

Clearing Assessment Report – CPS 818

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Pinjarra Williams Road widening

SLK 38.4 – 52.0

May 2021

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Amendments

| Report Compilation & Review | Name and Position | Document Date Revision | |
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1 SUMMARY

Main Roads Western Australia (Main Roads) is upgrading the Pinjarra Williams Road (M053) in several stages, over several years subject to funding. The current Project includes 13.6 km of road upgrades east of the Dwellingup town site (SLK 38.4 – 52.0), within the Shires of Murray and Boddington.

Project comprises:

- Seal widening (from 6-7 m to 10 m) to improve road safety,
- Provide 1.5 m sealed shoulders on both sides,
- Drainage improvement at required locations,
- Minor culvert stabilisation and improvement works at existing culvert locations,
- Install road safety barrier (RSB) where batters are steeper than 1:3 or are higher than 1.5 m,
- Overlay of the existing road pavement,
- Improve the roadside recovery zone in line with the Run-Off Roads and Recovery Program.

Key environmental aspects include the following:

- Native vegetation clearing of up to 5.29 ha comprising potential foraging habitat for black cockatoos, but including no trees with hollows suitable for black cockatoo nesting.
- Impacts to other fauna, including those of State or Commonwealth significance, will be nil to very low.
- The entire Project road reserve is adjacent to the Dwellingup State Forest, which consists mostly of native vegetation with some patches of plantation silviculture.
- From vegetation mapping, clearing will result in the loss of 0.019% of the total remnant vegetation present within the study area (5km radius).
- Vegetation to be cleared consists of Beard Vegetation Association West Darling 3 'Medium forest; jarrah-marri', which is well represented in the local and regional context.
- Four vegetation complexes are within the Project area: Dwellingup 1 (D1), Dwellingup 2 (D2), Yarragil 1 (Yg1) & Pindalup (Pn); which are all well represented in the current context.
- Vegetation condition generally ranged from Degraded to Very Good condition with a small area in Excellent condition.
- Populations of Priority 4 flora (*Senecio leucoglossus*) were identified in four locations within the Project area. No other significant flora have been recorded or are considered likely to occur within the Project footprint.
- No significant ecological communities (State or Commonwealth listed TEC or PEC) were identified within the Project footprint.
- The Project is not within an Environmentally Sensitive Area.
- The Project area has been classified as consisting of areas that are dieback Protectable and Unprotectable. A Dieback Management Plan (DMP) has been developed and endorsed by DBCA.
- The Project is at variance to principle (f) and not or not likely to be at variance with the other Clearing Principles.

2 PURPOSE

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the project, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

3 SCOPE

3.1 **Project Scope**

Project Name: Pinjarra Williams Road widening SLK 38.4 – 52.0

Project Purpose / Components: Road widening from 7 m to 10 m seal with associated culvert extensions to improve road user safety.

The proposed clearing undertaking using CPS 818 is: up to 5.29 ha

Clearing Area Calculation:

The current cleared recovery zone along the entire length of the Project is on average 4 m from road edge line. The area of clearing required to construct the Project has been estimated based on an average requirement of 2 m with occasional evident areas where no clearing is required and sections where clearing extends further for constructability of embankments or culvert extensions.

The proposed temporary clearing undertaking using CPS 818 is: none

Project Location(s): The project area is located on Pinjarra Williams Road SLK 38.4 – 52.0 in Dwellingup in the Shire of Boddington and bordering the Shire of Murray as shown in Figure 1.

- Western extent: Northing: 6373023 Easting: 423547
- Eastern extent: Northing: 6366779 Easting: 435771

3.2 Assessment Report Scope

The assessment (Study) area, see Figure 2, is confined to a local area of a 5km radius.



Figure 1. Project Location and Study Area



Figure 2. Assessment (Study) Area

3.3 Alternatives to clearing

Areas of native vegetation have been avoided where possible during the initial stages of development for the Proposal. Various alternatives to clearing, such as installing barriers, steepening batter slopes and kerbing, were considered and implemented where practical by Main Roads where those alternatives did not compromise the safety objectives of the project. As the existing road is bound by state forest on both sides, there were no feasible alternatives to some clearing to achieve a wider, safer road.

3.4 Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts

• The design and management measures implemented to avoid and minimise the clearing impacts by the project are provided in Table 1.

Table 1. Measures undertaken to Avoid, Minimise, Reduce and Manage the Project Clearing Impacts

| Design or Management Measure | Discussion and Justification |
|---|---|
| Steepen batter slopes | Where possible cut and fill batters will be made as steep as 2:1 so the table drain can be deleted with cut batters and kerbing constructed. |
| Installation of safety barriers | Safety barriers will be installed if a fill batter is steeper than 4:1. |
| Alignment to one side of existing road | The project is a road widening on both sides, which means that the existing road and centreline will remain. |
| Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas | The entire project is situated within Dwellingup State Forest vegetated areas. |
| Installation of kerbing | Kerbing will be installed and the table drain deleted if a cut batter is steeper than 4:1. |
| Simplification of design to reduce number of lanes and/or complexity of intersections | The widening scope of works cannot be further simplified whilst retaining the necessary safety benefits. |
| Preferential use of existing cleared areas for access tracks, construction storage and stockpiling | Site laydown areas and materials stockpiling will be in existing cleared areas; existing material pit will be used and vehicle access will be via existing tracks. |
| Drainage modification | Where space is inhibitive, especially at steep cut batters, kerbing will be installed, table drains deleted and underground pipe drainage provided where appropriate. |

3.5 Approved Policies and Planning Instruments

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 510 of the EP Act (see Section 1.3), Main Roads has also had regard to the below instruments.

Other Legislation of relevance for assessment of clearing and planning/other matters

- Biodiversity Conservation Act 2016 (WA) (BC Act)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Country Areas Water Supply Act 1947 (WA) (CAWS Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Planning and Development Act 2005 (WA) (P&D Act)
- Soil and Land Conservation Act 1945 (WA)
- Rights in Water and Irrigation Act 1914
- Aboriginal Heritage Act 1972 (WA)
- Town Planning and Development Act 1928

Other Relevant policies and guidance documents:

- A guide to the assessment of applications to clear native vegetation (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- Technical guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities
- Approved Recovery Plans for threatened species
- EPBC Act Referral guidelines for the three threatened black cockatoo species

4 SUMMARY OF SURVEYS

4.1 Flora and Vegetation Surveys

The most recent flora and vegetation survey was undertaken by Ecoedge in October 2020 for the current Project (SLK 38.4 – 52.0) and the findings of this survey are summarised in Section 4.1.1 below. A flora and vegetation survey was also undertaken over a larger section of Pinjarra Williams Road (SLK 24.4–65.5) in spring of 2012 (Ekologica B12#24842).

The results of a number of other flora surveys that have been commissioned by Main Roads for the same scope of works on adjacent sections of Pinjarra Williams Road have also been considered as indicating the greater local context.

4.1.1 Summary of 2020 Flora and Vegetation Survey (SLK 38.4 – 52.0)

Ecoedge recorded three vegetation units within the survey area. Over half of the survey area comprised of EmCcOF Jarrah (*Eucalyptus marginata*)/ Marri (*Corymbia calophylla*) Open Forest in mostly Very Good to Degraded condition. The small areas of EmAfOF Jarrah (*Eucalyptus marginata*) / She-oak (*Allocasuarina fraseriana*) Open Forest located at the eastern extent of the Project are mostly in Excellent condition. EpErOF Blackbutt (*Eucalyptus patens*) / River Gum (*Eucalyptus rudis*) Open Forest is in small pockets at four locations in valleys along the Project in Degraded to Very Good condition. No TECs or PECs were found.

| Veg Unit | Area (ha) | % |
|----------|-----------|-------|
| EmAfOF | 2.09 | 4.38 |
| EmCcOF | 26.97 | 56.39 |
| EpErOF | 1.34 | 2.81 |
| Road | 17.43 | 36.43 |
| TOTAL | 47.83 | 100 |

Vegetation condition was rated as below by area:

| Rating | Area (ha) | % |
|-----------|-----------|-------|
| Excellent | 1.27 | 2.64 |
| Very Good | 26.35 | 55.09 |
| Good | 2.40 | 5.03 |
| Degraded | 0.39 | 0.81 |
| Cleared | 17.43 | 36.43 |
| TOTAL | 47.83 | 100 |

The survey included targeted searches for significant flora. No threatened flora species were recorded. One P4 species (*Senecio leucoglossus*) was identified in four locations within the Survey area, totalling 60 individuals.

4.2 Dieback surveys

A Dieback survey was undertaken by Glevan Consulting over a larger section of Pinjarra Williams Road (SLK **0 – 67**) in 2011 and 2015.

- Assessment for the presence of *Phytophthora cinnamomi* Pinjarra Williams Rd (B11#17424).
- Reviewed Dieback survey Pinjarra Williams Road Widening and Realignment (B15#33791).

An additional interpretation was undertaken by DBCA staff in 2018 from SLK **40 to 67** (B19#8374). A specific update for this Project (SLK **38.4 – 52**) was undertaken by DBCA in 2021 (D21#245896) to assist the development of a Dieback Management Plan for the proposed works.

4.2.1 Summary of 2021 Dieback Survey

The Project area has been classified as consisting of sections that are dieback Infested, Uninfested, Uninterpretable, and Temporarily Uninterpretable. Disease movement during the 2021 recheck assessment was minimal, with approximately five metres of spread identified at 3 dieback boundaries. No new infestations were identified.

The most notable changes were:

- A small section classified as uninfested on the northern side and a section of uninterpretable on the southern side of Pinjarra Williams Road between SLK 39.8 and 40, approximately was also identified.
- Multiple category changes from uninfested to temporarily uninterpretable for sections on the southern side of Pinjarra Williams Road in the eastern extent due to recent prescribed burning operations.
- Multiple changes from uninfested to temporarily uninterpretable on both sides of Pinjarra Williams Road due to recent prescribed burning operations.

4.3 Fauna Surveys

2011 Harewood. G. Fauna Assessment: Pinjarra - Williams Road (SLK 14 – 67) Dwellingup (B11#19750)

2017 Harewood. G. Fauna Assessment: Pinjarra - Williams Road (SLK 14 – 67) Dwellingup (B17#12255)

2021 SWenvironmental (Shane Priddle): Black Cockatoo Tree Hollow Assessment – Pinjarra Williams Road SLK 38.4 – 52.0

4.3.1 Summary of 2011 Fauna Survey and 2017 Fauna Report Revision

Harewood (2011) undertook a Level 1 fauna survey and black cockatoo habitat assessment of the Pinjarra-Williams Road (between SLK 14.0 and 67.0) near Dwellingup in south west Western Australia. Harewood (2017) reviewed and updated the 2011 report to ensure the most recent information on fauna species distributions, conservation status and legislative requirements have been used when assessing likely impacts. This 2017 review did not result in any significant changes to conclusions drawn in the original assessment.

The quality of native remnant vegetation within the various sections of the study area varies but most areas within 10 metres either side of the existing road show significant degrees of historical disturbance from logging, frequent fire, clearing for plantations and previous road/track/powerline construction activities.

Habitat types within current project area SLK 38.4 – 52.0 included remnant native vegetation, mainly Jarrah - Marri forest on lateritic uplands, with Blackbutt and Flooded Gum on deeper valley soils.

Most of the remnant native vegetation present along the road corridor can be considered to represent potential black cockatoo foraging habitat as it contains a number of plant species documented as foraging habitat for one or more of the three black cockatoo species, all of which are known to frequent the area. Foraging evidence left by all three species of black cockatoo was observed during the reconnaissance survey.

No existing roosting trees (trees used at night by black cockatoos to rest) were identified during the survey period.

The habitat tree assessment identified a total of 117 trees with a DBH of >50 cm that contained hollows within the survey area, of which 52 were within the currently project area SLK 38.4 – 52.0.

With respect to native vertebrate fauna, 22 mammals (includes nine bat species), 126 bird, 44 reptile, 17 frog and three fish species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the study area at times. A total of 48 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within or in close proximity to the study area. This included the following four significant fauna species:

- Carnaby's black cockatoo (EN).
- Baudin's black cockatoo (EN).
- Forest red-tailed black cockatoo (VU).
- Western Brush Wallaby (P4).

Other significant fauna considered possible to occur in the project area based on habitat availability include:

- Chuditch (VU).
- South-western Brush-tailed Phascogale (S6).
- Barking Owl (P2).
- Marked Owl (P3).
- Darling Range Heath Ctenotus (P4).
- Southern Brown Bandicoot (P4).
- Western False Pipistrelle (P4).
- Water Rat (P4).
- Peregrine Falcon (S7).
- Great Egret (migratory).
- Cattle Egret (migratory).
- Rainbow bee-eater (migratory).

4.3.2 Summary of 2021 Black Cockatoo Tree Hollow Assessment

Subject to the findings of the Harewood 2011 and 2017 reports, a Black Cockatoo Tree Hollow Assessment was commissioned to examine any potential nesting sites for these species within the project area. Of the 52 trees identified in this section of Pinjarra Williams Road to be hollowbearing by the previous fauna survey, only ten of the hollows were considered large enough to potentially be used by black cockatoos. Five of these ten hollow bearing trees are located outside of this Project footprint and will not be impacted. None of the other trees contained hollows potentially suitable for breeding or with visible chews/wear likely to be attributed to cockatoo use.

5 VEGETATION DETAILS

5.1 Project Site Vegetation Description

The entire length of the Project is adjacent to the Dwellingup State Forest in the Jarrah Forest bioregion and Northern Jarrah Forest sub-region. Vegetation units within the project area were described by Ecoedge (2021) and are summarised in Section 4.1.1.

5.2 Vegetation Associations and Representation

The entire Project area is within Vegetation Association (VA) 3 in the Shires of Boddington and Murray (Figure 3). Tables 2 and 3 provide details of the Pre-European Vegetation Associations within the project area and the remaining extents of these associations.

 Table 2. Summary of Project Area's Mapped Pre-European Vegetation Associations

| Pre-European Vegetation Association(s) | Clearing Description | Vegetation Condition | Comments |
|---|--|--|---|
| Vegetation Association 3 described as a Medium forest: jarrah-marri (Government of Western Australia, 2017) | Clearing of up to 5.29 ha for 13.6 km of road widening | Degraded to Excellent (EPA 2016) | Vegetation description and condition determined from flora and vegetation survey (Ecologica 2021), Main Roads site visits and aerial imagery. |

Table 3. Pre-European Vegetation Representation

| Pre- European Vegetation Association | Scale | Pre– European (ha) | Current Extent (ha) | % Remaining | % Remaining in DBCA reserves |
|---|--|--------------------------|------------------------|----------------|------------------------------------|
| VA 3 | Statewide | 2,661,404.62 | 1,803,437.48 | 67.76 | 81.5 |
| | IBRA Bioregion: Jarrah Forest JAF | 2,390,591.54 | 1,604,101.56 | 67.10 | 81.0 |
| | IBRA Sub-region: Northern Jarrah Forest JAF01 | 908,099.69 | 723,445.91 | 79.67 | 84.03 |
| | Local Government Authority: <u>Shire of Boddington</u> | 158.045 | 116,236 | 73.55 | 71.95 |
| | Local Government Authority: <u>Shire of Murray</u> | 87,997 | 72,939 | 82.89 | 96.80 |

2019 Statewide Vegetation Statistics (current as of December 2018). - <u>Statewide Vegetation Statistics</u>

5.3 Vegetation Complexes and Representation

The following four vegetation complexes are within the Project area:

- Dwellingup 1 (D1): Open forest of *Eucalyptus marginata subsp. marginata-Corymbia calophylla* on lateritic uplands in mainly humid and subhumid zones.
- Dwellingup 2 (D2): Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on lateritic uplands in subhumid and semiarid zones.
- Yarragil 1 (Yg1): Open forest of *Eucalyptus marginata subsp. marginata-Corymbia calophylla* on slopes with mixtures of *Eucalyptus patens* and *Eucalyptus megacarpa* on the valley floors in humid and subhumid zones.
- Pindalup (Pn): Open forest of *Eucalyptus marginata subsp. thalassica-Corymbia calophylla* on slopes and open woodland of *Eucalyptus wandoo* with some *Eucalyptus patens* on the lower slopes in semiarid and arid zones.

| Heddle/Mattiske Veg Complex | Pre-European Extent (ha) | Current Extent (ha) | % Remaining | Current % within DBCA land |
|--------------------------------|-----------------------------|---------------------|-------------|----------------------------------|
| Dwellingup 1 (D1) | 208,490.90 | 181,038.81 | 86.83 | 82.29 |
| Dwellingup 2 (D2) | 86,128.33 | 71,055.96 | 82.50 | 68.47 |
| Yarragil 1 (Yg1) | 80,203 | 64,927 | 80.95 | 73.64 |
| Pindalup (Pn) | 167,151 | 128,358 | 76.79 | 60.14 |

Table 4. Vegetation Complexes (Heddle/Mattiske) within the Project Area

6 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the project's proposed clearing is likely to have a significant impact on the environment, the project was assessed against the ten Clearing Principles (Environmental Protection Act 1986, Schedule 5).

Each principle has been assessed in accordance with DWER's 'A Guide to the Assessment of Applications to Clear Native Vegetation' and other relevant CPS Decision Reports prepared by DWER.

The proposed clearing is at variance to principle (f) and not or not likely to be at variance with the other Clearing Principles.

(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

Vegetation within the project area is mostly Jarrah-Marri Open Forest, with some Jarrah-Sheoak Open Forest at the eastern extent and small pockets of *Eucalyptus patens – E. rudis* Open Forest in valleys and drainage lines (Ecoedge 2021). The vegetation was not representative of any Threatened or Priority Ecological Communities. Vegetation condition generally ranged from Degraded to Very Good condition with a small area in Excellent condition (Ecoedge 2021).

Targeted searches for significant flora by Ecoedge (2021) recorded no threatened flora and one Priority 4 species. Sixty individuals of Priority 4 *Senecio leucoglossus* were recorded across four locations within the Project area (Ecoedge 2021). From a search of species mapping on NatureMap, there are 53 recorded locations of *Senecio leucoglossus* in the south west of WA; in Jarrah Forest, Swan Coastal Plain and Warren bioregions. The individuals recorded in the project area are located centrally within the known distribution of the species (see map below) and potentially suitable habitat for the species is widely available particularly in the Jarrah Forest bioregion. It is currently not certain how many individuals of the species will be removed by clearing, as the species is an annual species. Considering potentially suitable habitat for the species extends for several thousand hectares on both sides of the highway, the clearing of up to 5.29 ha as a narrow strip along the highway is unlikely to have a significant impact on the species.

The South West Regional Ecological Linkages Technical Report (Molloy et al., 2009) shows that the site falls within areas identified as 1a: with an edge touching or <100 m from a linkage or 1b: with an edge touching or <100 m from a natural area selected in 1a. Remnant vegetation associated with the site is therefore considered to be part of a regional ecological linkage. The Project clearing is however narrow and linear in extent (generally less than two metres wide) and is adjacent to an existing cleared road formation. The fringing vegetation where the clearing is required passes entirely through the circa 171,000 ha Dwellingup State Forest of good and better condition and therefore the clearing is not expected to reduce connectivity of the local or regional area.

Based on available vegetation mapping (DAFWA 2013) and aerial photography it is estimated that over 90% (approximately 28,000 ha) of the land within the study area (5km radius from the Project) contains native vegetation. The clearing proposed (up to 5.29ha) accounts for only 0.019% of the total remnant vegetation present within the study area. The impacts of the proposed clearing on native vegetation extents within the context of the study area will be negligible.

As described in section 4.3.1 of this document, four significant fauna species including three Black Cockatoo species (threatened) and the Western Brush Wallaby (P4) have been recorded within the project area and a further 12 significant fauna species are possible to occur based on desktop assessment (Harewood 2011, 2017).

Habitat potentially suitable for the fauna listed above extends for thousands of hectares on both sides of the highway and therefore the area proposed to be cleared is not considered to hold higher fauna biodiversity than the surrounding areas. Habitat loss through clearing will be limited to a narrow band along the existing highway and this is not expected to result in significant impacts.

In considering that only minor impacts are proposed along an existing road (clearing), and that there are extensive areas of reserved vegetation in the local context, the proposal is not likely to have any notable impact on biodiversity values and is not likely to be at variance to this Principle.



NatureMap recorded locations of *Senecio leucoglossus* in DBCA regions

Methodology

DBCA shapefiles Department of Natural Resources and Environment (2002) Ecoedge (2017, 2021) Ekologica (2012) EPA (2016, 2020) Harewood (2011, 2017) Keighery (1994) Main Roads GIS Shapefiles Main Roads Site Inspections Molloy et al. (2009) Naturemap (2021) SLIP (2021)

(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 project requires clearing of up to 5.29 ha of native vegetation bordering Dwellingup State Forest. The main fauna habitat type available is Jarrah - Marri forest on lateritic uplands, with Blackbutt and Flooded Gum on deeper valley soils. The vegetation is largely in Very Good condition but past logging means the trees are relatively young and limited hollows are available. Other areas within the project footprint include areas cleared for the existing road and associated maintenance zone with limited fauna habitat value.

The fauna survey carried out by Harewood in 2011 was updated by desktop in 2017.As described in section 4.3.1 of this document, four significant fauna species including three Black Cockatoo species (threatened) and the Western Brush Wallaby (P4) have been recorded within or adjacent to the current project area and a further 12 significant fauna species are possible to occur based on desktop assessment.

Most of the remnant native vegetation along the road corridor represents potential black cockatoo foraging habitat. The dominant and most widespread foraging species are marri and jarrah, though in some areas other species are also utilised (e.g. *Banksia* spp). Foraging evidence for all three species of black cockatoo was observed during the fauna survey (Harewood 2011).

No existing roosting trees (trees used at night by black cockatoos to rest) were identified during the survey period (Harewood 2011).

Harewood (2011, 2017) identified 52 hollow bearing DBH trees along this section of Pinjarra Williams Road. Subsequent inspection of these trees (SWenvironmental 2021) concluded that none of them contain hollows considered suitable for Black Cockatoo nesting.

There are extensive areas of suitable habitat available within the adjacent Dwellingup State Forest for all of the fauna species potentially utilising the project area. Given the small area of clearing proposed, the linear nature of the clearing along an existing road and that suitable habitat is widely available adjacent to the clearing area, the proposed clearing is not considered to comprise significant habitat for local fauna. This is supported by DWER's assessment of clearing for the similar widening of an adjacent section of the road (SLK 24-40) that found that the clearing (similar in scale) was not at variance to principle b considering the local area (10 km radius) retains more than 90% remnant native vegetation and the proposed clearing area is narrow and linear in nature.

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

Methodology

DBCA shape files EPA (2016, 2020) Harewood (2011 & 2017) Main Roads shape files Main Roads Site Inspections SWenvironmental (2021)

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

Proposed clearing is not at variance to this Principle

No threatened flora species were recorded in the targeted search of the project area by Ecoedge in spring 2020 (Ecoedge 2021) or in the previous survey by Ekologica (2012). Also, no threatened flora species are considered likely to occur (Ecologica 2012, Ecoedge 2017, Ecoedge 2021).

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

Methodology

DBCA shape files Ekologica 2012 Ecoedge 2017 & 2021 MRWA shape files Main Roads Site Inspections

(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.

Proposed clearing is not at variance to this Principle

No threatened ecological communities have been identified within or in the vicinity of the current Project area (Ekologica 2012, Ecoedge 2017, Ecoedge 2021).

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

Methodology DBCA shape files Ecologika 2012 Ecoedge 2017, 2021 MRWA shape files

(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 is not at variance to this Principle

The entire Project area is within Vegetation Association (VA) 3. VA 3 is described as a 'Medium forest: jarrahmarri', which concurs with the native vegetation in the Project area.

Four Vegetation Complexes have been mapped within the Project area: Dwellingup 1, Dwellingup 2, Yarragil 1 & Pindalup. Each are predominately 'Open forest of *Eucalyptus marginata* & *Corymbia calophylla*', which concurs with the native vegetation in the Project area.

As per Table 3 (Section 5.2) and Table 4 (Section 5.3), the above Vegetation Association and Complexes are well represented at all scales with over 30% remaining and over 15% within conservation reserves.

Based on available vegetation mapping and aerial photography it is estimated over 90% (approximately 28,000 ha) of the land within the study area (5 km of the Project) contains native vegetation. The clearing proposed (5.29 ha) accounts for only 0.019% of the total remnant vegetation present within the study area. Extensive areas of vegetation also occur locally within the circa 171,000 ha Dwellingup State Forest and 52,000 ha Lane Pole Reserve. These areas will not be impacted.

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

Methodology

Aerial photography Ecoedge 2021 Government of Western Australia (2018)

(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 at variance to this Principle

The Project is outside of any wetland mapping datasets (SLIP 2021). No wetland type vegetation was recorded in the flora and vegetation survey (Ecoedge 2021) and therefore no wetlands are considered to be present. The nearest RAMSAR wetlands are associated with the Peel-Yalgorup System located over 30 km west of the Project (SLIP 2021).

Swamp Oak Brook SLK 38.5 and Pindalup Creek SLK 45.15 are present in the Project area. No clearing is proposed at these locations. Minor clearing (<0.1ha) will be undertaken at minor ephemeral drainage lines for culvert extensions. Clearing and other works at these locations will be managed through Construction Environmental Management Plan (CEMP).

As the project involves clearing of vegetation growing in association with a drainage line, the proposed clearing is at variance to this Principle. However, considering the very small scale of the clearing, the impacts on the watercourse are expected to be negligible.

Methodology DWER and DBCA shapefiles SLIP database 2021 Main Roads Site Inspection

(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

The SLIP (2021) ASS risk mapping only extends to 30 km west of the Project, and is mostly associated with the low lying and higher risk areas of the Swan Coastal Plain. The Project occurs on the Western Darling Range. Regional 1:2M mapping conducted by CSIRO (Fitzpatrick et al 2011) assigns an 'extremely low probability of occurrence', with '1-5% chance in small localised areas' to the Project area. Locally, potential ASS are generally associated with the upper one metre in wet / riparian areas of inland lakes, waterways, wetlands and riparian zones. This classification however is provisional and based on poor confidence levels.

Given the low risk of ASS / PASS at the site, the minimal amount of excavation required for the Project, its location on relatively well drained, moderately sloped land with no major works at drainage lines, further ASS management is not proposed.

Soil salinity is unlikely to increase on or off-site by the narrow and linear clearing of native vegetation proposed.

There are moderate slopes at some locations that may increase the risk, incidence and severity of erosion potential along the roadside drains. Localised drainage has been considered in the Project planning

(through the design and in the construction phase in the EMP). It will include best practice stormwater management to ensure long term protection of the road asset and to minimise erosion/turbid runoff.

DBCA undertook a dieback interpretation in 2018 and a 're-check' of the current section in 2021. The Project area has been classified as consisting of areas that are dieback Protectable and Unprotectable. Dieback Management Plan (DMP) has been developed in consultation with DBCA (D21#378929) to avoid associated land degradation.

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

Methodology DWER and DBCA shapefiles SLIP database 2021 DBCA 2021

(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

All works will take place within the M053 road reserve. No other reserves will be impacted directly by the Project. Adjacent land tenure consists entirely of the Dwellingup State Forest of 171,000ha.

The management plans relating to clearing and construction will include measures (for weeds, dust, clearing and dieback) to manage direct and indirect impacts to the adjacent State Forest.

The impacts of the proposed clearing on Regional Ecological Linkages or native vegetation extents within the context of the study area will be negligible.

Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DBCA shapefiles Main Roads Site Inspections

(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

The Project is located within the proclaimed Murray River System. The proclamation of Surface Water Areas allows the DWER to manage water resources through the licensing of water extraction in accordance with the *Rights in Water and Irrigation Act 1914* (RiWI Act). However, no licenses are required for this Project as no water extraction, dewatering or significant modifications to the existing drainage patterns are proposed.

The Project does not intersect any public drinking water source areas (PDWSAs) which are areas that have been proclaimed, under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947* for the management and protection of a water source used for community drinking water supplies (DoW 2017).

Roadside drainage has been considered in the Project design and impacts will be localised and minimal. Minor upgrades (extensions) to the existing culvert headwalls will be required, but this will not result in alteration of bed / banks, existing flows or drainage regimes. Increases in sediment loads in rainfall runoff are likely to be negligible given the small scale and linear nature of the clearing and considering the surrounding area comprises mainly intact vegetation.

The Project is within the Karri groundwater sub-area of the Karri Groundwater Area. The groundwater area is not proclaimed under the RIWI Act. No deep excavations, water extraction, dewatering or significant modifications to the drainage regimes will be required and therefore no change to existing groundwater levels or quality is anticipated.

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

Methodology Main Roads Site Inspections DWER and DBCA shapefiles EPA (2016)

(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 at variance to this Principle

Existing drainage patterns will generally be maintained with no significant changes proposed.

The clearing will not cause, or exacerbate, the incidence or intensity of flooding through the clearing of vegetation or otherwise.

Methodology

Main Roads Site Inspections SLIP Soil Systems 2021

7 ADDITIONAL ACTIONS REQUIRED

Table 6 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 6. Summary of Additional Management Actions Required by CPS 818

| Impact of Clearing | Yes/No or NA | Further Action Required |
|--|-----------------|-----------------------------|
| The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles. Where the clearing is at variance or may be at variance to Clearing Principle (f) and no other Clearing Principle, and the area of the proposed clearing is less than 0.5 hectares in size and the Clearing Principle (f) impacts only relate to: (i) a minor non-perennial watercourse(s); (ii) a wetland(s) classed as a multiple use management category wetland(s); and/or (iii) a wetland that is not a defined wetland; the preparation of an Assessment Report, as required by condition 6(e), is not required. | No | No further action required. |
| 2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding. | Νο | No further action required. |
| 3. The project involves clearing for temporary works (as defined by CPS 818). | Νο | No further action required. |
| 4 a. Project is within Region that: Has rainfall greater than 400mm and Is South of the 26th parallel and Works are in 'Other than dry conditions' and Works have potential for uninfested areas to be impacted | Yes | Go to 4b |

| Impact of Clearing | Yes/No or NA | Further Action Required |
|---|-----------------|---|
| 4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions? | Yes | Comply with the Dieback Management Plan that has been developed in consultation with DBCA. |
| 5. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback | Νο | No further action required. |
| 6. The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and weeds likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition | Yes | Site has been added into EOS Compliance Tab to ensure weeds growing within the cleared area are removed or killed at least once in every 12 month period for two years from the commencement of clearing. |

8 STAKEHOLDER CONSULTATION

Stakeholder consultation is not required as the clearing is not likely at variance to the Clearing Principles.

9 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum. Vegetation management has been included in the Construction Environmental Management Plan (CEMP) to manage and minimise vegetation clearing for the project.

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