Clearing Desktop Report - CPS 818

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Indian Ocean Drive (IOD) and Pinnacles Drive Intersection Upgrade

Indian Ocean Drive (M045) and Pinnacles Drive (504Z019)

Midwest – Gascoyne Region
EOS: 3428

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Contents

List of Figures

List of Tables

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1 PROPOSAL

1.1 Purpose and Justification

Main Roads proposes to upgrade the intersection on Indian Ocean Drive (M045) and Pinnacles Drive (504Z019) at SLK 132. The intersection has been flagged on the 'National Black Spot Program' due to numerous vehicle collisions and roadside fatalities. Upgrading the intersection by installation of a left-hand turning lane onto Pinnacles Drive will create separation between southbound vehicles and northbound vehicles turning right onto Pinnacles Drive from Indian Ocean Drive and improve road user safety.

Main Roads is acquiring 0.288 hectares of land from Nambung National Park adjacent to the Main Roads road reserve. Nambung is currently managed by the Department of Biodiversity, Conservation and Attractions (DBCA). The purpose of this acquisition is to facilitate the effective design of a turning lane and to ensure that future maintenance and clearing activities do not interfere with the surrounding areas of Nambung National Park.

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities and manages the State road network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia's environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State's road network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

Main Roads proposes to upgrade the intersection of Indian Ocean Drive and Pinnacles Drive at Straight Line Kilometre (SLK) 132.

The Proposal includes the following works:

- Construction of a left-hand turning lane into Pinnacles Drive (Nambung National Park);
- Laydown areas for equipment and materials;
- 1m sealed road shoulders;
- Removal, replacement and extension of culverts;
- Goring and line marking throughout the intersection; and
- Site Office and self-contained ablution blocks for use by site personnel.

1.3 Proposal Location

The Clearing Area is located on the corner of Indian Ocean Drive and Pinnacles Drive at SLK 132.55 to 132.89, 10 km south of Cervantes in the Shire of Dandaragan.

The central coordinates of the proposal are:
Latitude: 30.5896978
Longitude: 115.1096854

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818:
Up to 0.288 ha.

Areas of Native Vegetation Clearing:
The areas of native vegetation to be cleared are shown in Figure 1.

Type of Native Vegetation:
The type of vegetation to be cleared under this Proposal is mixed tall shrubland dominated by *Melaleuca cardiophylla, M. huegelii* subsp. *huegelii*, and *Acacia rostellifera* over native grasses and herbs.

The proposal 20 km Study Area is shown in Figure 2.

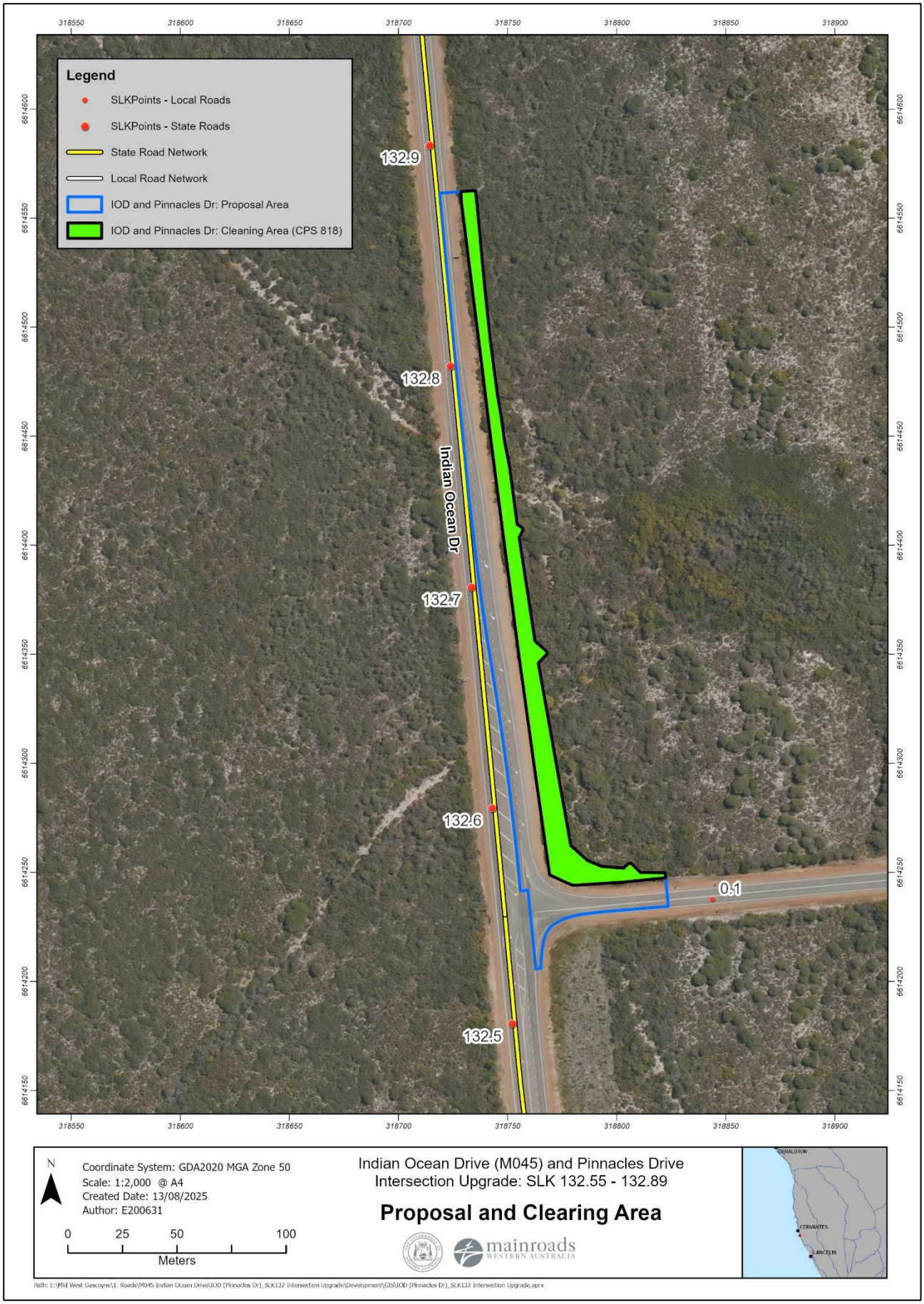

Figure 1: IOD (M045) and Pinnacles Drive Intersection Upgrade Clearing Area

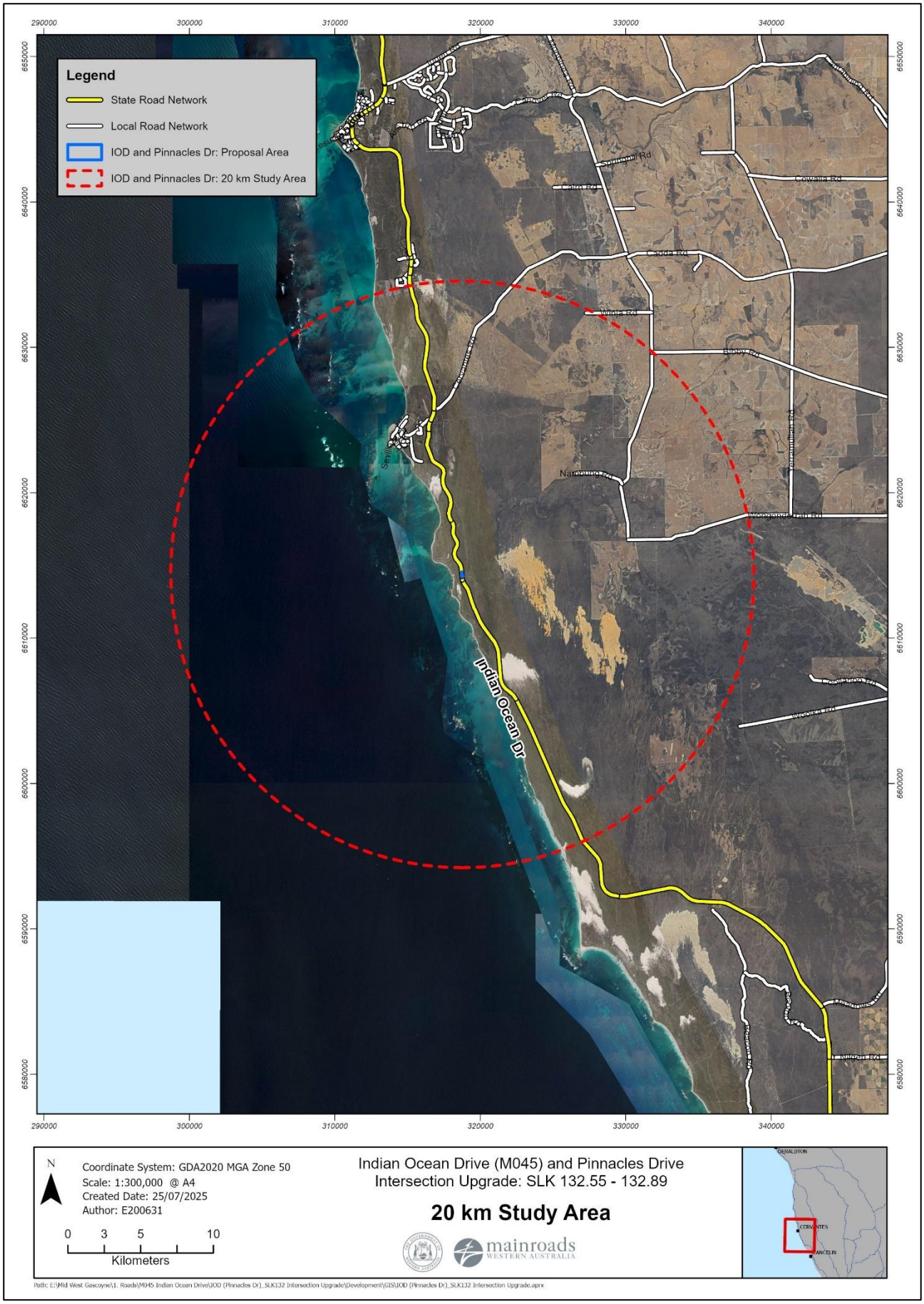

Figure 2. IOD (M045) and Pinnacles Drive Intersection Upgrade: 20 km Study Area

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Upgrading other alternative routes that are less vegetated and environmentally constrained, however these are not suitable due to longer travel times, sensitive local receptors (such as residences) or other environmental, tenure and planning issues.
- Do not upgrade the road, however this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries and further degradation of the State road asset.
- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will only be required to accommodate the road formation, with no clear zone being established. Accordingly, the retention of frangible vegetation does not apply to this proposal.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.

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

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

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

Design or Management Measure	Discussion and Justification
Alternative alignment located within pasture or degraded areas	Given the Indian Ocean Drive and Pinnacles Drive intersection occurs within a Class 'A' National Park, there are no areas of pasture or cleared areas that can be utilised as an alternative turning lane. The area of land to be acquired is directly adjacent to the roadside and subject to edge effects and represents lesser value than other surrounding areas within the National Park.
Simplification of design to reduce number of lanes and/or complexity of intersections	Alternative designs were considered however, this would require a larger clearing area within Nambung National Park and result in significant impacts on environmental sensitivities.
Use of existing cleared areas for access tracks, construction storage and stockpiling	The upgrade and widening of Indian Ocean Drive and Pinnacles Drive intersection has been aligned to reduce the amount of clearing within the Nambung National Park. This alignment also avoids the need to create a new entry into the National Park.

1.7 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, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant 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 and D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914*
- *Aboriginal Heritage Act 1972* (WA).

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 (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, 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.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Desktop Report (CDR).

The CDR 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 listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Clearing Area** – The maximum amount of native vegetation to be cleared for the Proposal that will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction.

- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 20 km radius.

- **Survey Area** – Area covered by the Biological Survey, which is typically larger than the Clearing Area.

2.2 Desktop Assessment

A desktop assessment of the Development Envelope was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, and are found under References in Section 6.

2.3 Surveys and Assessments

The following surveys/assessments were undertaken to inform this CDR:

- Biota Environmental Sciences (2025) - Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey.

Biological and targeted surveys conducted for the proposal are outlined in Table 2

Table 2. Summary of Biological and Targeted Surveys Relevant to the Proposal

Consultant and Survey Name	Survey Details
Biota (2025) Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey.	**Survey Area:** Survey area comprised approximately 0.99 ha on the corner of Indian Ocean Drive (M045) and Pinnacles Drive (SLK 132.55 – 132.89) approximately 10 km south of Cervantes **Type:** The survey consisted of three components: 1. Desktop assessment; 2. Flora and Vegetation surveys – This included a combination of Detailed, Targeted, and Opportunistic sampling techniques; an assessment of vegetation types, vegetation condition; and a significant ecological communities' assessment; and 3. Basic Fauna Survey – This included Opportunistic fauna searches, fauna habitat assessment documenting the type, value and connectivity and Black Cockatoo Assessment. **Timing:** The field work component for both the Flora and Vegetation and Basic Fauna Surveys were conducted from 9 October 2024. **Survey Results Shapefile TRIM Ref:** D25#699456 **Document TRIM Ref:** D25#699439

3 DESKTOP ASSESSMENT OF VEGETATION

3.1 Desktop Vegetation Description

One vegetation type (M1) was recorded within the Clearing Area, with the vegetation condition being mapped as Excellent to Very Good.

One Beard vegetation association occurs within the Clearing Area – Vegetation Association 1026 (Government of Western Australia (GoWA), 2019). The National Objectives and Targets for Biodiversity Conservation recognise that it is important that ecological communities are maintained above the threshold level of 30% of pre-European extent for each community and therefore ecological communities with levels below 30% should be fully retained (Commonwealth of Australia, 2001). Vegetation Association 1026 has a total of ~65, 560 ha remaining, which is above the retention threshold at State (92.73%), Regional (52.64%) and Local levels (92.83%).

Table 3 and Table 4 provide details of the vegetation type within the Clearing Area and the remaining extents of the association.

Table 3. Summary of Vegetation Types within Vegetation Clearing Area

Vegetation Type	Extent within Clearing Area (ha)	Total Extent Mapped (ha) within Survey Area
M1: *Melaleuca cardiophylla, M. huegelii subsp. huegelii, Acacia rostellifera* tall shrubland to tall open shrubland over Spyridium *globulosum* open shrubland over *M. systena, Acacia lasiocarpa var. lasiocarpa, Styphelia insularis* low open heath to low shrubland *over Austrostipa flavescens very open tussock grassland over Cassytha racemosa forma pilosa, Daucus glochidiatus, Trachymene pilosa, Isotoma hypocrateriformis* very open herbland.	0.280 ha	0.990 ha

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre–European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. *1026* Mosaic: Shrublands; Acacia rostellifera, A. cyclops (in the south) & Melaleuca cardiophylla (in the north) thicket / Shrublands; Acacia lasiocarpa & Melaleuca acerosa heath	**Statewide**	~70 700	~65 560	92.73	55.07
	IBRA Bioregion *Swan Coastal Plain*	~58 419	~54 819	93.84	55.70
	IBRA Sub-region *Perth*	~58 419	~54 819	93.84	55.70
	Local Government Authority *Shire of Dandaragan*	~52 458	~48 697	92.83	55.89

4 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 (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) '*A Guide to the Assessment of Applications to Clear Native Vegetation*' (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is not at or not likely to be at variance with the ten 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 is located in the Perth (SWA02) subregion of the Swan Coastal Plain Bioregion of Western Australia (SWA). This Bioregion has not been identified as one of the eight Biodiversity Hotspots located in Western Australia for priority action (Department of Environmental Regulation (DER), 2014). The Swan Coastal Plain Subregion is part of the South West Botanical Province which has a very high degree of species diversity. Within the SWA02 subregion there are areas of relatively high ecosystem or species diversity (Department of Conservation and Land Management (CALM), 2003).

One broad-scale pre-European vegetation association (VA 1026) is mapped within the Clearing Area (Table 4). VA 1026 is defined as Mosaic: Shrublands; *Acacia rostellifera*, *A. cyclops* (in the south) and *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *A. lasiocarpa* and *M. acerosa* heath (Department of Primary Industries and Regional Development (DPIRD-006). This vegetation association remains well represented, with over 92% of its pre-European extent remaining at the state and LGA levels (Shire of Dandaragan) (GoWA, 2019). According to the Biological Survey (Biota, 2025), the Clearing Area comprises a single vegetation type (M1), outlined above in Table 3.

During the Detailed Flora Survey, Biota (2025) conducted a vegetation condition assessment of the Clearing Area and mapped the M1 Vegetation Type within the Clearing Area as Excellent to Very Good condition.
Biota (2025) identified four significant communities within the 20 km study area. Under state regulation (BC Act) two communities are listed as Threatened and two are listed as Priority 3 communities. Of the four communities, three are Threatened under EPBC Act. Following the field survey Biota (2025) undertook a likelihood of occurrence assessment of the four identified significant communities and concluded none occur or are likely to occur within the Clearing Area. These communities are outlined in Table 5 below.

Table 5: Likelihood of Occurrence (Significant Communities)

Community Name	Listing Status		Likelihood of Occurrence in the Survey Area
	State (BC Act)	Cth (EPBC Act)	
Tuart (*E. gomphocephala*) woodlands and forests of the Swan Coastal Plain	Priority 3(iii) PEC	Critically Endangered TEC	Would not occur - single occurrence in the study area, over 2.5 km northeast; no suitable habitat in the survey area.
Clay Pans of the Swan Coastal Plain (FCT 7 as originally described in Gibson et al. 1994)	Endangered TEC	Critically Endangered TEC	Would not occur - single occurrence in the study area, over 13 km east; no suitable habitat in the survey area.
Banksia woodlands of the Swan Coastal Plain ecological community	Priority 3(iii) PEC	Endangered TEC	Would not occur - extensive occurrences to the east, the closest of which is more than 4.5 km away; community does not extend this far west into near-coastal areas.

Stromatolite community of stratified hypersaline coastal lake (Lake Thetis)	Critically Endangered TEC	Not Listed	Would not occur - single occurrence in the study area, the management buffer of which is over 4 km north; no suitable habitat in the survey area.

In addition to the above, Biota (2025) noted that the floristic analysis suggests that vegetation unit M1 is consistent with vegetation listed as a Priority 3 Priority Ecological Community (PEC): The '*Acacia* shrublands on taller dunes, southern Swan Coastal Plain (FCT 29b of Gibson, Keighery, Keighery, Burbidge & Lyons (1994))'. According to Gibson *et al* (1994), FCT 29b PEC has a distribution stretching from Seabird in the North to south of Mandurah a distance of over 160 kilometres). Biota (2025) noted that the M1 vegetation in the Survey Area is part of an extensive patch extending on all sides of the survey area, including in Nambung National Park. Based on the known extent of this PEC beyond the Clearing Area, it is unlikely the proposed clearing of 0.280 ha of roadside vegetation subject to edge effects will have a significant impact on the remaining local or regional extent of the PEC.

Based on a search of DBCA spatial data (DBCA-036), 26 conservation significant flora species were identified within the 20 km Desktop Study Area (Figure 2). This includes two Threatened species, three Priority 1 species, three Priority 2 species, 13 Priority 3 species and five Priority 4 species. Eleven species were listed in the EPBC Act Protected Matters (PMST) Report (Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2025).

In the Detailed and Targeted Flora Assessment, Biota (2025) did not find any listed BC Act or EPBC Act listed flora taxa. In the Post-Survey Likelihood of Occurrence assessment, none of species had the potential to occur within the Clearing Area due to the absence of suitable habitat and adequate survey effort did not record the presence of these or any other species of conservation significance.

According to the biological survey, (Biota, 2025) fourteen introduced taxa were identified, none of which are classified as a Weed of National Interest (WoNS) or listed as a Declared Pest in WA under the *Biosecurity and Agriculture Management Act 2007*.

Biota (2025) conducted a Basic Fauna Survey of the Clearing Area and identified a single fauna habitat, *Melaleuca/Acacia* shrubland on a sandy substrate. The *Melaleuca/Acacia* shrubland habitat is representative of the surrounding landscape and is well represented in Nambung National Park.

Based on the DBCA Threatened and Priority Fauna spatial data (DBCA-037), 34 conservation significant fauna species were identified. Three of these species are marine based species and have been excluded from the species list due to the absence of suitable habitat. Thus, 31 species remain, including, three Critically Endangered, three Endangered, two Vulnerable, one Priority 2, one Priority 3, three Priority 4, one Specially Protected and 17 Migratory species. The EPBC Act Protected Matters Report (DCCEEW, 2025), identified 68 conservation significant fauna within the 20 km Desktop Study Area.

Biota (2025) recorded no Threatened or Priority species within the Survey Area during the field survey; however, in a Post-survey Likelihood of Occurrence assessment, Biota (2025) identified eight species which had the potential to occur within the area, with four assessed as 'likely' to occur and four as 'may' occur within the Clearing Area. These species are outlined in further detail in Table 6 and discussed in Principle (b). An assessment of fauna habitat available within the clearing area has determined no key features considered critical to support the presence of these fauna species is present and a significant amount of habitat is available in adjacent areas and beyond in the National Park, that would be more preferential to fauna. The proposed clearing of vegetation directly adjacent to the road will not significantly impact any conservation significant fauna species.

Expansive areas beyond the clearing area contain a high level of biodiversity. Based on the above, the clearing area does not contain a high level of biological diversity.

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

Methodology

- Atlas of Living Australia (Atlas of Living Australia (ALA), 2025)
- National recovery plan for Malleefowl - *Leipoa ocellata* (Benshemesh, 2007)
- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- Nambung National Park Management Plan - 1998 – 2008 (Department of Conservation and Land Management (CALM), 1998)
- A biodiversity Audit of Western Australia's 53 Biogeographical subregions in 2002 (Department of Conservation and Land Management (CALM), 2003)
- National Objective and Targets for Biodiversity Conservation (Commonwealth of Australia, 2001)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2025)
- *Synemon gratiosa* – Graceful Sunmoth (DCCEEW, 2013)
- A guide to the assessment of applications to clear native vegetation (Department of Environmental Regulation (DER), 2014)
- Statewide Vegetation Statistics (Government of Western Australia (GoWA), 2019)
- A Floristic Survey of southern Swan Coastal Plain (Gibson, Keighery, Keighery, Burbidge, & Lyons, 1994)
- Handbook of Western Australian birds, Volume one: Non-passerines (Johnstone & Storr, 1998)
- Government GIS Shapefiles:
  - DBCA Threatened and Priority Ecological Community database search (DBCA-038) (Accessed: June 2025)
  - DBCA Threatened and Priority flora database search (DBCA-036) (Accessed: June 2025)
  - DBCA Threatened and Priority fauna database search (DBCA-037) (Accessed: June 2025)

(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 .

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

A single fauna habitat type (*Melaleuca/Acacia* shrubland on a sandy substrate) was mapped within the Clearing Area (Biota, 2025). The fauna habitat is representative of the surrounding landscape and is well represented in Nambung National Park.

Based on the DBCA Threatened and Priority Fauna spatial data (DBCA-037), 34 conservation significant fauna species were identified. Three of these species are marine based species and have been excluded from further assessment with no habitat available within the proposed clearing area. Thus, 31 species remain, including, three Critically Endangered, three Endangered, two Vulnerable, one Priority 2, one Priority 3, three Priority 4, one Specially Protected and 17 Migratory species. The EPBC Act Protected Matters Report (DCCEEW, 2025), identified 68 conservation significant fauna species within the 20 km Desktop Study Area.

Biota (2025) recorded no Threatened or Priority fauna species within the Survey Area during the field survey.

Following the Biological Survey, Biota (2025) undertook a Post-survey Likelihood of Occurrence assessment. Eight species have the potential to occur within the area, of which four were assessed as 'likely' to occur (Pacific Swift, Peregrine Falcon, Quenda and Carnaby's Black Cockatoo) and four assessed as 'may' occur (Spiny Katydid, Malleefowel, the Black-striped Snake and Graceful Sun Moth). These species are further discussed in Table 6 below.

Table 6: Post-Survey Likelihood of Occurrence (Fauna)

Species	Information
Pacific Swift (*Apus pacificus*) (MI)	The species occurs as a non-breeding migrant across much of Australia from September to April. Though more common in the northern half of the continent, it occurs relatively regularly in coastal and near-coastal parts of the west coast north of Perth. In general, the species is most common near the coast, but it also occurs in inland areas (Johnstone & Storr, 1998). A total of two historical counts were identified within the 12 km Study Area, the closest being approximately 3.86 km south of the Clearing Area in 2013 (DBCA-037). In Australia, the species is thought to be almost entirely aerial in habit, foraging for flying insects and even sleeping on the wing. It is highly mobile, often occurring in association with unsettled weather and low-pressure systems (Johnstone & Storr, 1998). The species forages across a wide variety of habitats and may be found sporadically surrounding the Clearing Area. However, considering the number of records identified in the Study Area (2) and the species ability to fly over and avoid disturbance areas, it is unlikely this species will be impacted by the proposed clearing.
Spiny Katydid *(Austrosaga spinifer)* (P2)	The Spiny Katydid is only known from limited records from Cervantes south to Boya (Atlas of Living Australia (ALA), 2025). Despite little information available regarding critical habitat for the species, coastal shrublands and heath habitats are considered important for the persistence of the species (Biota, 2025). Two historical records were identified less than 14 km from the Clearing Area (DBCA-037). Knowledge of the species' breeding biology and ecology is limited. It is a nocturnal species and has been reported to seek refuge in shrubs within heath habitats, and to call after dark (ALA, 2025). Despite notable knowledge gaps, the available literature indicates that favourable habitat may be present but would unlikely be used given the extent of habitat present in better condition within the adjacent Nambung National Park (>18,000 ha). The proposed minor clearing will not significantly impact this species.

Peregrine Falcon (*Falco peregrinus*) (OS)	The Peregrine Falcon occurs Australia-wide and inhabits a wide range of habitats, including forest, woodlands, wetlands and open country (Pizzey & Knight, 2007). DBCA species data suggests one record occurs within the 20 km Study Area (1999), approximately 5 km northwest of the Clearing Area (DBCA-037). Home ranges are probably defended year-round and are variable in size, though not typically less than 480 ha (Marchant, Higgins, Davies, & Considine, 1993). The species typically nests on ledges in cliffs, granite outcrops and quarries, but also in hollow trees and in old nests constructed by other species such as Wedge-tailed Eagles and Ravens (Johnstone & Storr, 1998). These habitat features are not present within the proposed clearing area. Based on the wide range of habitats the species utilises; the Peregrine Falcon is may only use the Clearing Area for foraging on an intermittent basis. This species has the ability to easily fly over and avoid any disturbance areas. The proposed minor clearing will not significantly impact this species.
Quenda (*Isoodon fusciventer*) (P4)	Quenda are endemic to the mesic sclerophyllous forests of southwestern Australia inhabiting dense understories such as around swamps or in banksia and jarrah woodlands. Quenda will usually have several daytime nesting sites within their home range. The nest sites are indentations in the ground hidden beneath a shrub and lined with leaves, dry grasses and other soft materials. They have also been known to use old rabbit burrows (Biota, 2025). Seven historical records were identified within the Nambung National Park between 2005-2006 by means of translocation (DBCA-037). Quenda are mostly nocturnal but are known to be active during the day, particularly during winter. They are most seen at dawn or dusk. The species usually stays close to shrubs and other cover while searching for food. Quenda eat a variety of invertebrates, including earthworms, beetles and their larvae, and plant material, including fungi, tubers and bulbs, which they find while digging conical-shaped holes in the ground (Biota, 2025). Quenda may occur sporadically throughout the Nambung National Park (>18,000 ha) and would preferentially select habitat away from the busy roadside. The proposed minor clearing will not significantly impact this species.
Malleefowl (*Leipoa ocellata)* (VU)	Malleefowl are found in semi-arid to arid shrublands and low woodlands dominated by mallee and/or *Acacia*. In WA, the species currently has a somewhat patchy distribution within the central and eastern Wheatbelt, southern rangelands and the Great Southern, from the Peron Peninsula to the coastal strip of the southern Nullarbor Plain (Biota, 2025). Four Malleefowl records have been identified within the 20 km Study Area, with the closest being 4.70 km southeast of the Clearing Area (2012). Individuals of the species spend up to 10 months of the year digging and maintaining their mounds in areas where vegetation structure and open ground ratios allow for thermal stability. Eggs are laid in the mound, buried and incubated by the heat from the sun, with decomposing leaves and twigs acting as insulation to surround the incubation chamber. The female lays between 20 and 30 eggs, one at a time every 3 to 7 days (Benshemesh, 2007). Although suitable habitat for this species exists in the Clearing Area, there are only two records (in 2012) from the Study Area, located in Nambung National Park. The Clearing Area is not representative of critical habitat to Malleefowl when preferential habitat exists in the adjacent National Park. The proposed minor clearing will not significantly impact this species.
Black-striped Snake (*Neelaps calonotos*) (P3)	The Black-striped Snake is endemic to and restricted in southwestern Australia, occurring on the temperate Swan Coastal Plain from slightly north of Lancelin to near Mandurah, as well as in a small area of the Geraldton Sandplains bioregion (Maryan, Keogh, & Bolton, 2023). The species is restricted to temperate vegetation that grows on sandy soils, including coastal and near-coastal sand dunes with heaths and/or *Acacia* thickets, often adjacent to limestone outcroppings and dry sclerophyll woodlands of *Banksia/Eucalyptus* with a shrubland understorey (Maryan, Keogh, & Bolton, 2023). A single record is present within the Study Area, located approximately 20 km east of the Clearing Area (2012) (DBCA-037).

	The Black-striped Snake is a small, slender, fossorial, burrowing snake. The apparent habitat preference of this species for sandy soils is exemplified by it being recorded most frequently in Banksia woodland on the Cottesloe sands of the Spearwood Dune formation at Bold Park (Biota, 2025). Whilst suitable habitat for this species may be present within the Clearing Area, available habitat extends into adjacent areas of the National Park (>18,000 ha). The proposed minor clearing will not significantly impact this species.
Graceful Sun Moth (*Synemon gratiosa*) (P4)	The Graceful Sun Moth ranges from Nambung National Park to Mandurah and occurs in association with two habitat types; coastal heathland on Quindalup dunes, where it is restricted to secondary sand dunes due to the abundance of the preferred host plant *Lomandra maritima*; and Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant *L. hermaphrodita* is widespread (Department of the Climate Change, Energy, the Environment and Water (DCCEEW), 2013). Based on DBCA data, there are ten records of this species within the 20 km Study Area between 2010 and 2025, with the nearest record occurring approximately 3.0 km northwest of the Clearing Area (DBCA-037). This species is a diurnal flying moth, with behaviour and appearance similar to a butterfly. Adults emerge in hot weather in bright sunshine, normally in summer and autumn. Little is known about dispersal; however, it is thought that the species does not disperse over unsuitable habitat (DCCEEW, 2013). Although this species has previously been recorded in proximity and there is potentially some suitable habitat in the Clearing Area, the host plant species *Lomandra maritima* was not found during Biota's October 2024 field survey. Based on the small size of the proposed clearing and the abundance of suitable habitat in the surrounding Nambung National Park, the proposed clearing will not significantly impact this species.
Carnaby's Black Cockatoo *(Zanda latirostris*) (EN)	Carnaby's Black Cockatoo are endemic to the South-west of Western Australia. This species inhabits mainly Proteaceous shrublands and heaths, and Eucalypt woodlands and forests (Johnstone & Storr, 1998). Carnaby's Black Cockatoo is a long-lived species, and breeds annually from four years of age. Breeding occurs from July to October, primarily in the Wheatbelt region. Following breeding, many individuals disperse towards the coast, and during this time, they are common in the Perth metropolitan area. The species primarily feeds on the seeds of *Hakea*, *Banksia*, *Grevillea*, *Eucalyptus,* and introduced pines, as well as insect larvae (Johnstone & Storr, 1998). No observations or secondary evidence of any of the three black cockatoo species were recorded during the survey. Although Carnaby's Black Cockatoo has been previously recorded in the study area, no suitable habitat for breeding, foraging or roosting occurs within the Clearing Area. The Clearing Area comprises one habitat type, which is devoid of trees and proteaceous plants that are necessary to support black cockatoo presence. The proposed minor clearing will not significantly impact this species.

In consideration of the above, the proposed clearing is not likely to be variance to this Principle.

Methodology

- Atlas of Living Australia (Atlas of Living Australia (ALA), 2025)
- National recovery plan for Malleefowl - *Leipoa ocellata* (Benshemesh, 2007)
- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- Nambung National Park Management Plan - 1998 – 2008 (Department of Conservation and Land Management (CALM), 1998)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2025)
- *Synemon gratiosa* – Graceful Sunmoth (DCCEEW, 2013)
- Handbook of Western Australian birds, Volume one: Non-passerines (Johnstone & Storr, 1998)
- Government GIS Shapefiles:
  - DBCA Threatened and Priority Ecological Community database search (DBCA-038) (Accessed: June 2025)
  - DBCA Threatened and Priority flora database search (DBCA-036) (Accessed: June 2025)
  - DBCA Threatened and Priority fauna database search (DBCA-037) (Accessed: June 2025)

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

Proposal is not at variance to this Principle.

According to the DBCA Threatened flora layer (DBCA-036) and the Western Australian Herbarium (1998 -) two threatened flora species listed under the BC Act occur within the survey area and no species listed under the EPBC Act Protected Matters Report occur (DCCEEW, 2025).

No Threatened Flora species were recorded within the Survey Area during the Biological Survey and none are considered likely to occur based on the absence of suitable habitat (Biota, 2025).

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

Methodology

- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2025)
- Government GIS shapefiles:
  - DBCA Threatened flora database search (DBCA-036) (Accessed: June 2025)
  - WA Herbarium (WAH, 1998 -)

(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.

Biota (2025) identified three Threatened communities within the 20 km Study Area (refer to Table 5 above). Under state regulation (BC Act) one community is Critically Endangered, and one is Endangered (DBCA-038). Based on the EPBC Act Protected Matters Search Tool (DCCEEW, 2025), two communities are Critically Endangered, and one community is Endangered.

Following the field survey Biota (2025) undertook a likelihood of occurrence assessment and determined all three communities are not present and would not occur due to unsuitable habitat and location.

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

Methodology

- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2025)
- Government GIS shapefiles:
  - DBCA Threatened Ecological Community database search (DBCA-038) (Accessed: June 2025)

(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 National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-European extent of each vegetation association is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia, 2001).

The proposal involves clearing of 0.280 ha of vegetation that is representative of Vegetation Association 1026 (DPIRD-006). The Vegetation Association has greater than 92% of pre-European representation remaining at all scales and therefore exceeds the 30% retention national objectives and targets for biodiversity conservation in Australia (Table 4).

The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area and is contained within a broad landscape of relatively undisturbed vegetation within the IBRA region. While the vegetation proposed to be cleared is in Excellent to Very Good condition, the small amount of clearing proposed of a vegetation association that is widespread throughout the area and is well-represented locally and regionally, will not result in a significant impact.

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

Methodology

- Aerial photography
- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- Commonwealth of Australia (2001)
- Government GIS shapefiles:
  - Pre-European vegetation
    (Accessed: June 2025)
- Statewide Vegetation Statistics (Government of Western Australia (GoWA), 2019)

(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.

Biota (2025) identified one vegetation type (M1) within the Clearing Area that is not noted to be growing in or in association with an environment associated with a watercourse or wetland.

According to the Geoscience Australia database, the closest mapped watercourse to the Clearing Area is a minor non-perennial watercourse, Nambung River, approximately 4.50 km northeast of the Clearing Area. Vegetation in the Clearing Area is not connected to this watercourse.

The closest known wetland is "Dampland" located 500 m east of the Clearing Area (DBCA-013). Vegetation in the Clearing Area is not connected to this wetland.

The proposed clearing is not at variance to this Principle.

Methodology

- Pinnacles Drive and Indian Ocean Drive Intersection Upgrade Biological Survey (Biota, 2025)
- Government GIS shapefiles:
  - Geomorphic Wetlands (DBCA-013)
    (Accessed: June 2025)
  - Important Wetlands (DBCA-045)
    (Accessed: June 2025)
  - Watercourses (GeoScience Australia)
    (Accessed: June 2025)

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

Proposed clearing is not at variance to this Principle.

Based on the DPIRD Soil landscape spatial data (DPIRD-017), the Clearing Area is located within Zone 211 (Perth Coastal Zone). The area is described as Coastal sand dunes and calcarenite; Late Pleistocene to Recent age; Calcareous and siliceous sands and calcarenite (Quindalup and Spearwood Systems).

The land zone has been further classified as the Quindalup South (211Qu), described as Coastal dunes, of the Swan Coastal Plain, with calcareous deep sands and yellow sands. Coastal scrub (DPIRD-064).

DPIRD (2025), mapping provides the landscape description as per Table 7 below, indicating the Clearing Area is not subject to waterlogging; erosion or flooding.

Table 7: Soil Landscape System Description (DPIRD, 2025)

Risk Percentage	Information
0 %	Very poor to poor drainage potential
0 %	Very high to extreme water erosion hazard
20 %	High to extreme wind erosion hazard
0 %	Moderate salinity hazard
0 %	Has pHCa <4.5 surface acidity
0 %	Moderate to very high waterlogging risk
0 %	Moderate to high flood hazard

The CSIRO Australian Soil Resource System (ASRIS) has been used to determine the Clearing Area is in an area of 'extremely low probability of occurrence' of Acid Sulfate Soil (ASS) occurring.

The minor amount of clearing proposed from the roadside location in an area that is highly vegetated, will not cause appreciable land degradation.

The proposed clearing is not at variance to this Principle.

Methodology

- Government GIS Shapefiles:
  - Acid Sulfate Soil Risk Map (Accessed: June 2025)
  - CSIRO ASRIS Acid Sulfate Soils (Accessed: June 2025)
  - Soil Landscape Mapping (DPIRD-017) (Accessed: June 2025)
  - Soil Landscape Mapping – Systems (DPIRD-064) (Accessed: 064)
  - Soil landscape land quality – Water Erosion Risk (DPIRD-013) (Accessed: June 2025)
  - Soil landscape land quality – Wind Erosion Risk (DPIRD-016) (Accessed: June 2025)
  - Soil landscape land quality – Salinity Risk (Accessed: June 2025)
  - Soil landscape land quality – Surface Acidity (Accessed: June 2025)
  - Soil landscape land quality – Waterlogging Risk (DPIRD-015) (Accessed: June 2025)
  - Soil landscape land quality – Flood Risk (DPIRD-007) (Accessed: March 2025)

(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.

A search of the DBCA Legislated Lands and Waters (DBCA-011) shapefile layer indicates a small portion of the Clearing Area is situated within the Nambung National Park. This area of land is being acquired by Main Roads for inclusion in the road reserve and clearing will not commence until land acquisition has been finalised.

The clearing area is located adjacent to the Nambung National Park. Nambung National Park is an 'A' Class reserve established under the *CALM Act 1984* for the purpose of 'National Park and Water'. The reserve is vested with the Conservation Commission of WA and managed by DBCA and is listed on the National Estate Register in recognition of its conservation significance. Nambung National Park is situated on both sides of Indian Ocean Drive (M045) and spans from Cervantes in the north to Wanagarren National Park in the south, covering an approximate area of ~18,000 ha.

Main Roads is acquiring 0.288 ha of Nambung National Park, of which 0.054 ha is to be cleared. The strip of land for acquisition is located directly adjacent to the existing road and is subject to edge effects. This area is not noted to contain the key features relating to the National Park. The clearing of 0.054 ha from an area that is located adjacent to ~18,000 ha of Nambung National Park following the acquisition will not impact on the environmental values of the National Park with a significant area remaining.

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

Methodology

- Government GIS Shapefiles:
  - DBCA Legislated Lands and Waters database search (DBCA-011)
    (Accessed: June 2025)

(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 at variance to this Principle.

The DWER spatial data indicates the Clearing Area is located within the Jurien Groundwater Area (DWER-034), proclaimed under the RIWI Act 1914. However, DWER spatial data recognises the Clearing Area is not located within any Surface Water, Irrigation (DWER-037) or Public Drinking Water Area (DWER-033). In addition, the Clearing Area is not located near or adjacent to a watercourse or wetland, nor is the vegetation growing in or in association with a watercourse or wetland.

Clearing is proposed to occur in dry conditions and the removal of vegetation from a small area adjacent to the roadside will not cause deterioration in the quality of surface or groundwater when extensive vegetated areas will remain in adjacent areas.

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

Methodology

- Government GIS Shapefiles:
  - RIWI Act, Groundwater Areas (Accessed June 2025)
  - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed June 2025)
  - CAWSA Part 2A Clearing Control Catchments (Accessed June 2025)
  - Public Drinking Water (Accessed June 2025

(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.

According to the Bureau of Meteorology (Bureau of Meteorology (BoM), 2025), the closest open weather station (9276) is located 10.90 km east of the Clearing Area. The median annual rainfall at Nambung, is 511 mm. The topography for the land system area (211Qu) is described as Coastal dunes, of the Swan Coastal Plain, with calcareous deep sands and yellow sands; Coastal scrub.

The DPIRD (2025) soil landscape mapping data (refer to Table 7 above), indicates there is a low chance (0%) of:

- Moderate to very-high waterlogging risk
- Moderate to high flood hazard

No watercourses are located within or adjacent to the Clearing Area and the proposed clearing will not significantly alter current drainage patterns given it is a relatively small area of roadside vegetation proposed for clearing and large expanses of vegetation remain in the surrounding areas.

The minor clearing proposed will not cause or exacerbate the incidence or intensity of flooding.

The proposed clearing is not at variance to this Principle.

Methodology

- BoM Website (Accessed: June 2025
- Government GIS Shapefiles:
  - Soil Mapping (Accessed June 2025)
  - Soil landscape land quality - Waterlogging Risk (Accessed: June 2025)
  - Soil landscape land quality - Flood Risk (Accessed June 2025)

5 COMPLIANCE WITH CPS 818

The clearing proposed is not at or not likely to be at variance with the Clearing Principles. Additional management actions under CPS 818 are detailed in Table 8.

Table 8. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CDR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	**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.	**No**	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality **and** (j) the incidence of flooding.	**No**	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	**No**	No further action required.
5a. Proposal is within a Region that: • has rainfall greater than 400mm; and, • is South of the 26th parallel; and, • works are necessary in 'Other than dry conditions'; and, • works have potential for **uninfested** areas to be impacted.	**No**	Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), Hygiene Checklists and Vehicle, Plant and Machinery Hygiene Register Template will be applied *Dieback Management Procedure* has been approved by DBCA.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	**No**	No further action required.
6. 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.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	**No**	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
8. Did an environmental specialist conduct the survey or field assessment?	**Yes**	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	**Yes**	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

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