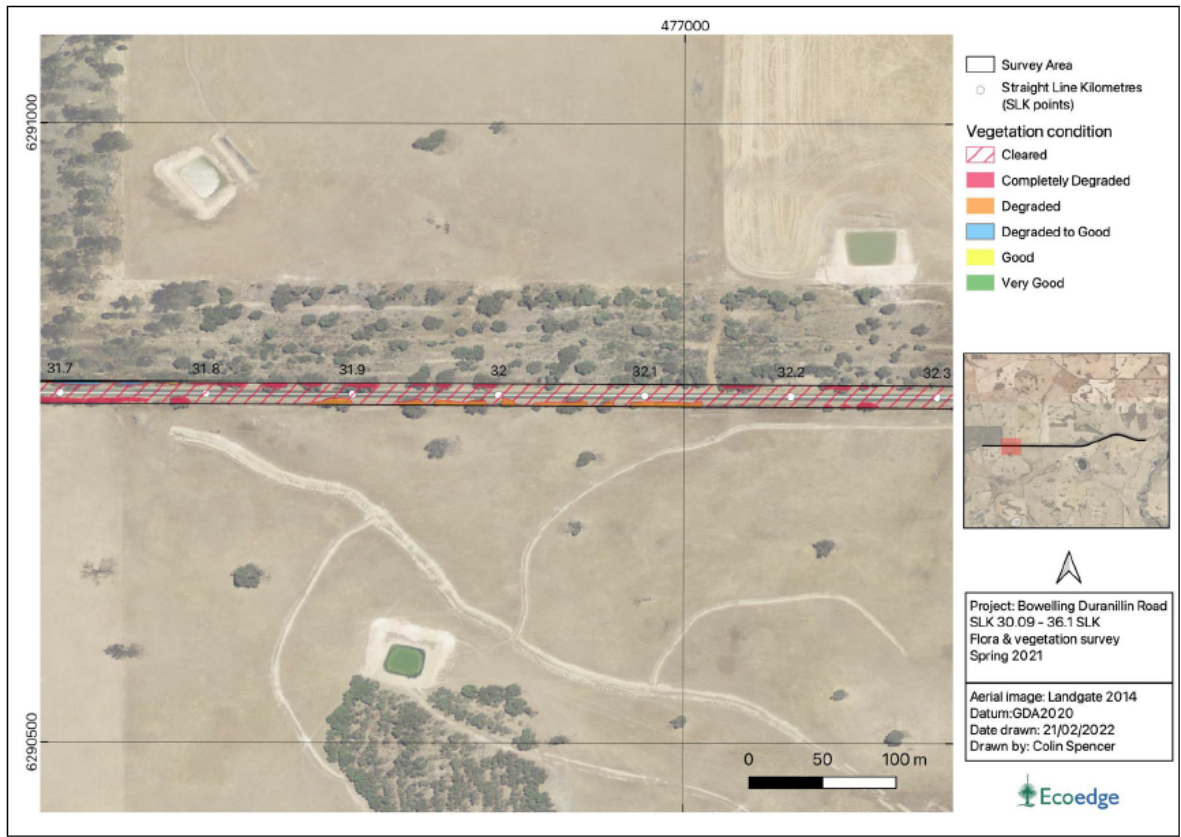


Figure E.5 – Vegetation condition within the application area (Map 2 of 3) (Ecoedge, 2022)

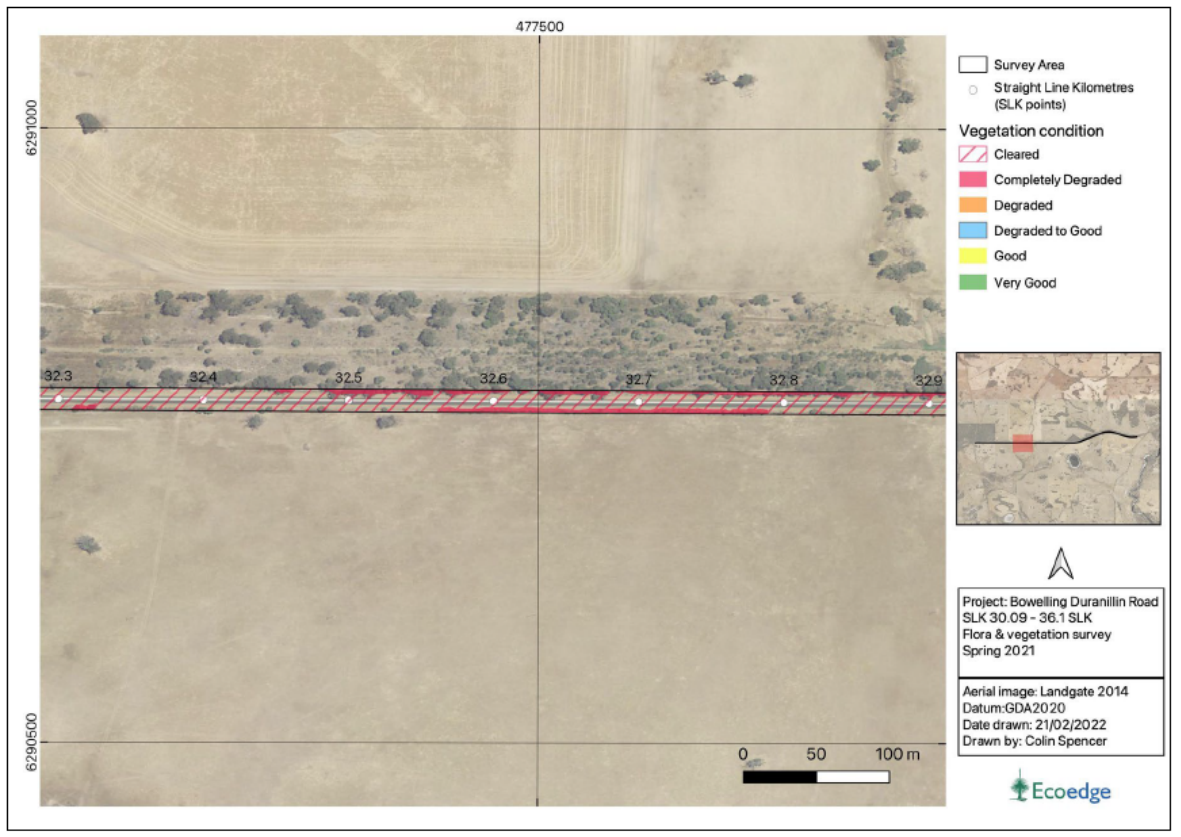


Figure E.6 – Vegetation condition within the application area (Map 3 of 3) (Ecoedge, 2022)



Figure E.7 - Photograph of *Eucalyptus wandoo* tree within the application area (Shire of West Arthur, 2020)



Figure E.8 - Photograph of *Eucalyptus wandoo* tree within the application area (Shire of West Arthur, 2020)



Figure E.9 - Photograph of tree and native understorey within the application area (Shire of West Arthur, 2020)



Figure E.10 - Photograph of tree and native understorey within the application area (Shire of West Arthur, 2020)



Figure E.11 - Photograph of trees and native understory within the application area (Shire of West Arthur, 2020)

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)
- 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)
- 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

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