Clearing Assessment Report – CPS 818

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Bridge 5023B Springdale Road over Jerdacuttup River

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Contents

Amendments

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1 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 Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

2 SCOPE

2.1 Proposal Scope

Proposal Name: Bridge 5023B Springdale Road over Jerdacuttup River

Proposal Purpose / Components: In February 2017, a severe flood event resulted in Springdale Road becoming untrafficable over the Jerdacuttup River (see image below).

Springdale Road (February 2017) – (WSP, 2021)

Springdale Road Reserve to the east of Jerdacuttup River (February 2017) – (WSP, 2021)

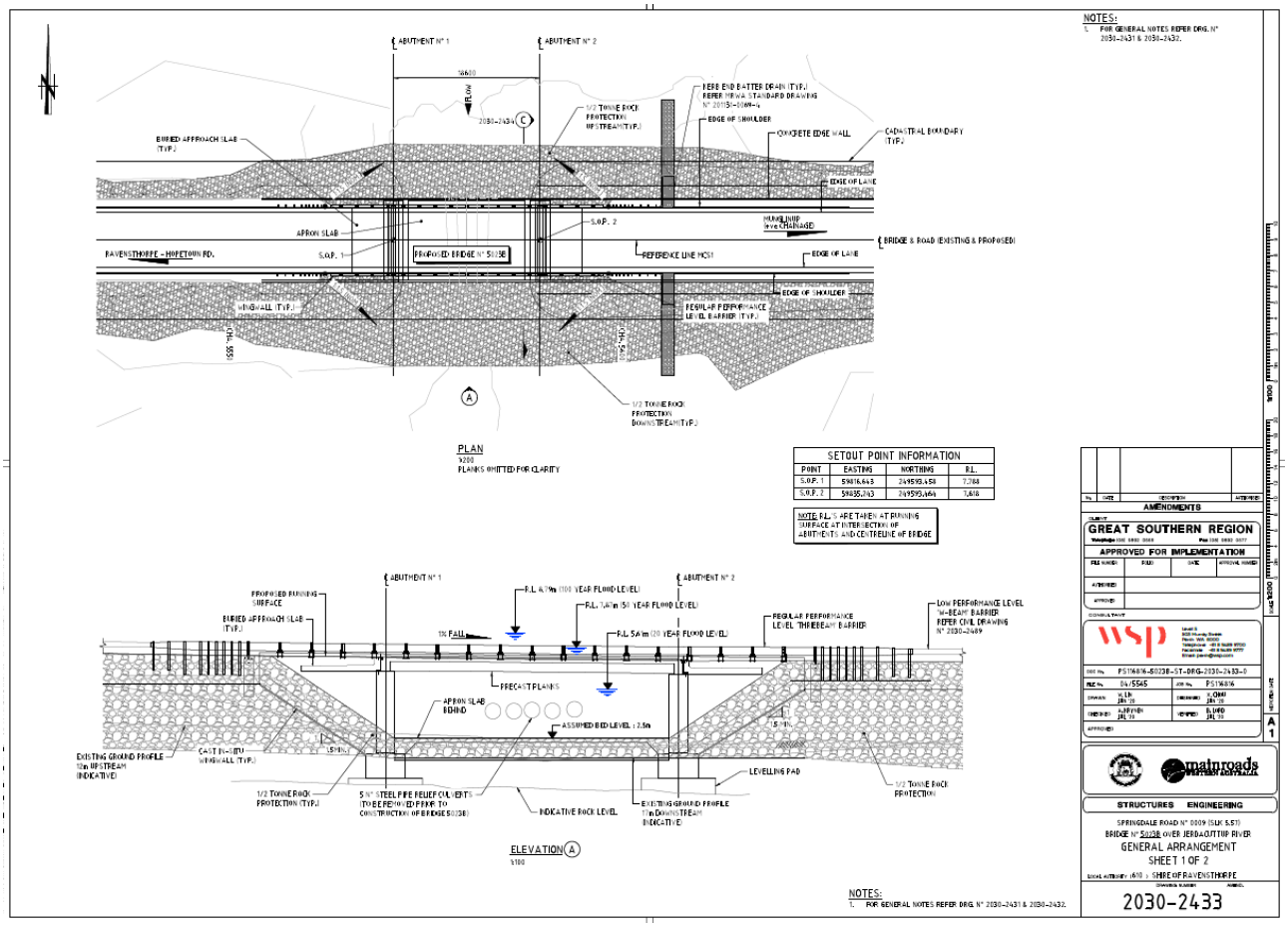
Bridge 5023 which had allowed traffic to cross the Jerdacuttup River was inundated and an emergency crossing was installed by the Shire of Ravensthorpe to allow vehicles to cross the Jerdacuttup River (see image below).

Bridge 5023 and emergency side track culvert on top left (September 2018) – (WSP, 2021)

Bridge 5023 was subsequently demolished and a temporary culverted crossing (5023A) was established by the Shire of Ravensthorpe in essentially the same location as Bridge 5023.

Bridge 5023A - temporary culverted crossing, looking east (June 2019)

Bridge 5023A is nearing the end of its design life and now requires replacement. This Proposal involves the construction of a new bridge (5023B) – see design below.



The Proposal involves:

- construction of a new 18.6 m span plank pre-stressed concrete bridge (with a straight alignment compared to the previous slightly curved alignment which shifts the bridge 0.6 m to the south of the centreline of Bridge 5023A) requiring:
  - footings cast on rock;
  - abutment construction;
  - wing walls; and
  - guardrail to bridge approaches
- minor widening and re-surfacing of Springdale Road either side of the bridge (2 x 3.5 m lanes and 0.6 m unsealed shoulders either side (without barriers) and 1.6 m sealed shoulders either side (with barriers)).
- construction of a temporary side track (5 m wide, with 1 m shoulders) – this will enable traffic to cross the Jerdacuttup River during the construction period.

Designed batter slopes and table drains extend beyond the current Shire road reserve boundary into private property. The design of the batter slopes and table drains may be amended to remain within the Shire road reserve boundary.

The proposed clearing undertaking using CPS 818 is: 0.62 ha

The proposed temporary clearing undertaking using CPS 818 is: Nil

Proposal Location(s): The Proposal area is located on Springdale Road (Road No. 6100009) Jerdacuttup, SLK 5.35 – SLK 8.85, Shire of Ravensthorpe as shown in Figure 1.

- MGA reference: GDA 1994 MGA Zone 51
- Latitude: -33.88
- Longitude: 120.223

The location of the Proposal and Clearing areas under CPS 818 are shown in Figure 1.

The Proposal area is approximately 1.74 ha in size, with an estimated 0.62 ha of clearing required under CPS 818.

2.2 Study Report Scope

The Study area, as shown in Figure 2, is confined to a local area of a 10 km radius.

2.3 Alternatives to clearing

As the bridge is essentially being located on the same alignment of the existing bridge, and a side track is required so that the road is open to traffic during the period of construction, there are no alternatives to the proposed clearing.

2.4 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

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

Figure 1. Proposal and CPS 818 Clearing Areas

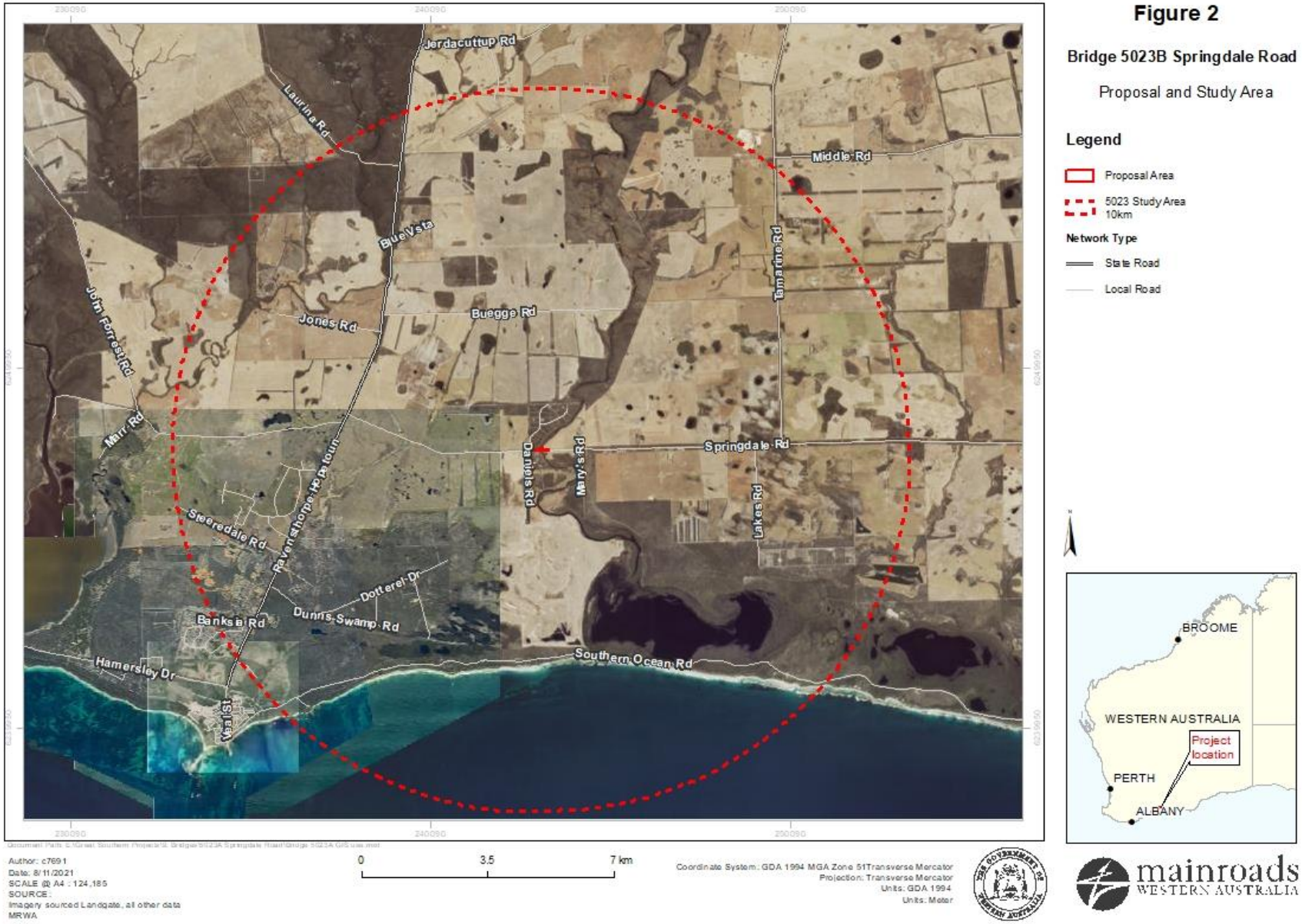


Figure 2. Study Area

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

Design or Management Measure	Discussion and Justification
Steepen batter slopes	Actions taken to minimise clearing are documented in the Project Design Report include the following: • along Springdale Road, the batter slopes were steepened to 1.5:1 behind the barrier/rock protection as requested by MRWA to reduce the earthworks footprint. Slopes of 4:1 were maintained for the barrier terminals to meet the MRWA grading detail (WSP, 2020); and • the batter slopes for the side track have been proposed as 1V:1.5H for the full length of the track. The steepened batter slopes minimise the earthworks footprint and resultant spill into the surrounding land parcels (WSP, 2020). However, due to potential slope stability these slopes will need to be rock pitched for the full length of the side track.
Installation of safety barriers	Traffic barriers shall be provided along the bridge and the approaches. The barrier length needed is expected to be approximately 40 m on the approach and 20 m on the departure (WSP, 2020).
Alignment to one side of existing road	This design consideration is not applicable to this proposal. The proposed Bridge 5023B will be located essentially along the same alignment as the temporary structure it replaces. Retaining a similar alignment and footprint minimises the need for additional clearing.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas	This design consideration has been implemented - the Bridge 5023B will be located in essentially the same footprint as the temporary structure it replaces. Retaining a similar alignment and footprint minimises the need for clearing.
Installation of kerbing	Kerbing is not applicable to this bridge proposal. Although kerbing will be installed on the sides of the bridge, with runoff being directed to into kerb roadside drains either end of the bridge, this kerbing is for water management, rather than a mechanism to reduce the amount of clearing.
Simplification of design to reduce number of lanes and/or complexity of intersections	Not applicable. The proposed Bridge 5023B is a two 3.5 m lane bridge (one lane in each direction) on a relatively straight alignment. There are no complex intersections as part of this Proposal.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Clearing will be required for a side-track. The side-track will allow vehicles travelling along Springdale Road to cross the Jerdacuttup River during the construction period. There are no other practical alternatives to construction of the temporary side track, other than a significant detour.
Drainage modification	Runoff from the bridge will be directed via kerbing to kerb roadside drainage flowing into the Jerdacuttup River. The quantity of water entering the river will be discharged in a controlled manner via roadside drains, rather than the current uncontrolled manner.

2.5 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 51O 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

Environmental Protection Policies

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992;
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011

Other Relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, August 2014)
- 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
- Strategic advice - EPA

3 SUMMARY OF SURVEYS

3.1 Biological Survey

A reconnaissance flora and vegetation survey was conducted in September 2020 by Bio Diverse Solutions. Section 3.1.1 contains the summary of the survey.

3.1.1 Summary of Biological Survey

During the field survey, Bio Diverse Solutions identified 94 species (83 native species and 11 introduced species) in the 2.66 ha survey area. No threatened or priority species were identified within the survey area during the survey period. Of the 15-conservation significant flora identified as potentially present during the desktop assessment, only the following seven were considered "Possible" to occur post survey, due to potentially suitable habitat:

- *Eremophila denticulata subsp. Denticulate* (VU)

- *Thelymitra psammophila* (VU)
- *Leucopogon* sp. Lake Magenta (K.R. Newbey 3387) (P1)
- *Cryptandra craigiae* (P1)
- *Dampiera sericantha* (P3)
- *Adelphacme minima* (P3)
- *Astartea reticulata* (P3)

Of these seven, no members of the *Astartea* family and *Eremophila genus* were identified and no unidentifiable *Leucopogen*, *Dampiera, Cryptandra* or *Thelymitra* were observed, indicating that six of the species were 'Unlikely' to occur. In relation to the last "Possible" occurrence, the vegetation in the survey area was too thick and long unburnt to locate *Adelphacme minima (P3)*specimens if they were present.

Three vegetation types were identified during the survey area - *Eucalyptus occidentalis* (Flat Topped Yate) Open Woodland, *Melaleuca cuticularis* (Saltwater Paperbark)-thicket and Scattered natives. The vegetation condition in the survey area using the condition rating scale (adapted from Keighery 1994) was mapped as Excellent to Degraded.

All of the weed species identified except the "Declared Pest – s22" **Asparagus asparagoides* are rated as "Permitted – s11" under the *Biosecurity and Agriculture Management Act 2007*.

No vegetation types within the survey area are classified as a Threatened or Priority Ecological Community (TEC / PEC).

4 VEGETATION DETAILS

4.1.1 Clearing Area Vegetation Description

The vegetation in the Clearing area comprises of two vegetation types: *Eucalyptus occidentalis* Open Woodland, and Mixed Natives. The quality of the vegetation within the Clearing area is rated as Excellent - degraded. One declared pest (*Asparagus asparagoides*) occurs within and adjacent to the Clearing area (Figure 3). This species will be controlled as part of Proposal delivery.

Tables 2 and 3 provide details of the Pre-European Vegetation Associations with the Clearing area and the remaining extents of these Associations.

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

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 47 - Shrublands; tallerack mallee-heath	Clearing of up 0.42 ha for bridge, side track and associated road.	Excellent - degraded	Vegetation description and condition determined from Reconnaissance Flora and Vegetation Survey Report (Bio Diverse Solutions, 2020).
Vegetation Association 516 - Shrublands; mallee scrub, black marlock	Clearing of up 0.20 ha to for bridge, side track and associated road.	Excellent	Vegetation description and condition determined from Reconnaissance Flora and Vegetation Survey Report (Bio Diverse Solutions, 2020).

Table 3. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 47 Shrublands;	**Statewide**	1,033,054	370,435	35.86	49.99
	IBRA Bioregion *Esperance Plains*	959,935	336,492	35.05	53.00

tallerack mallee-heath	**IBRA Sub-region** *Recherche*	413,535	62,275	15.05	11.55
	Local Government Authority *Shire of Ravensthorpe*	328,155	149,850	45.66	46.09
Veg Assoc No.516 Shrublands; mallee scrub, black marlock	**Statewide**	607,434	332,848	54.80	44.15
	IBRA Bioregion *Esperance Plains*	318,746	219,798	68.96	41.65
	IBRA Sub-region *Recherche*	99,708	36,684	36.79	20.10
	Local Government Authority *Shire of Ravensthorpe*	153,600	128,117	83.41	39.23

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal 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 not likely to be at variance with the 10 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

The Clearing area lies within the Esperance Plains and Recherche (ESP02) subregion of the Esperance Bioregion. Comer et al (2001) describes the Esperance Bioregion as being "characterised by proteaceous scrub and mallee heaths on sandplain overlying Eocene sediments; rich in endemics. Herbfields and heaths (rich in endemics) occur on abrupt granite and quartzite ranges that rise from the plain. Eucalypt woodlands occur in gullies and alluvial foot-slopes." The ESP2 – Recherche IBRA subregion is described as having "variable relief, comprising the Quaternary coastal sandplains and dunes overlying Proterozoic gneiss and granite as well as Eocene and more recent coastal limestones. Numerous granitic islands occur in the near shore area of this subregion. Vegetation comprises heath, coastal dune scrub, mallee, mallee-heath and granite heath."

The Proposal requires the clearing of up to 0.62 ha of native vegetation under CPS 818 within a Proposal area of approximately 1.74 ha. Bio Diverse Solutions (2020) rate the vegetation condition in the Clearing area as Excellent - degraded. Approximately 51% (0.85 ha) of the Proposal area is already cleared.

The Clearing area is mapped as Beard Vegetation Associations 47 (0.42 ha) and 516 (0.20 ha), described as Mallee-heath and Mallee-scrub, respectively.

Bio Diverse Solutions mapped three vegetation types in the 2.66 ha survey area, namely:

- *Eucalyptus occidentalis* (Flat topped Yate) Open Woodland,
- *Melaleuca cuticularis* (Saltwater Paperbark) thicket, and
- Scattered Natives.

Eucalyptus occidentalis (Flat topped Yate) Open Woodland (0.39 ha) and Scattered natives (0.23 ha) vegetation types occur in the Clearing area.

DAFWA GIS mapping indicates that over 9,200 ha (28%) of remnant vegetation exists within the 10 km Study area.

TEC/PEC
Bio Diverse Solutions reported that no vegetation types within the survey area are classified as TEC or PEC.

Flora

Bio Diverse Solutions reported no Threatened of Priority flora were present in the Clearing area or wider survey area.

Bio Diverse Solutions (2020) report seven significant flora species were considered "Possible" to occur (post-survey), including the following:

- *Thelymitra psammophila* (VU). The closest record is approximately 100 km to the west.
- *Eremophila denticulata subsp. Denticulate* (VU). The closest record is over 10 km to the west.
- *Cryptandra craigiae* (P1). Closest records are approximately 6 km to the southwest.
- *Leucopogon sp. Lake Magenta (K.R. Newbey 3387)* (P1). Not listed in the Main Roads Rare Flora or Herbarium GIS Layer, but mapped in FloraBase as occurring approximately 4 km to the south.
- *Adelphacme minima* (P3). Species is a post fire emergent species, and the area has been long unburnt,
- *Astartea reticulata* (P3). There is suitable habitat for this species within the *Melaleuca cuticularis* thicket vegetation type, but it was not identified during the survey period. Whilst this particular species flowers outside of the period in which this survey was undertaken, no members of the *Astartea genus* were identified as being present within the survey area.
- *Dampiera sericantha* (P3), The survey was conducted during the flowering period for this species and it was not located. Two other *Dampiera* species were observed during the survey period, with no unidentifiable *Dampiera* species recorded.

Given the substantial distance between most of these records and the Proposal area, the risk of impacts to the above Threatened and P1 species due to the minor amount of clearing is considered to be low. Similarly, given the survey effort, the risk of impacting a significant population of the above P3 species is considered very low.

Accordingly, it is unlikely that there are any Threatened of Priority flora present in the wider survey area, and accordingly the smaller Clearing area.

Fauna

Based on the vegetation types recorded by Bio Diverse Solutions, DBCA records, the PMST report and observations made on-site by Main Roads staff during the site inspection of 21 October 2021, the following conservation significant species may occur in the Clearing area (non coastal species with DBCA records within the 10 km Study area):

- Western Ground Parrot *(Pezoporus flaviventris)* (CR)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris)* (EN)
- Baudin's Cockatoo *(Calyptorhynchus baudinii)* (EN)
- Dibbler (*Parantechinus apicalis)* (EN)
- Western Whipbird (western heath) (*Psophodes nigrogularis subsp. nigrogularis*) (EN)
- Malleefowl (*Leipoa ocellat)* (VU)
- Western Brush Wallaby (*Notomacropus Irma)* (P4)
- Western Whipbird (western mallee) (*Psophodes nigrogularis oberon)* (P4)
- Blue-billed duck *(Oxyura australis*) (P4)

While these species may opportunistically utilise the clearing area, they are unlikely to be reliant on the habitats to be cleared. Given the minor area of clearing proposed (0.62 ha), its linear nature, absence of DBH trees or suitable hollows for black cockatoo species and presence of a significant amount of similar or better quality habitat immediately adjacent, impacts to significant fauna species are considered unlikely. Fauna and habitat values are discussed further under Principle (b).

<u>Weed species</u>

Eleven introduced weed species and one declared pest *Asparagus asparagoides* (Bridal Creeper) was found in the Proposal area (Bio Diverse Solutions, 2020). Standard weed management measures will be implemented to control this species and prevent the spread or introduction of other weeds during Proposal delivery.

<u>Environmentally Sensitive Areas</u>

There are no Environmentally Sensitive Areas (ESAs) in the Proposal area. The closest ESA is located 12 km to the west of the Proposal area.

Conservation areas

There are no DBCA managed lands within the Proposal area. The closest DBCA managed land is 1.8 km to the south east of the Proposal area.

As the proposed clearing comprises thin narrow strips of vegetation adjacent to an existing road and does not include any DBH trees or suitable breeding hollows for black cockatoo species, no significant impacts to Threatened or Priority flora and fauna are anticipated. There is a significant amount of similar and better-quality habitat immediately north and south of the Clearing area along the Jerdacuttup River valley, and over 9,200 ha of remnant vegetation in the 10 km Study area. Accordingly, native vegetation in the Clearing area does not comprise a high level of biological diversity, and is considered not likely to be at variance to this Principle.

Methodology

Bio Diverse Solutions (2020)
DBCA shapefiles
EPA (2016, 2020)
Government of WA (2013)
Main Roads Site Inspection (21 October 2021)
Main Roads GIS Shapefiles
NatureMap (Accessed November 2021)
PMST Search Tool (Accessed November 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

A desktop assessment identified 19 species of conservation significant fauna from Threatened and Priority fauna database searches within a 10km Study area, including two mammals and 17 birds. 42 Threatened species and 42 migratory species were identified from the EPBC Act Protected Matters Search Tool (accessed 18 November 2021). Only these, eight Threatened species and one migratory species were identified as non-marine.

Fauna

Based on the vegetation types recorded by Bio Diverse Solutions, DBCA records, the PMST report and observations made on-site by Main Roads staff during the site inspection of October 2021, the following conservation significant species may occur in the Clearing area:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris)* (EN)
- Baudin's Cockatoo *(Calyptorhynchus baudinii)* (EN)
- Dibbler (*Parantechinus apicalis)* (EN)
- Chuditch (*Dasyurus geoffroii)* (VU)
- Malleefowl (*Leipoa ocellat)* (VU)
- Heath Mouse (*Pseudomys shortridgei)* (VU)
- Grey Falcon (*Falco hypoleucos) (VU)*
- Western Brush Wallaby (*Notomacropus Irma)* (P4)
- Grey Wagtail (*Motacilla cinerea)* (Mig)

Outcomes of a site inspection in October 2021, past photographs and a desktop survey was used to assess potential fauna impacts.

Carnaby's Cockatoo

Carnaby's Cockatoo is listed as Threatened under the BC Act and Endangered under the EPBC Act and the clearing area occurs within the known distribution and predicted breeding range of the species (DBCA,

2017).Over 500 Carnaby's Cockatoo (from 15 siting's) have been recorded within the 10 km Study area, with the closest records xx metres south of the Clearing area.

Commonwealth of Australia (2012) advise that Carnaby's Cockatoos forage in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as *Banksia spp*. (including Dryandra spp.), *Hakea spp.* and *Grevillea spp*' and 'in pine plantations (Pinus spp.), eucalypt woodland and forest that contains foraging species. DPaW (2011) report that Carnaby's only use *Eucalyptus occidentalis* (Flat topped Yate) for nesting, and not for foraging or roosting.

The site inspection in October 2021 only observed four overstorey Flat topped Yate in the Clearing area, none of which were of a suitable DBH or contained suitable hollows for breeding. The (0.39 ha) *Eucalyptus occidentalis* Open Woodland vegetation type found in the Clearing area only contains one *Hakea* species, and the (0.23 ha) Scattered natives vegetation type only contains one *Grevillea species.* Accordingly, these vegetation types would only be considered poor quality foraging habitat. Due to the presence of water in the Jerdacuttup River downstream of the Clearing area, Carnaby's Cockatoo would be a visitor to the area, but the removal of 0.39 ha of *Eucalyptus occidentalis* Open Woodland vegetation type with four non-DBH overstory trees and 0.27 ha of Scattered natives vegetation type is unlikely to significantly impact the species.

Baudin's Cockatoo

The Clearing area is outside of the modelled distribution range of Baudin's Cockatoo (SEWPAC, 2012). According to the DBCA GIS layer, the closest single record within the 10 km Study area was a flock of 10 birds, 5.6 km to the south west of the Clearing area (recorded in 2003). Baudin's Cockatoo usually occur in heavily forested areas dominated by Marri, Jarrah and Karri. DBCA. The fauna profile for the species reports that their diet mainly consists of seeds from Marri, but they also feed on various Banksia species, Hakea species and Jarrah, and occasionally insects and insect larvae. Flocks will opportunistically feed on suitable trees that they see while flying over, but they are also known to fly more than 10 km from roosting or nesting sites to preferred feeding areas. Only the *Eucalyptus occidentalis* Open Woodland vegetation type found in the Clearing area contains possible foraging species (one *Hakea*). Accordingly, this vegetation type would only be considered poor quality foraging habitat. Due to the presence of water in the Jerdacuttup River downstream of the Clearing area, Baudin's Cockatoo may be an occasional visitor to the area, but proposed clearing is unlikely to have a significant impact on the species.

Dibbler

Dibblers typically occupy heath and mallee-heath vegetation communities, where they have been located on the south coast of Western Australia, and are known to occur in the nearby Fitzgerald River National Park. MRWA GIS mapping report that one Dibbler has been recorded approximately 1 km south east of the Clearing area, with the next record being 11 km north, both adjacent to the Jerdacuttup River. As the Flat topped Yate vegetation type in the Clearing area also adjoins larger tracts of relatively unfragmented native vegetation along the Jerdacuttup River, it is possible that vegetation in this portion of the Clearing area may provide suitable habitat, although the proposed amount and linear nature of clearing is unlikely to affect the movement of the species through the area or its ongoing survival.

Chuditch

A large variety of habitats are suitable for Chuditch and this may include the 0.39 ha of Flat topped Yate vegetation in the Clearing area. The Clearing area also adjoins larger tracts of relatively unfragmented native vegetation to the north and south which are likely to provide linkage habitat. However, no adequate den resources such as large hollow logs, burrows or rock crevices were observed during the site inspection in October 2021 and the Naturemap report indicates there are no records of Chuditch in the 10 km Study area. Therefore, if present, this species is only likely to utilise the clearing area opportunistically for foraging purposes and no significant impacts are anticipated.

Malleefowl

Malleefowl are found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias, and occasionally in woodlands dominated by eucalypts, such as Wandoo and Marri. Malleefowl have been observed in the nearby Fitzgerald River National Park (eastern boundary 12 km west of Clearing area) with Naturemap reporting the closest record 6.6 km north west of the Clearing area. A

site inspection in October 2021 did not observe any Malleefowl mounds in the Clearing area. The proximity of the road, surrounding farmland and associated traffic is likely to act as a deterrent to the species and therefore no significant impacts are anticipated.

Heath Mouse

The Heath Mouse frequently inhabits species-rich dry heathland, and open woodland and forest habitats with a heath understorey, and have been found in the nearby Fitzgerald River National Park. Naturemap report no Heath Mouse have been recorded in the 10 km Study area and the proposed clearing of thin strips of vegetation adjacent to the existing road is unlikely to have a significant impact on this species.

Grey Falcon

The Grey Falcon frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses (Australian Government, 2015) According to the DBCA GIS layer, no Grey Falcon have been recorded in the 10 km Study area and this species is unlikely to be reliant on the habitats present.

Western Brush Wallaby

DBCA report that Western Brush Wallaby (*Notomacropus Irma)* are found in 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. Their range has been seriously reduced and fragmented due to clearing for agriculture and there is a significant decline in abundance within most remaining habitat. The western brush wallaby is now distributed across the south-west of Western Australia from north of Kalbarri to Cape Arid. Naturemap report the closest single record in the 10 km Study area was 7.9 km to the north west of the Clearing area (recorded in 1983). Given this species is quite mobile and the proposed area of clearing is very minor, no significant impacts are anticipated.

Grey Wagtail

The Grey Wagtail has a strong association with water, particularly rocky substrates along water courses but also lakes and marshes *(*Australian Government, 2015). It is a highly mobile species but according to the DBCA GIS layer, no Grey Wagtail have been recorded in the 10 km Study area and the proposed clearing is therefore unlikely to have a significant impact on this species.

Ecological linkages

'The South Coast Macro Corridor Network is a bioregional and landscape-scale approach to habitat connectivity that acknowledges that remnant vegetation can play a very important role in developing corridors between protected areas to help achieve long-term biodiversity management outcomes (Wilkins et al. 2006; DBCA, 2017). 0.39 ha of the Clearing area is within a larger area categorised as "Strategic Zone A which "Contains areas of woody vegetation where polygons greater than 30 ha in size are spaced no greater than 1 km apart and potentially form the most strategic link between major protected areas." (Wilkins et al. 2006; DBCA, 2017). The Clearing area also lies within the "Coastal Corridor". This corridor extends to the south towards the coast and extends along the coast to the west. This corridor is connected to the "Jerdacuttup River Corridor" to the north east and "Protected Area" to the east (WALGA, 2020a). At a local level, the Clearing area may provide linkage habitat to fauna moving north and south adjacent to the Jerdacuttup River.

The existing road footprint is approximately 16 m wide. Clearing for this Proposal will extend this footprint to a maximum width of 50 m. Studies referred to in the SWREL Technical Report (Molloy et al 2009, pp. 38) generally indicate that small mammals may cross widths of up to 100 m while dispersing. Given the relatively small increase in disturbance, the low traffic volumes on the road, and the mostly nocturnal nature of potentially affected fauna, the Proposal is unlikely to detrimentally impact on the movement of fauna through the area.

While vegetation within the clearing area may provide opportunistic habitat for fauna species, impacts to fauna habitat values are considered unlikely, given the minor area of clearing proposed (0.62 ha), its linear nature, absence of DBH trees or suitable hollows for black cockatoo species and presence of a significant amount of similar or better quality habitat immediately adjacent.

Given the above, the clearing area does not comprise the whole or a part of, or is necessary for the maintenance of, a significant habitat for indigenous fauna; it is not likely to be at variance to this Clearing Principle.

Methodology
Australian Government (2015)
Bio Diverse Solutions (2020)
DBCA Shapefiles
DBCA website
EPA (2016, 2020)
Main Roads Site Inspection (21 October 2021)
PMST Search Tool (Accessed November 2021)

(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

Bio Diverse Solutions (2020) did not record any Threatened species within the survey area during the survey period.

The post-survey likelihood of occurrence assessment undertaken by Bio Diverse Solutions classified the following two Threatened species as possibly occurring within the survey area:

- *Thelymitra psammophila* (T) – this species prefers habitats of sandy clay and loam, which is present within the survey area. The survey did identify one *Thelymitra species* during the survey period, but this was not identified as the Threatened species.
- *Eremophila denticulata subsp. denticulata* (T) prefers habitats of alluvium, sand, sandy clay loam, river beds and plains and laterite breakaways. No species from this genus were identified within the survey area.

Whilst suitable habitat is present for these Threatened species, Rare flora and Herbarium GIS layers indicate neither have been recorded within the 10 km Study area. Furthermore, given the survey was conducted at the optimum flowering time and no Threatened species were found, the area to be cleared is unlikely to contain rare flora and is therefore considered not likely to be at variance to this Principle.

Methodology
Bio Diverse Solutions (2020)
DBCA shapefiles

(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

Although the MRWA GIS layer indicates that there may be Threatened Ecological Community in the Proposal area (Appendix 1, Figure 4), BioDiverse Solutions (2020) did not observe vegetation types present in the Clearing area and wider survey area that were concordant with any current State-listed Threatened Ecological Community.

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

Methodology
BioDiverse Solutions (2020)
DBCA shapefiles
EPA (2016)

(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 Proposal requires clearing of 0.62 ha of native vegetation within a 1.47 ha Proposal area, and is mapped as containing pre-European vegetation association 47 described as tallerack mallee-heath, and vegetation association 516 described as mallee scrub, black marlock, as shown in the tables below.

At the National level, "the threshold level" below which species loss appears to accelerate exponentially at an ecosystem level is regarded as being at a level of 30% of the pre-clearing extent of the vegetation type (Environmental Protection Authority, 2000).

Vegetation Association 516 retains over 30% of its pre-European extent at all scales, whilst Vegetation Association 47 retains over 30% of its pre-European extent at all scales, except at a sub region scale.

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Veg Assoc No. 47 Shrublands; tallerack mallee-heath	Clearing of up to 0.42 ha for bridge, side track and associated road.	Excellent - degraded	Vegetation description and condition determined from Reconnaissance Flora and Vegetation Survey Report (Bio Diverse, 2020).
Veg Assoc No.516 Shrublands; mallee scrub, black marlock	Clearing of up to 0.20 ha for bridge, side track and associated road.	Excellent	Vegetation description and condition determined from Reconnaissance Flora and Vegetation Survey Report (Bio Diverse, 2020).

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 47 Shrublands; tallerack mallee-heath	**Statewide**	1,033,054	370,435	35.86	49.99
	IBRA Bioregion *Esperance Plains*	959,935	336,492	35.05	53.00
	IBRA Sub-region *Recherche*	413,535	62,275	15.05	11.55
	Local Government Authority *Shire of Ravensthorpe*	328,155	149,850	45.66	46.09
Veg Assoc No.516 Shrublands; mallee scrub, black marlock	**Statewide**	607,434	332,848	54.80	44.15
	IBRA Bioregion *Esperance Plains*	318,746	219,798	68.96	41.65
	IBRA Sub-region *Recherche*	99,708	36,684	36.79	20.10
	Local Government Authority *Shire of Ravensthorpe*	153,600	128,117	83.41	39.23

The condition of Vegetation Association 47 is mapped as Excellent – degraded, whilst the condition of Vegetation Association 516 is mapped as Excellent.

The area to be cleared is currently adjacent to a roadway and there are significant tracts of native vegetation to the north and south of the Clearing area. The amount of vegetation to be cleared is 0.62 ha which represents less than 0.001% of the current extents of both Vegetation Associations at sub-region level (which has the least extent). As discussed under Principles (a) and (b) it does not comprise a high level of biodiversity or significant habitat for native fauna.

As both Vegetation Associations retain over 30% of their pre-European extent at a State-wide scale, the Proposal is not at variance with this Principle.

Methodology

Aerial photography
BioDiverse Solutions (2020)
EPA (2016)
Government of Western Australia (2017)

(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

The vegetation types in the Clearing area include *Eucalyptus occidentalis* (Flat Topped Yate) Open Woodland and Scattered natives. These vegetation types are not considered to be riparian vegetation (growing in, or in association with, an environment associated with a watercourse or wetland).

Given the vegetation to be cleared is not riparian vegetation, the proposed clearing is not at variance to this Principle.

Methodology

BioDiverse Solutions (2020)
DWER and DBCA shapefiles

(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

Bio Diverse Solutions (2020) report that the Clearing area lies within the Young System (245Yo). The system is described as "Well developed coastal river valleys with gently to moderately inclined hillslopes, narrow alluvial flood plains and saline, poorly drained valley floors incised in Proterozoic gneisses and in Tertiary sediments." (DPIRD, 2020a). The Esperance Sandplain Zone (245) is described as "Level to gently undulating plain dissected by a number of short rivers flowing south. Formed on Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are grey fine sandy duplex soils and fine sands" (DPIRD, 2020a) (Bio Diverse Solutions, 2020).

The Department of Primary Industries and Regional Development (DPIRD) risk mapping indicates:

- 7% of the map unit has a moderate salinity hazard;
- 0% of the map unit has a waterlogging and inundation risk;
- 97% of the map unit has a high to extreme risk of wind erosion hazard; and
- 0% of the map unit has a very high to extreme water erosion hazard.

Noting the presence of sandy soils, waterlogging is unlikely to be an issue. Noting, the presence of vegetated areas surrounding the Clearing area, relatively small amount of clearing to be undertaken and treatments to cleared areas (ie. road placed on top and associated batter treatments), wind and water erosion are not expected to cause appreciable land degradation.

There is a low probability of occurrence of acid sulphate soils (CSIRO Class B) (Appendix 1, Figure 7). Soil testing undertaken as part of geotechnical investigations in the Waterway Assessment (WSP, 2021) did not identify the presence of acid sulphate soils.

While excavation for construction of bridge footings will be required, as construction is anticipated to undertaken in the summer months, the need for dewatering will be reduced or negated.

Standard erosion and dust management control measures will be implemented during construction to reduce the incidence of wind erosion.

Given the linear nature of the clearing and sealing of areas for road construction, the proposed clearing is not likely to lead to an appreciable increase in land degradation and is not likely to be at variance to this Principle.

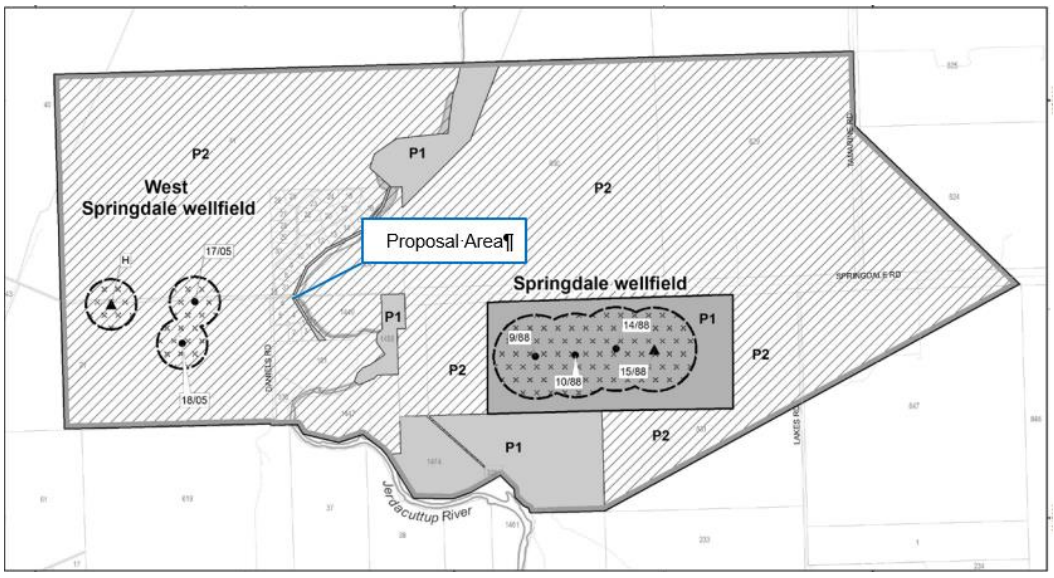
Methodology

DPIRD risk mapping (Accessed November 2021)
CSIRO Acid Sulphate Soil risk mapping (Accessed November 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 at variance to this Principle
There are no DBCA managed lands in the vicinity of the proposal area. The nearest DBCA managed land is Jerdacuttup Lakes Nature Reserve located 1.8 km south-east of the Clearing area. At this distance, the proposed clearing is not expected to impact on the values of this reserve. Accordingly, clearing of vegetation will not have an impact on the environmental values of any adjacent or nearby conservation area and is not at variance to this Principle.
Methodology DBCA shapefiles

(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 Jerdacuttup River (major non-perennial) is adjacent to the Clearing area. No clearing of vegetation growing in association with the river will be undertaken under CPS818. The Clearing area is located within the Hopetoun Water Reserve (P1/P2 Drinking Water Protection Source Area) and Hopetoun groundwater area (Appendix 1, Figure 6). The closest bore to the Clearing area is approximately two km west (refer below - DoW (2016)). Any development will be required to meet the requirements of Water Quality Protection Note (WQPN) No. 25 – Land use compatibility tables for public drinking water source areas. Under WQPN No. 25, a road is a compatible land use in a P1 area, but prohibits the use of recycled drainage rock and road base. Guidance from WQPN Nos. 10, 28, 29, 44, 56, 83 and 84 are also applicable.      The Ravensthorpe Surface Water Area is approximately 30 km to the north west of the Clearing area. The small scale (0.62 ha) of linear vegetation clearing under CPS 818 outside the riparian zone is unlikely to result in a change in water quality in the river or groundwater, particularly considering the works are expected to be completed over the summer months. The Proposal will involve the installation of bridge with footings cast on rock and installation of a side track. The side track embankment has been designed with piped culverts to allow continued flow of the Jerdacuttup River and with rock batters to minimise erosion and sediment impacts.

Installation of the side-track and construction of the new bridge is proposed for the summer months when surface water flows are minimal and/or non-existent. Dewatering may be required for a short period during construction of the bridge footings. Any dewatering is expected to be minimal and short in duration. The Contractor will apply for the dewatering licence from DWER if expected dewatering is a non-exempt activity (>10 L/s, >30 consecutive days, >25,000 kL). As a precaution, a sediment curtain (and hydrocarbon boom) will be installed downstream of the Proposal area to further minimise any downstream impacts on water quality.

Given the above, it is unlikely the proposed clearing will cause deterioration in the surface or underground water quality and is not likely to be at variance to this Principle.

Methodology

WSP 2020
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

Bio Diverse Solutions (2020) report that the Clearing area lies within the Young System (245Yo). The system is described as "Well developed coastal river valleys with gently to moderately inclined hillslopes, narrow alluvial flood plains and saline, poorly drained valley floors incised in Proterozoic gneisses and in Tertiary sediments." (DPIRD, 2020a). The Esperance Sandplain Zone (245) is described as "Level to gently undulating plain dissected by a number of short rivers flowing south. Formed on Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are grey fine sandy duplex soils and fine sands" (DPIRD, 2020a) (Bio Diverse Solutions, 2020).

Hopetoun North (5km south east of the Clearing area) receives an average of 482 mm of rainfall per year (Bureau of Meteorology Australia (2021)), predominantly from May to October.

The Department of Primary Industries and Regional Development (DPIRD) risk mapping indicates:

- 0% of the map unit has a moderate to high flood hazard;
- 0% of the map unit has a moderate to very high waterlogging and inundation risk; and
- 0% of the map unit has a very poor to poor site drainage potential.

Given the Clearing area occurs on sandy soils which have good infiltration properties, the mapped soils having a low risk of flooding and waterlogging, the moderate rainfall amount, and the relatively small amount of clearing proposed (0.62 ha), the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding and is not at variance to this Principle.

Methodology

Bio Diverse Solutions (2020)
Bureau of Meterology (Accessed November 2021)
DPIRD risk mapping (Accessed November 2021))

6 ADDITIONAL ACTIONS REQUIRED

Table 5 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	*Further Action Required*
1. 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.	**N/A**	
3. The Proposal involves clearing for temporary works (as defined by CPS 818).	**No**	No further action required
4 a. Proposal 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** **Yes** **No** **No**	Proceed with standard Vehicle and Plant management actions from PEMR's and Vehicle and Plant Hygiene Checklists

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?	**No**	No further action required
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	**No**	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	**No**	Declared weeds in Proposal area to be controlled prior to Proposal delivery.

7 STAKEHOLDER CONSULTATION

As the Proposal is not likely to be at variance to any of the Clearing principles, Stakeholder consultation under Condition 8 of CPS 818 is not required. However, as the Proposal is located in a Shire of Ravensthorpe road reserve and a DPLH Reserve vested in the Shire of Ravensthorpe, Main Roads has liaised with the Shire and DPLH regarding this Proposal, with the Shire being provided with design drawings. No objections from DPLH or the Shire has been received. Main Roads has also liaised with the landowner(s) adjacent to the Proposal area where land is being purchased and/or being used for the side track.

8 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum.

9 REFERENCES

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10 APPENDICES

Appendix	Title
Appendix 1	Constraint Mapping/Figures

Appendix 1: Constraint Mapping/Figures

Figure 4

Bridge 5023B Springdale Road

TEC PEC

Legend

- Proposal Area
- 5023 Study Area 10km
- TEC PEC

Network Type

- State Road
- Local Road

mainroads WESTERN AUSTRALIA

Figure 6

Bridge 5023B Springdale Road

Water and Groundwater Areas, Watercourses, CAWS Catchments, Wetlands, DBCA Lands

Legend

- Proposal Area
- 5023 Study Area 10km

Network Type

- State Road
- Local Road
- ENVN_Wetlands_S...

Perenniality

- Non Perennial

Perenniality

- Non Perennial
- WWYS_Public_Wat...

Gazetted Type

- Variation
- DBCA Managed Land and Waters

mainroads WESTERN AUSTRALIA

Figure 7

Bridge 5023B Springdale Road

CSIRO Acid Sulphate Soil Mapping

Legend

5023B CPS 818 Clearing Area

C

Network Type

Local Road

PROBCLASS

A

B

Author: c7691
Date: 14/12/2021
SCALE @ A4 : 28,299
SOURCE:
Imagery sourced Landgate, all other data MRWA

0 0.8 1.6 km

Coordinate System: GDA 1994 MGA Zone 51Transverse Mercator
Projection: Transverse Mercator
Units: GDA 1994
Units: Meter

mainroads WESTERN AUSTRALIA