

Native Vegetation Clearing Permit Supporting Document Parkers Range Road, Marvel Loch- Forrestania Road Upgrade

Shire of Yilgarn

Native Vegetation Clearing Permit Supporting Document					
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Contents

- 1 Introduction..... 3**
 - 1.1 Overview3
 - 1.2 Purpose3

- 2 Biological surveys 4**
 - 2.1 Flora and Vegetation Surveys4
 - 2.2 Fauna Surveys.....4

- 3 Assessment Against the Ten Clearing Principles of the *Environmental Protection Act 1986*..... 5**

- 4 Matters of National Environmental Significance 12**
 - 4.1.1 Eucalypt Woodlands of the WA Wheatbelt TEC 12
 - 4.1.2 Decision on Referral to the Commonwealth 12

- 5 Mitigation Methods..... 13**
 - 5.1 Alternatives to clearing 13
 - 5.2 Vehicle Hygiene 13
 - 5.3 Dust management..... 14
 - 5.4 Ground Disturbance Permitting 14
 - 5.5 Hydrology 14

- 6 Offsets 14**
 - 6.1 Residual Significant Impact Model 15
 - 6.2 Offset Strategy1
 - 6.2.1 Proposed Offset Property – Warralakin.....1
 - 6.2.2 Alignment of Offset Strategy with Policy and Guidelines2
 - 6.2.3 Ongoing Management.....5
 - 6.2.4 Financial Provisions5
 - 6.2.5 Reporting.....5
 - 6.2.6 Timeline and Responsibilities5

- 7 References 7**

- APPENDICES 8**

- Appendix A: MNES Significance Assessment 9**

- Appendix B: Ecological Surveys – Impact Site 10**

- Appendix C: Ecological Surveys – Offset Site 11**

- Appendix D: Offset Calculations and Rationale..... 12**

- Appendix E: MOU Between Covalent Lithium and DBCA 1**

Tables

Table 1-1: Project Areas.....3
Table 3-1 Conservation Significant flora impacts6
Table 3-2:Summary of the Mapped Pre- European Vegetation Associations relevant to the Proposal
..... 10
Table 6-1 Preliminary Offset Triggers – Residual Impact Significance Model 17
Table 5-2: Alignment of Offset Strategy to EPA Offset Principles.....2
Table 5-3: Offset Strategy alignment with *Approved Conservation Advice for Eucalypt Woodlands of
the Western Australian Wheatbelt*3
Table 5-4 Clearing within TEC Patches (ha)3

Figures

Figure 6-1: Current mapped extent of the Eucalyptus Woodlands of the Western Australian
Wheatbelt ecological community 16

1 Introduction

1.1 Overview

The Shire of Yilgarn is intending to upgrade sections of the Parkers Range Road and Marvel Loch-Forrestania Road, a length of approximately 113km. This road is a local Shire Road, that for the most part is unsealed and frequently subject to closure during and following rainfall events due to unsafe road conditions.

Three 'Applications to clear native vegetation' along the 113km stretch of road have previously been submitted and approved but are currently subject to appeal. These permits include:

- CPS 10197 - Northern Section – from Moorine Rock to Fence Road (chainage 0.2 to 50.0 km);
- CPS 10265 - Fence Rd to the Marvel Loch – Forrestania Road (chainage 50.0 to 63.0 km); and
- CPS 10049 - Southern Section – the Marvel Loch – Forrestania Rd from chainage 63.0 to 113.0 km at the turnoff to the Mt Holland mine site, CPS10049/1

This application is for the remaining portions of native vegetation along the length of the road, that predominantly lie within the mapped Eucalyptus Woodlands of the Western Australian Wheatbelt and listed as PEC under the *Biodiversity Conservation Act 2016* (BC Act). This comprises small patches of native vegetation that will require clearing to facilitate the upgrade of the road, including drainage controls and changes to alignments to meet road safety protocols.

Preliminary review of survey data indicated that the clearing footprint may impact up to 4.69 ha of this PEC/TEC, which informed pre-referral discussion with the Department of Water and Environmental Regulation (DWER) for this proposal. However subsequent of survey data against the DBCA PEC listing and TEC description, area and conditions thresholds by Western Botanical (2024a), has determined that the occurrence of the PEC/TEC is limited to two vegetation types (VT07 and VT18). In total the area of PEC/TEC that will now be impacted by clearing is 0.40 ha.

Over the length of the road approximately 4.79 ha of native vegetation is proposed to be cleared of which 0.40 ha is part of the mapped conservation significant vegetation community: Eucalyptus Woodlands of the Western Australian Wheatbelt, Priority Ecological Community (PEC), which is synonymous with the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) listed Threatened Ecological Community (TEC) of the same name.

1.2 Purpose

This document is intended to provide a framework to support a native vegetation clearing application for 4.79 ha of clearing for the purposes of road upgrades.

The areas relevant to this proposal, as provided with the supporting spatial data, are described in Table 1-1.

Table 1-1: Project Areas

Project Area Description	Area (ha)
Total Clearing, comprised of:	4.79
<ul style="list-style-type: none"> • PEC/TEC clearing footprint 	0.40

Project Area Description	Area (ha)
<ul style="list-style-type: none"> Other native vegetation clearing footprint 	4.39
Previously cleared areas	0.15
Total Project Footprint = Total clearing footprint plus Previously cleared areas	4.94
The Study Area (Vegetation and Flora) (Western Botanical, 2024a)	500 m either side of the road, 113 km in length
The Study Area (Fauna) (Ecoscape, 2024)	20 km

2 Biological surveys

2.1 Flora and Vegetation Surveys

The flora and vegetation values of the vegetation adjacent to the road were subject to flora surveys conducted by Western Botanical, who have significant experience and knowledge of flora taxa and vegetation of this area:

- Western Botanical (2024a) *Detailed Flora and Vegetation Assessment of Threatened Ecological Communities of the Proposed Moorine Rock to Mount Holland Logistics Road Supporting Proposed Clearing Permit*. Consultant's report to Shire of Yilgarn and Covalent Lithium Pty Ltd, Report Ref WB1027
- Western Botanical (2024b) *Review of Conservation Values of portion of Warralakin as a Potential Offset Package*. Consultant's report prepared for Covalent Lithium Pty Ltd. Report reference WB1028.

The results of the biological surveys (Appendices B and C) provide a sound basis on which to assess the potential environmental impacts of the Proposal to flora and vegetation values.

The biological survey which spatially covers this Proposal area is the Western botanical 2024 survey.

2.2 Fauna Surveys

The terrestrial fauna values of the local area of the Proposal and surrounds have been subject to the following biological surveys:

- Ecoscape (Australia) Pty Ltd (2024) *Covalent Logistics Road Terrestrial Vertebrate Fauna Survey*, prepared for Covalent Lithium'.
- Ecoscape (Australia) Pty Ltd (2024) *Warralakin Terrestrial Fauna Habitat Offset Assessment*, prepared for Covalent Lithium'

The biological surveys identified above (Appendices B and C) were undertaken by suitably qualified and experienced personnel in the survey and identification of fauna taxa and fauna habitats. The results of the biological surveys provide a sound basis on which to assess the potential environmental impacts of the Proposal to terrestrial fauna values.

3 Assessment Against the Ten Clearing Principles of the Environmental Protection Act 1986

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this Principle

Comments

The proposal requires the clearing of 4.79 ha of native vegetation for the purpose of Road safety and drainage upgrades alongside existing road of approximately 113 km in length (the Study Area for flora and vegetation).

The Study Area lies within and on the border of the eastern portion of the Avon-Wheatbelt and the western portion of the Coolgardie IBRA regions. It intersects the Merredin, IBRA subregion.

The region is characterised by an area of active drainage dissecting a Tertiary plateau on the Yilgarn Craton. It has a gently undulating landscape of low relief. Proteaceous scrub heaths, rich in endemics, on residual lateritic uplands and derived sandplains; mixed eucalypt, *Allocasuarina huegeliana* and Jam-York Gum woodlands on Quaternary alluvials and colluvials. Within this bioregion, the Merredin subregion is an ancient peneplain with low relief, gently undulating landscape (Beecham, 2002) Six mapped vegetation associations occur within in the Project Area, (8,128,1068,1148,1271 and 1413)(DPIRD 006; 2019). Although the wheatbelt is extensively cleared only vegetation association 8 is less than 30% in the Avon Wheatbelt bioregion and Merredin sub region. Due to the proximity of the clearing adjacent to existing transport corridors, it's unlikely that this clearing will impact the biological diversity of this community (Government of Western Australia, 2019).

Each of the vegetation associations within the Study area has moderate to low species diversity. Communities growing on sandplain and laterite gravel have the highest species richness within the study area (Western Botanical, 2024a).

Biological surveys conducted by Western Botanical indicate the proposed clearing encompasses vegetation assessed in Pristine to Very Good condition over a range of approximately 113km within 140 different polygons. 21 different vegetation units were identified as part of the biological survey effort with 2 of these units identified as containing vegetation meeting the definition of the WA Wheatbelt Woodlands PEC (BC Act), which as noted in Section 1.1 is synonymous with the EPBC Act listed TEC of the same name.

The Eucalypt Woodlands of the WA Wheatbelt occur in the wheatbelt region between the Darling Range and the Great Western Woodlands. The Eucalypt Woodlands are found on the flatter landscapes and lower rises of the wheatbelt. The main trees are eucalypts that typically have a single trunk. They occur as a complex mosaic involving about 30 species, including many iconic trees of the Wheatbelt. The trees present varies from patch to patch. The native understorey is diverse and very variable, ranging from largely bare to grassy to herbs and wildflowers to shrubby. (DEE, 2016)

The woodland patches that remain are typically small, highly fragmented and have been disturbed to some extent. The mapping of this PEC has been compiled from a range of broad-scale datasets, including vegetation units such as Beard vegetation and system associations. Therefore, the total areas will be approximate and are likely to be significantly over-estimates as the majority of the boundaries have not been ground-truthed and current vegetation condition has not been determined. Based on the available broad-scale mapping, there are approximately 634,000 ha of the Wheatbelt Woodland PEC and approximately 30,330 ha of the woodlands (~4.8%) contain *Eucalyptus kondininensis* (which may or may not be dominant). (DBCA, 2015)

The clearing within the PEC is spread over a number of differing linear clearing polygons for a total of 0.40 ha of native vegetation over the Study Area (113 km).

One of the key threats to this PEC/TEC is clearing of native vegetation. The proposed clearing of 0.40 ha constitutes <0.00006% of the mapped extent (2345 ha) of the WA Wheatbelt Woodlands TEC, this clearing would not be considered to jeopardise the values of the TEC.

Another key threat to the WA Wheatbelt Woodlands PEC is loss of habitat for key native species, fragmentation into smaller disconnected patches, the proposed clearing is predominantly in small slithers along an existing transport corridor hence the proposed works will not further fragment or disconnect patches of the PEC.

Other threats include weed invasion, and increased salinity and waterlogging largely due to modification of the landscape and hydrology through over-clearing. As the proposed clearing is predominantly located adjacent already cleared areas there will be no change in hydrology, vehicle hygiene procedures will be implemented to ensure that weeds are not spread due to the construction.

Biological surveys of the application area found 6 priority flora species within the Application area these species are summarised in the table below.

Table 3-1 Conservation Significant flora impacts

Taxon	Proposed Taken - Within CPS Application footprint	Grand Total Locally Known population	Total cumulative Impact All Covalent projects	CPS Proposal Impacts
P1				
<i>Eucalyptus</i> sp. Dunbar Road (D. Nicolle & M. French DN 5466)	8	2,848	1.83%	0.28%
<i>Grevillea lissopleura</i>	86	5,674	2.82%	1.52%
P2				
<i>Acacia asepala</i>	103	25,184	1.12%	0.41%
<i>Acacia concolorans</i>	3	4,714	0.13%	0.06%
<i>Eutaxia lasiocalyx</i>	4	185,274	6.64%	0.00%
P3				
<i>Teucrium diabolicum</i>	4	71,553	0.71%	0.01%
Grand Total	208	3,578,807		

The local populations for these species are well defined, the cumulative impacts from all covalent projects on each species impacted by this application would be considered low impact with the 6.64% the highest (*Eutaxia lasiocalyx*) this proposal will add less 0.01% of these impacts. As per **Error! Reference source not found.** largest impact to the conservation significant flora species local population is *Grevillea lissopleura* with 1.52% and 86 individuals which would not likely have significant impacts on the taxon's local distribution.

According to Ecoscape (2024), the proposal area comprises two fauna habitat type which is described as Eucalypt Woodland (Open/Closed) and Shrubland. The vegetation to be cleared is small in scale with approximately 140 small slithers with an average size of 0.03ha, the clearing is also stretched out over 113km in length. As such, the vegetation proposed to be cleared is unlikely to contain a relatively higher level of fauna diversity. Several fauna species are known to occur in the biological study area, including Malleefowl and Chuditch due to the small scale of the clearing and roadside location not fracturing significant corridors the proposal is not expected to have a significant impact on these species.

Based on the above, the proposed clearing is not likely to be at variance to this 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 indigenous to Western Australia.

Proposed clearing is not likely to be at variance to this Principle

The clearing footprint area comprises 4.79 ha of native vegetation which is suitable fauna habitat. The Ecoscape survey covered a total size of the survey area is 383 hectares (ha) inclusive of the application area (Ecoscape, 2024).

Four native vegetation fauna habitat types were recorded within the Ecoscape survey area during the biological survey, which broadly align with the native vegetation types mapped within the application area (Ecoscape, 2024). These habitats include:

- Eucalypt Woodland (Open/Closed); and
- Shrubland.

The shrubland habitat occurs in small, isolated patches throughout Eucalypt woodland habitat, at a scale too small to be mapped. This habitat occurs on sandy-clay flats, gravelly sands and lateritic rises and vary in composition and provides potential hunting/foraging and breeding opportunities for the Western Rosella and Central Long-eared Bat. The habitat within the Impact Area also provides occasional foraging and dispersal habitat for the Malleefowl and Chuditch, because it is part of a much larger contiguous area of remnant vegetation. (Ecoscape, 2024)

The Eucalyptus woodland habitat occurred in a variety of compositions within the survey area, with Salmon Gum woodlands over mixed shrub species (mostly *Melaleuca* sp.) on clay flats being the most frequently occurring form. The Eucalyptus woodland provides potential hunting/foraging and breeding opportunities for the Western Rosella and Central Long-eared Bat. There are limited breeding opportunities (e.g. large logs with hollow openings > 20 cm were uncommon) for the Chuditch. The habitat also provides occasional foraging, dispersal and refuge habitat for the Malleefowl. (Ecoscape, 2024)

The fauna habitats of the application are predominantly part of an extensive roadside reserve that extends for the length Parkers Range Road – Marvel Loch-Forrestania Road. As the Proposal will not completely clear the vegetation on both sides and consists of only small slithers of vegetation, the remaining vegetation will continue to provide locally important temporary refuge a variety of native birds and mammals as a 'stepping stone' when crossing from one side of the road to the other.

Desktop searches (PMST, DBCA, NatureMap) identified the presence/potential presence of 12 significant fauna taxa within the assessment area. (Ecoscape, 2024). No conservation significant fauna species were recorded within the application area during the field surveys; and Ecoscape (2024) did not record any Malleefowl mounds within the proposal area.

A likelihood of occurrence assessment (Ecoscape, 2024) identified six species of significance as likely to occur or utilise the habitats within the Impact Area. These species include:

- Malleefowl, *Leipoa ocellata* (EPBC Act: Vulnerable, BC Act: Vulnerable),
- Chuditch, *Dasyurus geoffroii* (EPBC Act: Vulnerable, BC Act: Vulnerable),
- Western Rosella (inland sp), *Platycercus icterotis xanthogenys* (Priority 4)
- Western Brush Wallaby *Notamacropus Irma*
- Peregrine Falcon *Falco peregrinus*
- Central Long-eared Bat (*Nyctophilus major tor*) (Priority 4)

Malleefowl

The field surveys did not record any individuals of the Malleefowl within the proposal area, nor were any records of Malleefowl mounds recorded (Ecoscape 2024). Two Mallee fowl mounds were found during the survey (one inactive and one active) however both are not found within the proposal area. The application area is part of the area of occupancy of the species, however it is unknown if it forms

part of an area occupied by or is part of an important population. The shrubland and the Woodland habitats provide occasional foraging and dispersal habitat for the Malleefowl and these habitats are part of an area of contiguous vegetation. The application area comprises 4.05 ha of woodland habitat, potentially suitable foraging/dispersal habitat for the Malleefowl.

Chuditch

The field surveys did not record any individuals of the Chuditch within the Impact Area (Ecoscape, 2024). Chuditch require adequate numbers of suitable den and refuge sites (hollow logs or earth burrows) and sufficient prey biomass (large invertebrates, reptiles, and small mammals) to survive. They are capable of travelling long distances and have large home ranges, and even at their most abundant, Chuditch are generally present in low numbers. For this reason, they require habitats that are of a suitable size and not excessively fragmented (DBCA, 2017). Parts of the greater locality have been recently burnt within the last 10 years (with areas burnt less than 5 years ago) and the likelihood of the burnt areas supporting breeding resources (e.g. hollow-bearing trees and fallen logs with hollows) is likely to have been reduced. The Application Area is part of the area of occupancy for the species, however it is unknown if it forms part of an area occupied by or is part of an important population. Potentially suitable breeding habitat is present which is largely confined to the Eucalypt woodland habitat, in particular the Eucalypt woodlands with larger trees and fallen hollow logs of suitable diameter, which were uncommon during the Ecoscape survey due to the close distance to the road. The habitats of the clearing footprint, in particular the Eucalypt woodland habitats may form part of an individual's home range. The clearing footprint comprises 4.18 ha of potentially suitable foraging/dispersal habitat for the Chuditch.

Western Rosella (inland ssp)

The field surveys did not record any individuals of the Western Rosella within the application area (Ecoscape, 2024). Suitable habitat occurs in the area and DBCA records indicate that this species has been recorded in the survey area, with 11 records from 2017 occurring locally. It is likely that, because this species is uncommon but widespread, it was just not observed during this survey. The species requires Eucalypt woodlands for breeding and nesting which was present in the application area. The application area comprises 4.18 ha of potentially suitable foraging/dispersal habitat for the Western Rosella.

Central Long-eared Bat

The field surveys did not record any individuals of the Central Long-eared Bat within the Impact Area (Ecoscape, 2024) and there are no records of the species within a 10 km radius of the Impact Area with only 15 known locations in Western Australia. Potentially suitable hunting habitat and potentially suitable breeding and roosting habitat (i.e. Eucalypt woodlands with hollow-bearing trees and crevices) is present throughout the application area. The species can potentially use isolated Eucalypts with small hollows for roosting and breeding. The proposal area comprises 4.18 ha of potentially suitable foraging/dispersal habitat for the Central Long-eared Bat.

Western Brush Wallaby

The Western Brush Wallaby's optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland and is uncommon in karri forest (Van Dyck, 2008). Suitable habitat for Western Brush Wallaby is found throughout the Ecoscape survey area (54.61 ha). One Western Brush Wallaby was recorded on a camera trap and multiple scats were found during the field survey however none within the application area.

Peregrine Falcon

No Peregrine Falcons were recorded during the Ecoscape survey. DBCA records indicate that this species does occur in the survey area, with one record from 2017 occurring within the Earl Grey Development Envelope, however this species is likely to be transient in the area. The agricultural lands occurring at the northern end of the survey area are the preferred foraging habitat for this species, however, suitable breeding habitat is limited in these areas. Given the extent of the agricultural areas within the local region, clearing in this area is likely to have minimal impact on this species.

The vegetation proposed to be cleared is not considered to represent significant habitat necessary for the maintenance of threatened fauna species. The fauna habitat types recorded within the application area are not exclusive to the application area and are well represented at a local and regional scale. Significant fauna species may infrequently visit the application area, however, would unlikely be reliant on any of the habitat that occurs within. Given the thin, linear nature of the clearing required for the Proposal from substantially larger patches of contiguous vegetation, and the proximity of the Proposal to the existing road, it is considered unlikely that the application area represents key habitat for any significant fauna species.

The proposed clearing is not likely to be at variance to this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Proposal is not likely to be at variance to this Principle

Threatened flora of the region includes *Banksia dolichostyla* (T), which is known in the southern 2.1 km of the entire Biological Study Area, from King Ingram Road to the Mt Holland minesite turnoff. No *Banksia dolichostyla* are anticipated to be directly taken in the road upgrade program. *Eremophila verticillata* (T) and *Eucalyptus steedmanii* (T) are known near the Mt Holland mine site and do not occur within or nearby the Moorine Rock to Mt Holland mine site road alignment. *Isopogon robustus* (T) is known south of the Central Study Area on the eastern side of the Parker Range and is not known within 500m of the proposed road alignment. (Western Botanical, 2024a)

There are no Threatened Flora known within the vegetation associations matching the description of Eucalypt woodlands of the WA Wheatbelt EPBC listed TEC. Nine Priority Flora and three Species of Interest are present within this alignment. (Western Botanical, 2024a).

The vegetation to be cleared is minor in scale and comprises some previously cleared areas. The vegetation is not considered necessary for the continued existence of Threatened (rare) flora.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposal is not at variance to this Principle

A large proportion of the Central Study Area lies within the Parker Range PEC, which correlates strongly with the eastern fringe of the Merredin IBRA subregion within the Avon Wheatbelt IBRA region. As described for Principal (a), portions of the road alignment support vegetation that is consistent with the 'Eucalypt Woodland of the Western Australian Wheatbelt' PEC (Priority 3), synonymous with the Commonwealth listed TEC (of the same name).

Based on the clearing of PEC/TEC, the proposal is not at variance with this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing may be at variance to this principle, though to a relatively minor extent.

The project area is located within the Avon Wheatbelt IBRA region. Approximately 19% of pre-European vegetation remains in the IBRA region (Government of Western Australia, 2019).

The vegetation of the project area has been broadly mapped as the following pre-European vegetation associations as shown in Table 3-2:

8: Medium woodland; salmon gum & gimlet.

128: Bare areas; rock outcrops

1068: Medium woodland; salmon gum, morrel, gimlet & *Eucalyptus sheathiana*

1148: Shrublands; scrub-heath in the Coolgardie Region

1271: Bare areas; claypans

1413: Shrublands; acacia, casuarina & melaleuca thicket

Table 3-2 provides a summary of the remaining extent Pre-European VA's within the Project Area.

Table 3-2: Summary of the Mapped Pre- European Vegetation Associations relevant to the Proposal

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Association 8	Statewide	694638.14	346425.77	49.87	6.77
	IBRA Bioregion (Avon Wheatbelt)	356571.81	50340.31	14.12	1.22
	IBRA Sub-region (AVW01) Merredin	353871.79	49941.57	14.11	1.23
	Local Government Authority (Shire of Yilgarn)	163920.73	59992.64	36.60	6.51
Veg Association 128	Statewide	329836.19	288813.54	87.56	20.94
	IBRA Bioregion	41967.20	22998.88	54.80	10.41
	IBRA Sub-region (AVW01) Merredin	35455.80	20055.52	56.56	11.08
	Local Government Authority (Shire of Yilgarn)	45797.43	41452.12	90.51	27.40
Veg Association 1068	Statewide	268900.45	142088.42	52.84	6.23
	IBRA Bioregion (Avon Wheatbelt)	74875.46	37249.16	49.75	3.48
	IBRA Sub-region (AVW01) Merredin	74875.46	37249.16	49.75	3.48
	Local Government Authority (Shire of Yilgarn)	268900.45	142088.42	52.84	6.23
Veg Association 1148	Statewide	260383.60	258227.40	99.17	17.53
	IBRA Bioregion (Avon Wheatbelt)	16.95	16.95	100.00	0.00
	IBRA Sub-region (AVW01) Merredin	16.95	16.95	100.00	0.00
	Local Government Authority (Shire of Yilgarn)	79301.07	77149.48	97.29	25.58
Veg Association 1271	Statewide	86683.77	86555.32	99.85	0.29
	IBRA Bioregion (Avon Wheatbelt)	836.38	834.09	99.73	0.00
	IBRA Sub-region (AVW01) Merredin	836.38	834.09	99.73	0.00
	Local Government Authority (Shire of Yilgarn)	888.52	843.19	94.90	0.00
Veg Association 1413	Statewide	1679916.32	1286855.48	76.60	13.22
	IBRA Bioregion (Avon Wheatbelt)	546675.55	174102.84	31.85	2.33
	IBRA Sub-region (AVW01) Merredin	546675.55	174102.84	31.85	2.33
	Local Government Authority (Shire of Yilgarn)	538791.10	395458.48	73.40	19.26

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30 per cent or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia, 2001). With regard to the vegetation association mapped within the proposal area, vegetation association 8 retains over 30% of the pre-European extent in the state and in the Shire of Yilgarn, but less than 30% in the Avon Wheatbelt bioregion and Merredin sub region.

While the eastern Wheatbelt has been extensively cleared, aerial imagery shows the clearing area is located within small slithers adjacent existing transport corridors, situated across approximately 113km. Given the extent of nearby vegetation and noting the clearing will remove only small areas of vegetation, the vegetation is not considered significant remnant vegetation with the environmental impacts diffuse.

Within the estimated 85,600 ha contiguous uncleared native vegetation of the eastern Merredin IBRA sub-region, the proposal looks to directly clear an additional 30 ha, representing 0.03% of this overall.

Based on the above, the proposed clearing may be at variance to this principle, though to a relatively minor extent.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not at variance to this Principle

According to the desktop assessment, no watercourses or wetlands occur in the proposal area. The vegetation proposed to be cleared does not comprise riparian vegetation (Western Botanical, 2024a).

Based on the above, the proposed clearing is not at variance to this principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance to this Principle

According to DPIRD risk mapping, the proposal area has a low or very low risk of land degradation from water erosion, waterlogging and salinity but over 70% of the soil unit has a high to extreme wind erosion risk. Given that the areas are separated into small individual portions and in thin linear portions alongside an existing road over 113km in length, the proposed clearing is not likely to cause appreciable land degradation.

Based on the above, the proposed clearing is not at variance to this principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance to this Principle

The proposal area is predominantly located within the road reserve. The road reserve continues through Jilbadji Nature Reserve with 0.51 ha of clearing scheduled within the nature reserve. The proposed clearing in the nature reserve is adjacent the current road at a corner along the Marvel Loch-Forrestania Rd which currently has a sharp unsafe corner the proposed clearing is necessary to increase the curvature of the corner for safety purposes.

The Jilbadji Nature Reserve is 207,218 ha in total, the proposed clearing would constitute 0.0002% of the overall nature reserve. Taking into consideration that the proposed clearing is fringing already cleared areas on a frequently utilised road with no critical fauna habitat being disturbed, it's unlikely the values of the park will be impacted.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle

According to the desktop assessment, no watercourses or wetlands are mapped in the proposal area. As discussed in principle (g), the proposal area has a low risk of land degradation from water erosion and salinity.

Noting the extent of nearby vegetation, minor nature and adjacent already cleared area, the proposed clearing is unlikely to cause deterioration of surface or groundwater quality.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

The proposal area has a low to extremely low flood risk. The small area of clearing (4.9 ha) spread over 140 small areas adjacent existing clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

4 Matters of National Environmental Significance

In accordance with the Matters of National Environmental Significance (MNES) Significant Impact Guidelines (DCCEEW 2013) the significance of the proposed clearing of 0.40 ha of the Eucalypt Woodlands of the WA Wheatbelt Threatened Ecological Community (TEC) is to be determined following assessment against the significance criteria related to both direct and indirect impacts in both local and regional context. If the impacts are deemed significant the proposal would warrant a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). (SLR, 2023)

4.1.1 Eucalypt Woodlands of the WA Wheatbelt TEC

The Eucalypt Woodlands of the WA Wheatbelt were protected on December 2015 as a nationally threatened ecological community under Australia's national environment law. A scientific assessment concluded that it should be on the list of critically endangered ecological communities. The listing protects patches that are larger and remain in reasonably intact condition (DEE, 2016).

4.1.2 Decision on Referral to the Commonwealth

In accordance with the Matters of National Environmental Significance Impact Guidelines (DCCEEW, 2013) the significance of the proposed of the Eucalypt Woodlands of the WA Wheatbelt TEC was determined following assessment against the significance criteria related to both direct and indirect impacts in both local and regional context. SLR Consulting Australia Pty Ltd (SLR) was engaged an independent party to undertake a significance assessment (Appendix A) related to the impacts of the TEC (noting that a higher area of clearing was under consideration at that time).

According to the impact guidelines an action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- reduce the extent of an ecological community;
- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines;
- adversely affect habitat critical to the survival of an ecological community;
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns;

- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting ;
- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
 - assisting invasive species, that are harmful to the listed ecological community, to become established, or
 - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community; and
- interfere with the recovery of an ecological community.

Based on the assessment against each of the specified criteria (Appendix A), the proposed clearing of 0.40 ha of the Eucalypt Woodlands of the WA Wheatbelt TEC, which is part of a larger local area is not considered to be significant.

The full impact assessment is attached within Appendix A.

5 Mitigation Methods

5.1 Alternatives to clearing

The alternatives to avoid or minimise the need for clearing of vegetation within this application is somewhat limited as it is associated with the upgrade, maintenance and safety of an existing public road. The alternative (which is not feasible) would be to construct another road elsewhere which would require significantly more disturbance and more borrow pits to source additional road base volumes, further increasing clearing requirements.

However, as part of mitigation options associated with the area of clearing associated with the total road upgrade an intensive review of borrow pits and road design reduced the road design footprint from 56.27 ha to 22.62 ha. This included sourcing alternate borrow pit locations. The design of the road in terms of width and alignment reflects new standards and safety requirements to meet the future increase in large truck and other vehicle movements on this road. To meet the standards required by the Shire, Main Roads and Austroads. There were geometric considerations which included road width and the gradient of steep hills. Specific actions to reduce the need for clearing associated with these considerations included the redesign of drains to make them shallower thereby reducing footprint, steepened batters to reduce clearing and wherever possible have maintained the road within the cleared corridor; all minimum standards that will avoid further intrusion onto the landscape. Where possible trees will be left if they are in the drain area not impacting the safety aspects of the road.

Careful consideration to road alignment and sensitivity to adjacent vegetation and priority species has also been given to mitigate impacts. Intensive traffic management will be implemented to safely divert all traffic around the construction activities but within the road footprint removing the need for a separate diversion road adjacent to the road upgrade activities. This aspect alone significantly mitigates impacts to environmental values.

5.2 Vehicle Hygiene

Other mitigation methods included Weed and Disease measures to be undertaken at pre-construction and during construction include:

- All vehicles used for construction will be inspected offsite and certified as being weed and seed free.

- All borrow pit material will be sourced locally with no road base material imported from outside the region.
- No specific hygiene measures can be implemented post construction as it is a public road

5.3 Dust management

The mitigation of overall dust levels currently generated from the traffic on the road is substantial and will permanently be reduced when the road is sealed as part of the road upgrade project.

Potential dust generated throughout the road construction will be reduced by the use of a water cart to assist in the compaction and construction of the road base.

Management of speed limits of vehicles within the construction area will be also introduced to minimise dust.

Regular ongoing maintenance of the road to help minimise dust however the proposed works inclusive of sealing the road will alleviate this issue long term.

5.4 Ground Disturbance Permitting

As part of the overall environmental management system a 'Ground Disturbance Permit' system will be implemented which recognises specific site environmental values and manages all activities within the road construction area.

The area identified to be cleared ie the works area will be clearly demarcated to prevent intrusion and unauthorised clearing of priority species or vegetation outside of the permitted area negating any need to identify and flag individual species.

5.5 Hydrology

The road designs have been developed to ensure there is no change to existing hydrology and drainage patterns to those that currently exist and that surface flow is maintained.

6 Offsets

The assessment of the impacts of this project against the 10 Clearing Principals of the EP Act in Section 3, has not identified potentially significant residual impacts to the Eucalypt Woodlands of the Western Australian Wheatbelt (WA Wheatbelt Woodlands) PEC/TEC.

One of the challenges in conserving the woodland communities as identified by the Wheatbelt NRM is that the actual extent of the woodlands is not accurately known. The current Commonwealth mapping of this ecological community¹ map represents likely occurrence of the ecological community. However, it is noted that at this resolution and scale many of data points blend together to give an artificial impression of larger intact areas than actually remain. In addition, when the quality of the vegetation is taken into account, the areas of protected ecological community will be fewer and even smaller.

¹ <https://www.environment.gov.au/biodiversity/threatened/communities/maps/pubs/128-map.pdf>

6.1 Residual Significant Impact Model

The road upgrade works have been designed to minimise vegetation clearing required and therefore minimising the direct and indirect loss this PEC to the maximum extent possible. An assessment of significant residual impact using the EPA's Residual Impact Significance Model² with consideration of the assessment of the clearing against the 10 Clearing Principles of the EP Act (Section 3) is provided in Table 6-1.

Noting that this PEC is synonymous with the EPBC Act listed TEC of the same name, an assessment of the potential significance of impacts to MNES against the Commonwealth Significant Impact Guidelines (DOE 2013), has determined that the loss of 0.40 ha of this TEC along approximately 113k m of road, is not significant in this context. In particular, this represents <0.000006% of the currently mapped remaining extent of the Wheatbelt Woodland TEC (634,000 ha), Figure 6-1. At this time, the Department of Climate Change, Energy, the Environment and Water (DCCEEW) consider a Recovery Plan is not required as there are existing strategies, plans and other initiative are already available or under way. National listing is intended to help to increase awareness that this landscape is heavily damaged and retaining native vegetation is important both for conservation and productivity.³

As shown in Table 6-1, the cumulative loss of up to 0.40 ha of WA Wheatbelt Woodlands PEC for road widening along the length of the Parker Range Road – Marvel Loch-Forrestania Road may be a significant residual impact at a State level in the context of the loss of an ecological community of high biological diversity where there is limited extent of this ecological community remaining protected in some degree of formal conservation tenure.

Pre-referral discussions with DWER undertaken with Covalent in 2023 have indicated that, as per this assessment, offsets for the loss of up to any area of the Eucalypt Woodlands of the Western Australian Wheatbelt PEC needs to be considered.

² This table is based on the Residual Impact Significance Model page 11 of the WA Environmental Offsets Guidelines (Government of WA, 2014)

³ <https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=128> [SPRAT Database; last accessed 26/02/2024]

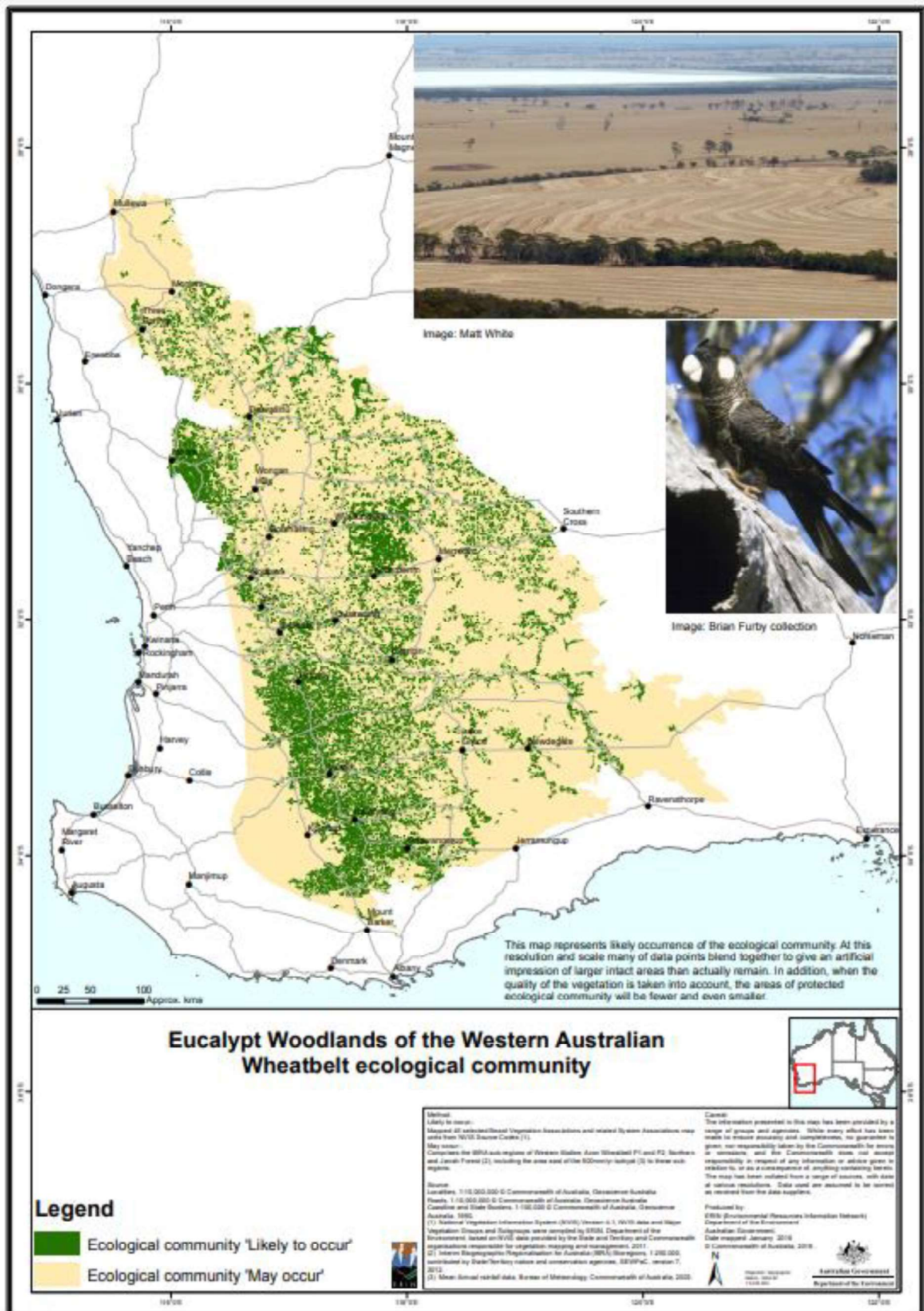


Figure 6-1: Current mapped extent of the Eucalyptus Woodlands of the Western Australian Wheatbelt ecological community

Table 6-1 Preliminary Offset Triggers – Residual Impact Significance Model

Part IV Environmental Factors	Vegetation and Flora								All factors
	Terrestrial Fauna								
	Rare flora	Threatened ecological communities	Remnant vegetation	Wetlands & waterways	Conservation areas	High biological diversity	Habitat for fauna	Other	
	(c)	(d)	(e)	(f)	(h)	(a)	(b)	(g);(i);(j)	
Clearing of up to 0.40 ha of Eucalypt Woodlands of the Western Australian Wheatbelt PEC (BC Act) / TEC (EPBC Act) within 4.79 ha of roadside native vegetation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Refer to Section 3 discussion on clearing principles									
Residual impact that is environmentally unacceptable or cannot be offset	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Significant residual impacts that will require an offset – All significant residual impacts to species and ecosystems protected by statute or where the cumulative impact is already at a critical level	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Significant residual impacts that may require an offset – Any significant residual impact to potentially threatened species and ecosystems, areas of high environmental value or where the cumulative impact may reach critical levels if not managed	N/A	While individual areas of clearing of PEC along existing roadside disturbance are not likely to be individually significant, the overall cumulative loss of 0.40 ha of PEC may be significant.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Residual impacts that are not significant	No rare flora located within development envelope		Clearing of a total of 4.79 ha of native vegetation along approx. 113km of roadside	No direct or indirect impact	No direct or indirect impact	The road reserve continues through Jilbadji Nature Reserve with 0.51 ha of	The vegetation proposed to be cleared is not considered to represent significant habitat	The clearing of roadside vegetation is not likely to cause appreciable land degradation; deterioration of	

Clearing Application - Shire of Yilgarn

			<p>vegetation along an existing road corridor is not considered significant in context of mapped extent of remnant vegetation</p>			<p>clearing scheduled within the nature reserve. The proposed clearing constitutes 0.0002% of the overall nature reserve.</p>	<p>necessary for the maintenance of threatened fauna species. The fauna habitat types recorded within the application area are not exclusive to the application area and are well represented at a local and regional scale</p>	<p>surface or groundwater; or cause/exacerbate incidence or intensity of flooding.</p>
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6.2 Offset Strategy

Previous discussions with DWER confirmed the potential requirement for offsets to counterbalance the clearing of TEC. In consideration of counterbalancing the potentially significant residual impact of direct loss of 0.40 ha of WA Wheatbelt Woodlands PEC, a parcel of land has been identified which contains Pristine or Very Good condition PEC with mid- and understorey intact, for acquisition and transfer to conservation estate either through transfer of land ownership to DBCA or implementation of a Conservation Covenant (in perpetuity) as an offset for the residual impact. The contribution of equivalent quality PEC (to the impact site) currently in private ownership to the conservation estate is considered to be a landscape scale with benefits that will further both local and regional protection of this ecological community.

It is intended that if the proposed offset land under consideration for this road project is acceptable, then it will be purchased, and the title and ongoing management and associated costs undertaken in accordance with the final MOU.

In the event that the purchase does not proceed, alternative offset arrangements, such as rehabilitation, will be provided in consultation and agreement with DWER.

6.2.1 Proposed Offset Property – Warralakin

The areas of the WA Wheatbelt Woodlands PEC along the road realignment have been surveyed for flora and vegetation (Western Botanical, 2024a) and fauna (Ecoscape, 2022) values to inform this clearing permit assessment. As described in Section 3, with respect to Clearing Principle (d), the road widening area occurs through a number of patches of this ecological community, for which the vegetation quality varies from Very Good to Excellent (Western Botanical, 2024).

A site located within a portion of Warralakin [REDACTED] has been identified as containing at least 11.8 ha vegetation community of comparable quality. The offset property has been inspected and assessed by Western Botanical (2024b) for suitability for an offset to the impact of 0.40 ha of this PEC. This property lies approximately 70 km north of Merredin, west of and contiguous with Chiddarcooping Nature Reserve (R 19210). The Western Botanical (2024b) assessment is provided in Appendix C. It should be noted that the estimate is much lower than the 78.12 ha for Woodland cover derived from the Ecoscape (2022) fauna assessment, which had included non-TEC Mallee Shrublands (Western Botanical, 2024).

The property is currently in private ownership with the condition of almost all vegetation units assessed across the Western Botanical (2024b) Study area during the February survey was Pristine or Excellent. Minor sections of the vegetation within which the PEC was identified was assessed as 'Very Good' due to the impact of stock grazing.

Overall, the patch of the PEC identified is described as in Pristine to Very Good condition, with low levels of disturbance from anthropogenic impacts such as stock grazing, weeds, vehicle tracks and rubbish. with some observed impact by stock grazing. The conservation via offset and ongoing management provides an opportunity to protect an intact patch of PEC occurring within the intensively managed agricultural zone within the IBRA Avon Wheatbelt biogeographic region. Implementation of appropriate management measures will improve its quality and protect it from future loss through appropriate management measures, such as maintenance of fencing; dieback, weed and feral pest management.

This is consistent with the Commonwealth information guide for the WA Wheatbelt Woodlands ecological community, in which it notes patches of remnants originally intentionally set aside by farmers because they occur along watercourses, hills and rocky areas, or serve as shelter for stock, windbreaks for croplands and pastures, and to prevent erosion; are important for conservation by maintaining biodiversity and wildlife corridors (CoA, 2016).

6.2.2 Alignment of Offset Strategy with Policy and Guidelines

The consideration of the six offsets principles defined in the WA Environmental Offset Policy and WA Environmental Offset Guidelines (Government of Western Australia 2011, 2014) in the selection of this property is detailed in Table 6-2.

Table 6-2: Alignment of Offset Strategy to EPA Offset Principles

Offset Principle	Flora Offset Strategy
<i>1. Environmental offsets will only be considered after avoidance and mitigation options have been pursued.</i>	<p>Flora surveys of the impact areas along the roadside have been used in the design of proposed facilities to ensure that direct impacts on the WA Wheatbelt Woodlands PEC have been avoided to the maximum extent practical.</p> <p>The Project has been designed to minimise clearing of WA Wheatbelt Woodlands to the maximum extent practicable by utilising existing disturbed areas of road reserve where possible through mapped areas of PEC. The Project would result in clearing of a relatively small area of 0.40 ha within the mapped extent of the PEC of 634,000 ha.</p>
<i>2. Environmental offsets are not appropriate for all projects.</i>	<p>Offsets are considered appropriate for this Project based on consideration of the WA Offsets Framework⁴, and calculations determined using the WA Offsets Calculator</p>
<i>3. Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted.</i>	<p>The proposed offset site is cost effective in relation to the works being undertaken (confidential information available upon request); relevant and proportionate to the significance of the WA Wheatbelt Woodlands PEC being impacted, as determined using the DWER environmental offsets calculator, provided at Appendix D. The rationale for the inputs to the calculator are also provided in this Appendix.</p> <p>The calculator indicates that for an impact of direct loss of 0.40 ha of this ecological community, with no credible rehabilitation credit available at this time, an offset of 0.79 ha of this PEC (as per rationale) would be required.</p>
<i>4. Environmental offsets will be based on sound environmental information and knowledge.</i>	<p>Offsets have been based on ecological surveys, which have been conducted by industry professionals with significant experience.</p> <p>Direct offsets for land acquisition and ongoing conservation management for land containing WA Wheatbelt Woodlands PEC is considered to be the most viable option to counterbalance the potentially significant residual impact of clearing of up to 0.40 ha of this PEC.</p>
<i>5. Environmental offsets will be applied within a framework of adaptive management.</i>	<p>Management actions for offsets will be undertaken in accordance with a MOU with DBCA (Appendix E). These actions can be adapted as required over time to ensure continued conservation values of the offset property.</p> <p>In the event the offset property purchase is not successful, an alternative offset (such as rehabilitation) will be developed in consultation and agreement with DBCA and DWER.</p>
<i>6. Environmental offsets will be focussed on longer term strategic outcomes.</i>	<p>Offsets have been designed to enhance protection of existing areas of the WA Wheatbelt Woodlands PEC through addition to conservation estate and through improved management practices for an area currently subject to known threats such as grazing stock and dieback (via unmanaged access).</p>

⁴ [Environmental offsets | Western Australian Government \(www.wa.gov.au\)](http://www.wa.gov.au)

Priority conservation actions are guided by the EPBC Act Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt (DoE, 2015). The conservation objective providing the goal and rationale for the priority actions identified in this Advice is:

"To mitigate the risk of extinction of the Eucalypt Woodlands of the WA Wheatbelt ecological community, and maintain its biodiversity and function, through the protections provided under the *Environment Protection and Biodiversity Conservation Act 1999* and through the implementation of priority conservation actions"

The priority actions supporting this objective are framed on the understanding that the wheatbelt is now a heavily cleared and modified landscape where the extensive loss of native perennial woody vegetation has led to serious problems, including rising salinity, erosion and disrupted water tables (DoE, 2015).

The alignment of the proposed offset strategy with the aims of the priority actions of the Approved Conservation Advice is outlined in Table 6-3.

Table 6-3: Offset Strategy alignment with Approved Conservation Advice for Eucalypt Woodlands of the Western Australian Wheatbelt

Recovery Priority and Threat Abatement Actions	Offset Strategy																														
Avoid or Restrict:																															
<ul style="list-style-type: none"> - <i>Further clearance and fragmentation of the ecological community</i> 	<p>The clearing of PEC vegetation occurs in patches within road verges, abutting existing roadside disturbance, to small areas of vegetation as shown in Table 6-4. Noting that to be defined as PEC/TEC along roadsides, the patches need to be at least 5ha.</p> <p>Table 6-4 Clearing within TEC Patches (ha)</p> <table border="1" data-bbox="783 1249 1246 1792"> <thead> <tr> <th>Veg Code</th> <th>Condition</th> <th>Clearing Area (ha)</th> </tr> </thead> <tbody> <tr> <td>E07</td> <td>Excellent</td> <td>0.102</td> </tr> <tr> <td>E07</td> <td>Pristine</td> <td>0.143</td> </tr> <tr> <td>E16</td> <td>Pristine</td> <td>1.305</td> </tr> <tr> <td>E16</td> <td>Very Good</td> <td>0.719</td> </tr> <tr> <td>E18</td> <td>Pristine</td> <td>0.544</td> </tr> <tr> <td>E18</td> <td>Very Good</td> <td>0.363</td> </tr> <tr> <td>E36</td> <td>Pristine</td> <td>0.014</td> </tr> <tr> <td>E37</td> <td>Pristine</td> <td>0.002</td> </tr> <tr> <td>E38</td> <td>Pristine</td> <td>0.108</td> </tr> </tbody> </table>	Veg Code	Condition	Clearing Area (ha)	E07	Excellent	0.102	E07	Pristine	0.143	E16	Pristine	1.305	E16	Very Good	0.719	E18	Pristine	0.544	E18	Very Good	0.363	E36	Pristine	0.014	E37	Pristine	0.002	E38	Pristine	0.108
Veg Code	Condition	Clearing Area (ha)																													
E07	Excellent	0.102																													
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E18	Pristine	0.544																													
E18	Very Good	0.363																													
E36	Pristine	0.014																													
E37	Pristine	0.002																													
E38	Pristine	0.108																													

Recovery Priority and Threat Abatement Actions	Offset Strategy		
	E39	Pristine	0.764
	E39	Very Good	0.446
	E40	Pristine	0.115
	E47	Pristine	0.065
<ul style="list-style-type: none"> - <i>Introducing grazing to intact and high quality sites of the ecological community, at least those that occur west of the agricultural clearing line. Consider opportunities to reduce existing grazing pressure, e.g. through fencing</i> 	<p>Existing stock exclusion fencing will be retained and areas subject to grazing will be fenced to prevent further grazing pressure within the property.</p>		
<ul style="list-style-type: none"> - <i>Extensive disturbances to native vegetation, hydrology or soil structures in and around the ecological community, especially in landscapes prone to erosion, salinity and waterlogging. For instance, control run-off and avoid significant hydrological changes and eutrophication by minimising impacts from developments and activities in and around the ecological community</i> 	<p>The current road is unsealed for most of its length and is subject to erosion and damage following minor rainfall events.</p> <p>The proposed road upgrade will provide a sealed surface with drainage controls to minimise erosion runoff while maintain surface flow to the surrounding vegetation. The sealing of the road will significantly reduce dust levels settling on plants along the entire length of the road alignment.</p>		
<ul style="list-style-type: none"> - <i>Removal of large trees that have hollows, regardless of whether trees are living or dead</i> 	<p>It is intended to retain large trees wherever possible along the road alignment subject to road safety requirements.</p>		
<p>Offset aims should be to:</p>			
<ul style="list-style-type: none"> - <i>increase the area, condition and ecological function of the woodlands, e.g. by improving connectivity, diversity and other habitat values</i> 	<p>The proposed offset site is abutting Chiddarcooping Nature Reserve (R 19210), and will increase the protected area of woodlands, maintaining and improving connectivity within areas of remnant vegetation.</p>		
<ul style="list-style-type: none"> - <i>match sites as far as this is possible, for instance the same or similar type of woodland community/sub-community as per Harvey and Keighery (2012) or similar Beard vegetation association</i> 	<p>The proposed offset site provides approximately 11.8+ ha of Pristine or Very Good condition vegetation type E2, described as:</p> <p><i>Eucalyptus capillosa</i> trees to 15m, PFC 15%, over <i>Santalum acuminatum</i>, <i>Exocarpos aphyllus</i>, <i>Eremophila drummondii</i> 2m, <i>Acacia erinacea</i> 1.2m, <i>Gastrolobium parviflorum</i> 1.2m, PFC 10% on pale grey coarse sandy clay over weathered granite, downslope of lateritic hills</p>		
<ul style="list-style-type: none"> - <i>extend protection to otherwise unprotected sites. This may include sites that presently fall outside the condition criteria but can reasonably be restored to a better, more intact condition</i> 	<p>The current offset site is privately owned and not otherwise protected for future conservation. The site meets condition criteria, and there is room for improved quality through conservation management actions.</p>		
<ul style="list-style-type: none"> - <i>manage and protect offset areas in perpetuity in areas dedicated for conservation purposes.</i> 	<p>The intent is to place the property into conservation estate either through DBCA managed lands or via conservation covenant, in perpetuity.</p>		
<p>Support the following, where possible:</p>			
<ul style="list-style-type: none"> - <i>Revegetate degraded patches of eucalypt woodland with appropriate native tree, shrub and ground layer</i> 	<p>Revegetation is not currently a planned action within the proposed offset site due to the Pristine to Very Good condition.</p>		

Recovery Priority and Threat Abatement Actions	Offset Strategy
<p><i>species. Regularly monitor the plantings to determine the success of revegetation and adapt management techniques, as necessary</i></p>	
<p>- <i>Quick response to prevent new weed, disease or feral animal incursions identified in the wheatbelt, especially if they are likely to seriously impact upon woodlands. Use appropriate hygiene and management protocols to prevent or contain any invasive species or diseases and aim to eradicate them.</i></p>	<p>The proposed offset management actions will include hygiene (weed and dieback) management (such as restricted access; clean-on-entry for vehicles; weed control as required) and feral pest control as advised by DBCA.</p>
<p>- <i>Communication with agencies/groups, conservation groups and other organises</i></p>	<p>Covalent is currently negotiating an MOU with DBCA to regarding acceptable ongoing offset management actions to support the conservation of native vegetation and in particular this ecological community. It is understood that DBCA's advice and recommended actions are aligned with local conservation groups (such as Wheatbelt NRM) and are practical for implementation by Covalent.</p>
<p>- <i>additional actions include fire management</i></p>	<p>Covalent will work with DBCA and other land managers in the vicinity of the proposed offset site, as part of the MOU with DBCA on suitable fire management for this site (which has not been burned in recent history, with some areas likely to be up to 20 years ago (Western Botanical, 2024b).</p>

6.2.3 Ongoing Management

Ongoing management of the offset site will be undertaken in accordance with the MOU and will include as a minimum:

- Inspection and maintenance of fencing to ensure exclusion of unauthorised vehicles, stock and feral animals;
- Weed inspection and weed control programmes as required; and
- Maintenance of fire breaks to minimise risk of fire.

6.2.4 Financial Provisions

All financial requirements associated with this Offset Strategy, will be responsibility of the Shire of Yilgarn to ensure that sufficient provision is made to appropriately fund the implementation (including personnel and equipment), monitoring, management and reporting required by this Offset Strategy.

6.2.5 Reporting

The reporting of offset management actions will be undertaken in accordance with the MOU with reporting of actions undertaken at least annually to DWER, and in accordance with reporting conditions of any NVCP issued for this work.

6.2.6 Timeline and Responsibilities

Negotiations have commenced to secure this property for offset values for the impacts associated with clearing of WA Wheatbelt Woodlands PEC for this project. It is anticipated that this process will be completed over the next 12 to 18 months and it is estimated that the timeline for completion of transfer of this property to conservation estate (either DBCA managed lands or to conservation covenant) will be in the order of 1 to 2 years from purchase.

7 References

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APPENDICES



Appendix A: MNES Significance Assessment

Appendix B: Ecological Surveys – Impact Site

Western Botanical Flora Surveys

Ecoscape Fauna Surveys

Appendix C: Ecological Survey – Offset Site

Western Botanical – Flora surveys

Ecoscape – Fauna Surveys



Appendix D: Offset Calculations and Rationale

Covalent Lithium Offset Strategy – Scoring Tables [Using DWER 2022 Quality Scores]⁵

Impact Site	Justification – Condition, Site Context, Habitat Attributes			Offset Site			Justification – Condition, Site Context, Habitat Attributes
	Current	Future Without (20yrs)	Future With (20 yrs)	Current	Future Without (20yrs)	Future With (20 yrs)	
<p>Current</p> <p>8-9</p> <p>Context</p> <p>Moderate</p> <p>7</p> <p>Habitat</p> <p>Moderate (roadside) to High</p> <p>7-8</p>	<p>Botanical province – South-West /South-Western Interzone IBRA biogeographic region – Avon Wheatbelt and Coolgardie Intensively managed agriculture zone</p> <p>Vegetation condition</p> <p>Vegetation condition (Western Botanical 2024a) of the PEC was mapped as Excellent to Pristine Condition (EPA 2016). The 4.69 ha of PEC vegetation to be impacted along the road verge occurs within 16 patches of 9 vegetation types, where quality (EPA 2016) is predominantly in excellent condition with 2 small areas of excellent condition and 4 patches of very good condition.</p> <p>The vegetation condition of the road alignment was noted to typical of the region, with few weeds and only minor apparent impacts from road construction and management. Understorey is intact, no secondary salinity impacts and good soil condition.</p> <p>Eucalypt woodland species occurring within the alignment of the roadside include: <i>Eucalyptus capillosa</i>, <i>E. longicornis</i>, <i>E. myriadena</i>, <i>E. salomonopholia</i>, <i>E. salubris</i> (incorporating the newly recognised <i>E. aff. salubris</i> glaucous branchlet form (WB40196)).</p> <p>Site context</p> <p>The PEC vegetation occurs as narrow roadside remnants along an existing road, within a region that has been extensively cleared for agriculture.</p> <p>Habitat attributes</p> <p>This PEC is known to provide habitat for 9 Priority Flora. No Threatened Flora have been recorded in the vegetation associations which match the description of the PEC.</p> <p>The condition of the within the Eucalypt woodland fauna habitat (Ecoscape 2024a) had varying levels of disturbance, with fire age >10 years. The salmon gum woodland occurring within the impact area, is significant for the tall hollow-bearing trees and large fallen logs that provide shelter and nesting opportunities for a wide range of fauna species. It potentially supports conservation significant fauna including the Chuditch (<i>Dasyurus geoffroi</i>), Inland Western Rosella (<i>Platycercus icterotis xanthogenys</i>), and Central Long-eared Bat (<i>Myotis major tor</i>). Where the woodland is interspersed with Mallee, Allocasuarina and Acacia species, it may also support Malleefowl (<i>Leipoa ocellata</i>).</p> <p>In areas where the understorey is dense, the woodland provides habitat for small birds, and reptile assemblage will vary with substrate and litter cover</p>	<p>Quality</p> <p>9</p> <p>Context</p> <p>High</p> <p>9</p> <p>Habitat</p> <p>High</p> <p>9</p>	<p>Quality</p> <p>8</p> <p>Context</p> <p>High</p> <p>8</p> <p>Habitat</p> <p>Moderate</p> <p>8</p> <p>Threats without ongoing management into the future:</p> <p>Stock and/or feral pests incursion (lack of maintained fences); weeds, dieback (unauthorised vehicle access); fire</p>	<p>Quality</p> <p>9-10</p> <p>Context</p> <p>Moderate</p> <p>9-10</p> <p>Habitat</p> <p>High</p> <p>9-10</p> <p>Offset management to ensure protected intact nature and extent; and provide ongoing continuity with adjacent Nature Reserve;</p>	<p>Botanical province – South-West IBRA biogeographic region – Avon Wheatbelt Intensively managed agriculture zone</p> <p>Vegetation condition</p> <p>The proposed offset site located within a portion of Warralakin [redacted]. The site includes five eucalypt-dominated vegetation units (including four Mallee Shrublands and one tall eucalypt woodland) and five non-eucalypt-dominated units and one vegetation unit composed of mixed shrubs to 2.5m present on breakaways of weathered granite. The tall eucalypt woodland unit which is considered to be the Wheatbelt Woodlands PEC was described as tall woodland dominated by <i>Eucalyptus capillosa</i> with a maximum height of 15m and Percentage Foliage Cover 15% over an intact understorey (Western Botanical 2024b) The potential PEC area is at least 11.8 ha</p> <p>The condition of almost all vegetation units assessed across the Study area during the February survey was Pristine or Excellent; minor sections of E1 and E2 outside the fenced area of [redacted] were assessed as Very Good due to the impact of stock grazing.</p> <p>Fire age is estimated at >20 years for the majority of the site.</p> <p>Site context</p> <p>The property is currently in private ownership. The proposed offset is not intersected by roads and is contiguous with Chiddacoooping Nature Reserve (R 19210).</p> <p>The site has low levels of disturbance from anthropogenic impacts such as stock grazing, weeds, vehicle tracks and rubbish, with some observed impact by stock grazing.</p> <p>Habitat attributes</p> <p>Similar to the impact site, the woodland fauna habitat within the offset site provides potential habitat to support Chuditch and Malleefowl; as well as the intact understorey providing for small bird and reptile habitat.</p>	<p>9</p> <p>8</p> <p>9</p> <p>Final score</p>	
8	Final score	9	8	9	Final score		

⁵ DWER (2022) Draft Procedure for environmental offsets metric inputs. Department of Water and Environmental Regulation. March 2022

DWER (2022) Offsets Metric Inputs – Quality Scores

Quality Score	Condition		Site context Examples	Habitat attributes Examples
	Keighery vegetation condition scale (intensive land-use zone)	Trudgen vegetation condition scale (extensive land-use zone)		
10	Pristine; Pristine or nearly so, no obvious signs of disturbance; 0% weed cover.	Excellent: Pristine or nearly so, no obvious signs of damage caused by the activities since Europeans.	High site context means (any or all): The site is well connected to areas of native vegetation. Generally has a low edge to area ratio. Provides landscape-level connectivity.	High habitat attributes means (any or all): The site has low threat levels compared with other areas of habitat. The site provides foraging, nesting and/or dispersal habitat. Where breeding habitat is a limiting factor for the species: breeding. Habitat would usually have a very high quality score to recognise the importance of nesting habitat.
9	Excellent: Vegetation structure intact; disturbance affecting individual species; weeds are non-aggressive species; 1–5% weed cover. For example, damage caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.		Site is within the significant and/or highly impacted part of the species or ecological community's range. The site location or occurrence of an environmental value comprises a high proportion of the known area, number of individuals or distribution.	
8	Very good to Excellent	Very good to Excellent		
7	Very good: Vegetation structure altered; obvious signs of disturbance; 5–25% weed cover. For example, disturbance to vegetation structure caused by repeated fires; the presence of some more aggressive weeds; dieback, logging, and grazing.	Very good: Some relatively slight signs of damage caused by the activities of Europeans. For example, some signs of damage to tree trunks caused by repeated fires and the presence of some relatively non-aggressive weeds such as <i>Ursinia</i> or <i>Birza</i> species, or occasional vehicle tracks.	Moderate site context means (any or all): The site provides some connection to areas of native vegetation. Adjoins or within proximity of an ecological linkage. Vegetation at the site may be fragmented, but forms part of a network/movement corridor. Provides landscape-level connectivity. Site is within the significant and/or highly impacted part of the species or ecological community's range.	Moderate habitat attributes (any or all): The site may have some threats evident but also displays some resilience. The site provides foraging and/or dispersal habitat.
6	Good to Very good	Good to Very good		
5	Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances; retains basic vegetation structure or ability to regenerate it; 25–50% weed cover. 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 grazing.	Good: More obvious signs of damage caused by the activities of Europeans, including some obvious impact on the vegetation structure such as caused by low levels of grazing or by selective logging. Weeds as above, possibly plus some more aggressive ones.		

Quality Score	Condition		Site context Examples	Habitat attributes Examples
	Keighery vegetation condition scale (intensive land-use zone)	Trudgen vegetation condition scale (extensive land-use zone)		
4	Good to degraded	Poor: Still retains basic vegetation structure or ability to regenerate to it after very obvious impacts of activities of Europeans such as grazing or partial clearing (chaining) or very frequent fires. Weeds as above, probably plus some more aggressive ones, such as <i>Ehrharta</i> species.	Low site context means (any or all): Site is not connected to areas of native vegetation. Site is not within an ecological corridor. Generally fragmented vegetation (high edge to area ratio). Site is within the species or ecological community's range.	Low habitat attributes means (any or all): High degree of threats are evident (e.g. weed invasion, feral animals where relevant to the environmental value).
3		Poor to Very poor		
2	Degraded: Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching good condition without intensive management; 50–75% weed cover. For example, disturbance to vegetation structure caused by very frequent fires; the presence of very aggressive weeds; partial clearing; dieback; and grazing.	Very poor: Severely impacted by grazing, fire, clearing, or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species, including aggressive species.		Little foraging and/or dispersal habitat available.
1	Degraded to Completely degraded	Very poor to Completely degraded		
0	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.	Completely degraded: Areas that are completely or almost completely without native species in the structure of their vegetation, i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.		

Appendix E: MOU Between Covalent Lithium and DBCA

TO BE PROVIDED
