Clearing Assessment Report – CPS 818

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Albany Limestone Pit

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Contents

Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Senior Environmental Officer	Draft v1	16/03/2021
Reviewer:	Environment Officer	Final	11/05/2021

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 Purpose / Components:
Albany Limestone Pit is located within the City of Albany.

Road Proposals within the Great Southern Region require limestone for road construction. Main Roads has operated the Albany Limestone Pit since 2001. The current Main Roads limestone pit (to the west of the Proposal) has limited resource remaining, and with the amount of proposed limestone required for the Albany Ring Road (and other road Proposals), an expansion of this pit is required. The area of expansion was identified as it follows the existing limestone ridge, with excavation to a depth of approximately 10 metres (m) expected.

The proposed clearing undertaking using CPS 818 is: 1.83 ha within a 2.19 ha disturbance footprint.

The proposed temporary clearing under CPS 818: None.

Proposal Location(s): The proposal area is located within the City of Albany.

2.2 Assessment Report Scope

The assessment area is confined to a local area of a 5 km radius.

Figure 1. Proposal Area

REDACTED

Figure 2. Assessment Area

REDACTED

2.3 Alternatives to clearing

As the current Limestone Pit and proposed expansion area is located on a high quality limestone resource suitable for road construction, the only alternative to clearing is to source the material from a commercial pit. Sourcing material from a commercial pit will also result in clearing of vegetation (most likely of a similar type) and be considerably more expensive than Principal supplied material.

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.

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

Design or Management Measure	Applied to Current Design	Discussion and Justification
Steepen batter slopes	No	Not applicable to this proposal as it is a limestone borrow pit that is constrained by where the limestone is located. Maximum batter angles are specified for safety reasons.
Installation of safety barriers	No	Not applicable to this proposal as it is a limestone borrow pit
Alignment to one side of existing road	No	Not applicable. Existing access track will be used.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas	No	Not applicable. Existing access track will be used.
Installation of kerbing	No	Not applicable to this proposal as it is a limestone borrow pit.
Simplification of design to reduce number of lanes and/or complexity of intersections	No	Not applicable to this proposal as it is a limestone borrow pit.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Yes	Existing access track will be used.
Drainage modification	Yes	Earthworks/excavation design will allow potentially contaminated rainfall to soak into the existing pit area/proposed cleared areas. Runoff from uncleared areas will remain unchanged.
Other design treatment List any additional avoidance and measures considered during the Proposal design process.	Yes	Clearing is likely to be staged to reduce the amount of vegetation cleared at any one time.

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

An EIA has been prepared for this Proposal (TRIM D21#275097).

3 SUMMARY OF SURVEYS

3.1 Biological Survey

Southern Ecology (2021a) undertook a biological survey over a 6.4 ha survey area from 10 September – 3 December 2020.

To provide contextual information on *Thomasia quercifolia* (P4), information from the following two surveys was also used:

- Eco Logical Australia (2020) Flora and Vegetation Survey at the Albany Wind Farm.
- Southern Ecology (2016) Targeted Flora Survey for Ocean Beach Quarry, Wilson Head, Denmark.

Section 3.1.1 contains summaries of these surveys.

3.1.1 Summary of Biological Survey

Southern Ecology (2020a)
Main Roads Western Australia (Main Roads) is proposing to expand an existing limestone pit for road construction material source, located approximately 5 kilometres (km) south-west of Albany town centre. Southern Ecology was engaged to assess a Proposal envelope (the 'survey area') of 6.4 hectares (ha) for vegetation, flora and fauna of conservation significance.

Vegetation
Three vegetation types were described and mapped within the survey area that align with Albany Regional Vegetation Survey (ARVS) mapping Units; None are considered analogous with any State or Commonwealth listed Threatened or Priority Ecological Community:

- Peppermint Low Forest (ARVS Unit 2)
- Coastal Limestone Heath (ARVS Unit 5b)
- *Cyathochaeta equitans* Sedgeland (ARVS Unit 3b)

All vegetation types occur within the adjacent coastal reserve system and between 1,232 – 3,737 ha of each vegetation type has been mapped within the ARVS region.

The majority of the vegetation was in 'Excellent' condition with minimal weed invasion and disturbances confined to tracks and firebreaks. Some vegetation adjacent to the existing limestone pit was regenerating after soil disturbance and was mapped as either Very Good or Degraded.

Flora
A total of 140 species from 46 families, including 25 weeds species, were recorded within and adjacent to nine floristic quadrats established in the survey area.

No 'Threatened' flora protected under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* were recorded within the survey area.
Four plant taxa 'Priority'-listed by the Department of Biodiversity Conservation and Attractions (DBCA) were recorded in the survey area:

- *Gyrostemon thesioides* (P2)
- *Adenanthos x cunninghamii* (P4)
- *Thomasia quercifolia* (P4)
- *Corybas ?limpidus* (P4)

Fauna
Habitat for four Threatened fauna was mapped within the survey area: -

- Feeding habitat (1.2 ha) for Carnaby's Cockatoo (*Calyptorhynchus latirostris* (T-EN)) and possibly Baudin's Cockatoo (*Calyptorhynchus baudinii* (T-EN)),
- Supporting habitat (5.1 ha) for Western Ringtail Possum (*Pseudocheirus occidentalis*) (T-CR)
- Potential habitat (0.35 ha) for Main's Assassin Spider (*Zephyrarchaeae mainae*) (T-VU).

One additional 'Priority'-listed fauna was considered likely to occur Quenda (*Isoodon fusciventer*) and two others could possibly occur (Western Brush Wallaby (*Notamacropus Irma*) (P4), and Woolybush bee (*Hylaeus globuliferus*) (P3)).

Southern Ecology (2016)
A survey targeting 35 hectares of potential habitat, including the nature reserve on Wilson Head, recorded over 4,000 individuals of *Thomasia quercifolia* that comprise one population. Extensive areas of unsurveyed potential habitat exist, therefore the overall population on Wilson Head would likely be greater. *Thomasia quercifolia* was observed to have a high propensity to colonise disturbed areas from seed and therefore appears to be suitable for restoration.

3.2 Summary of dieback survey

Great Southern Bio Logic (2020) undertook a Phytophthora Dieback Occurrence Survey over a 6.4 ha survey area from 10 September 2020 to 16 February 2021.

Section 3.2.1 contains the summary of the survey.

3.2.1 Summary of Dieback Survey

Main Roads is proposing to expand an existing limestone pit for road construction material source. Southern Ecology was engaged to map the occurrence of *Phytophthora* species within a Proposal envelope (the 'survey area') of 6.4 hectares (ha) and to provide hygiene management recommendations to reduce the spread of soil pathogens and weeds.

Desktop information determined *Phytophthora* species have been recovered from soil and roots samples at 50 locations within 10 km of the survey area, including *Phytophthora cinnamomi* (46 records), *P. pseudocryptogea* (2 records) and *P. multivora* (2 records). The closest known infestation is *P. multivora* (3 km west) and potential vectors exist between the infestation and the survey area.

The field interpretation combined with the soil and root sampling did not find any evidence of *Phytophthora cinnamomi*, consequently the entire survey area is considered a Protectable area. The survey area was categorised into Uninterpretable (4.54 ha), Uninfested (1.22 ha) or Excluded (0.68).

The soils in the survey area are derived from limestone and are naturally alkaline, which are not conducive to sustaining infestations of *Phytophthora cinnamomi*. While the pathogen may be introduced and persist for short periods, it is unlikely to become permanently infested. The field assessment also considered the potential occurrence of *Phytophthora multivora*, which does tolerate alkaline soil. Sampling of soil and roots was undertaken following summer rainfall, which improves the rate of recovery of this pathogen. *Phytophthora multivora* was not recorded in any samples.

Twenty weed species were recorded in the survey area. Most notable are Bridal Creeper (**Asparagus asparagoides*), Arum Lily (**Zantedeschia aethiopica*), Sydney Wattle (**Acacia longifolia*) and Victorian Tea Tree (**Leptospermum laevigatum*).

Hygiene management recommendations are provided in the report, aimed at reducing the risk of introducing *Phytophthora* species and spreading weeds during Proposal operations. Hygiene management actions will be incorporated into the CEMP and Pit Management Plan.

4 VEGETATION DETAILS

4.1.1 Proposal Site Vegetation Description

The majority of the vegetation was in 'Excellent' condition with no signs of permanent disturbance. Weed invasion was minimal and was confined to tracks and firebreaks. Some vegetation adjacent to the existing limestone pit showed evidence of previous soil disturbance, therefore was mapped as either degraded or very good, depending on the state of regeneration.

Tables 2 and 3 provide details of the pre-European vegetation associations within the proposal area and the remaining extents of this association.

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

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 423 described as Torndirrup: Shrublands; Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE. (Government of Western Australia, 2019)	*Clearing of up to 1.83 ha within a 2.19 ha disturbance footprint for material extraction within the City of Albany.*	*Degraded - Excellent (EPA 2016)*	*Vegetation description and condition determined from Main Roads site visit on 6/11/20, aerial imagery and by Southern Ecology Biological Report. aerial imagery.*

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. 423	**Statewide**	*27,321*	*22,106*	*80.91*	*33.95*
	IBRA Bioregion *Warren*	*15,176*	*11,983*	*78.96*	*37.40*
	IBRA Sub-region *Warren*	*15,176*	*11,983*	*78.96*	*37.40*
	Local Government Authority *City of Albany*	*18,545*	*14,506*	*78.22*	*37.36*

4.1.2 Vegetation Units and Representation

The Albany Regional Vegetation Survey (ARVS) (Sandiford and Barrett, 2010) provides a local and regional overview of the native vegetation of the area to assist landuse and conservation planning in the Albany region.

There are two ARVS vegetation units within the Proposal area:

- Peppermint Low Forest (unit 2) (0.61 ha)
- Coastal Limestone Heath (unit 5b) (1.22 ha)

This clearing equates to 0.27% of the extent of unit 2 and 0.17% of unit 5b within 10 km of the Proposal area.

Southern Ecology (2021a) reports 1,232 ha of ARVS unit 2 and 1,849 ha of ARVS unit 5b is mapped within the Albany region (30 km radius around Albany), with 23% and 40% occurring in International Union for Conservation of Nature (IUCN) reserves I-IV, respectively.

The vegetation types recorded in the survey area are not considered analogous with any Threatened or Priority Ecological Community. Greater than 1,200 ha of each vegetation type has been mapped within the region (30 km radius around Albany, Sandiford and Barrett 2010) and they are well represented within the adjacent coastal reserved network.

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 at or may be at variance with one or more of the 10 Clearing Principles.

Copies of constraints mapping is provided in Appendix 1.

(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

Comment

The entire area is underlain with limestone, which is exposed as outcrops on dune crests. The majority of the vegetation was in 'Excellent' condition with no signs of permanent disturbance.

The Proposal area is mapped as Beard Vegetation Association 423 described as Torndirrup: Shrublands; Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE. (Government of Western Australia, 2019)

Southern Ecology (2021a) mapped the survey area using the ARVS. Vegetation Units 2 (Peppermint Low Forest) and 5b (Coastal Limestone Heath) occur in the Proposal area.

1.83 ha of vegetation is proposed to be cleared within the 2.19 ha disturbance footprint. Vegetation condition is mapped predominantly as Excellent (72.5%), Very Good (11.0%) and Degraded (0.1%), with 16.4% of the footprint mapped as cleared.

A search of the ArcGIS shapefiles indicates:

- the nearest TEC/PECs are the Subtropical and Temperate Coastal Saltmarsh (Vulnerable EPBC Act, Priority 3 DBCA) 2.8 km east of Proposal area, and Coastal *Melaleuca incana / Taxandria juniperina* Shrubland/Closed Forest (Priority 1 DBCA) 2.8 km south east of Proposal area.
- no reserves or conservation areas are located within the vicinity of the Proposal area.
- 4260 ha of remnant vegetation occurs within 5km of the Proposal area.

Flora

Southern Ecology (2021a) reported that:

- The vegetation types recorded in the survey area are not considered analogous with any Threatened or Priority Ecological Community,
- No 'Threatened' flora protected under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* were recorded within the wider survey area.
- Four plant taxa 'Priority'-listed by DBCA were recorded in the Proposal area: 2 x *Gyrostemon thesioides* (P2), 9 x *Adenanthos x cunninghamii* (P4), 472 x *Thomasia quercifolia* (P4), and 5 x *Corybas ?limpidus* (P4).

In relation to the potential impact on *Thomasia quercifoli,,* recent surveys (Southern Ecology 2021 and Eco Logical 2020) estimate the local population to be at least 10,000 individuals. Accordingly, the loss of 472 individuals of this P4 species (representing less than 5% of the known population) is not considered significant.

Fauna

Southern Ecology (2021a) reported:

- Habitat for Main's Assassin Spider (*Zephyrarchaeae mainae*) (T) was mapped within the wider survey area, but not within the Proposal area.

- Habitat for three Threatened fauna was mapped within the Proposal area:
  - Feeding habitat (1.2 ha) for Carnaby's Cockatoo (*Calyptorhynchus latirostris* (T-EN)) and possibly Baudin's Cockatoo (*Calyptorhynchus baudinii* (T-EN)), and
  - Supporting habitat (1.8 ha) for Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*) (T-CR).

The entire survey area is comprised of low peppermint/mallee heath, and as such no trees of the required species or diameter at breast height (DBH) met the criteria to be considered potential breeding habitat (native trees greater than 30 cm or 50 cm DBH depending on the species).

No direct observations of WRP individuals, scats or dreys were observed during the field survey. No individuals were observed during one evening spot light survey undertaken on 3 December 2020. The vegetation in the survey area has only limited connectivity with the larger adjacent coastal reserve network, which may be responsible for the putative absence of WRP field evidence.

One additional 'Priority'-listed fauna was considered likely to occur Quenda (*Isoodon fusciventer*) (P4) and two others could possibly occur (Western Brush Wallaby (*Notamacropus Irma*) (P4), and Woolybush bee (*Hylaeus globuliferus*) (P3). According to NatureMap, the closest record of Quenda was 3.6 km to the south west of the Proposal area. Given the large extent of relatively intact vegetation available in the local area, clearing of the Proposal area is not likely to have a significant impact on Quenda, should it occur in the area.

Although the vegetation is predominantly in excellent condition, include several priority flora and potential , supporting habitat for WRP and potential foraging habitat for two species of Black Cockatoos, it does not appear to have a high level of biological diversity.

As the proposed clearing area is relatively small in area (up to 1.83 ha), adjacent to an existing pit and comprises vegetation that has only limited connectivity with the larger adjacent coastal reserve network, it is unlikely that any biodiversity values will be significantly impacted, particularly considering the proximity and abundance of similar vegetation immediately adjacent to the Proposal area and in the local area.

Given the above, this proposal is not likely to be at variance to this Clearing Principle.

Methodology

DBCA shapefiles
Eco Logical Australia (2020)
Main Roads Site Inspection (6 November 2020)
NatureMap (Accessed 9 March 2021)
Southern Ecology (2021a)
Southern Ecology (2016)

(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

Comment

Southern Ecology (2021a) identified 62 species of conservation significance fauna during its desktop assessment within a 10km search area, including 47 birds (33 migratory), 9 mammals, one reptile four fish and four invertebrates.

The desktop and field assessments determined that habitats within the wider survey area may be suitable or are currently being utilised by seven conservation significant fauna species:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (T-EN)
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) (T-EN)
- Western Ringtail Possum (*Pseudocheirus occidentalis*) (T-CR)
- Quenda (*Isoodon fusciventer*) (P4)
- Western Brush Wallaby (*Macropus irma*) (P4)
- Main's Assassin Spider (*Zephyrarchaeae mainae*) (T)
- Woolybush bee (*Hylaeus globuliferus*) (P3)

Habitat for Main's Assassin Spider was outside of the Proposal area.

Southern Ecology (2021a) reports that the survey area occurs within the feeding and modelled breeding range of three species of Black Cockatoo. No actual flocks or individual birds were observed during the field assessment and no trees of suitable DBH for breeding. However, the Coastal Limestone Heath vegetation (1.2 ha) within the survey area has a high abundance of known food plants, particularly *Banksia sessilis* and is therefore considered high quality foraging habitat for potentially both the Carnaby's and Baudin's Cockatoos. This habitat is relatively common and is contiguous along the limestone ridges adjacent to the survey area.

Southern Ecology (2021a) advises that the preferred habitat for the Western Ringtail Possum on the south coast of Western Australia differs from the Swan Coastal Plain. In the Albany region the species has been recorded in coastal heath, Jarrah/Marri woodland and forest, Jarrah/Sheoak woodland, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and Karri forest (*Eucalyptus diversifolia*).

The survey area contains suitable supporting habitat for Western Ringtail Possum (WRP) within Low Peppermint Woodland and Coastal Limestone Heath (5.1 ha is the survey area / 1.8 ha within the Proposal area).

No direct observations of individual, scats or dreys were observed during the field survey. No individuals were observed during one evening spot light survey undertaken on 3 December 2020. The vegetation in the survey area has only limited connectivity with the larger adjacent coastal reserve network, which may be responsible for the putative absence of WRP field evidence.

Southern Ecology (2021a) reports three additional conservation significant fauna are considered likely or possible to occur based on the desktop assessment that were not identified during the field assessment. Quenda is recorded in a wide variety of habitats. It would be likely to occupy the survey area, with a preference for areas of dense undergrowth. Western Brush Wallaby is recorded from within vegetation contiguous with the survey area and may occasionally move through the area. Little is known about the habitat of the Woolybush bee. However, it is known to be associated with *Adenanthos* and *Banksia* species, which are common in the survey area, therefore it is possible this species may occur.

According to NatureMap, the nearest records of conservation significant fauna to the Proposal area were:

- Carnaby's Cockatoo – 1.4 km south-west
- Baudin's Cockatoo – 3.4 km south-west
- Western Ringtail Possum – 2.4 km east
- Quenda – 3.4 km north
- Western Brush Wallaby - 4.4km west
- Woolybush bee – 6 km east

Overall, clearing of up to 1.2 ha of high quality Black Cockatoo foraging habitat equates to 0.33% and 0.17% of this habitat type within 5 and 10 km of the Proposal area, respectively. Similarly, clearing of up to 1.8 ha of WRP supporting habitat equates to 1.0% and 0.27% of this habitat type present within 5 and 10 km of the Proposal area, respectively. More extensive areas of these habitat types also remain intact across the greater Albany region.

As the Proposal area is relatively small, has limited connectivity with the larger adjacent coastal reserve network and there is an abundance of similar habitat immediately adjacent, proposed clearing is not likely to be at variance to this Clearing Principle.

Methodology

DBCA Shapefiles

Main Roads Site Inspection (6 November 2020)

NatureMap (accessed 16 March 2021)

Southern Ecology (2021a)

(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
Comments Constraints mapping and the site survey did not identify any rare flora with potential to occur in the Proposal area. Accordingly, the Proposal is not at variance to this Principle.
Methodology DBCA shapefiles Eco Logical Australia (2020) Main Roads Site Inspection (6 November 2020) NatureMap (Accessed 9 March 2021) Southern Ecology (2021a) Southern Ecology (2016)

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

Proposal is not at variance to this Principle
Comment Constraints mapping did not identify the Proposal area to be within a TEC. Southern Ecology (2021a) reported that the vegetation types recorded in the survey area are not considered analogous with any TEC.
Methodology DBCA shapefiles Southern Ecology (2021a)

(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 likely to be at variance to this Principle

Comment

The national objectives and targets for biodiversity conservation in Australia has a target of retaining at least 30% of the pre-European extent of vegetation communities (Commonwealth of Australia, 2001).

The Proposal proposes to clear up to 1.83 ha within a 2.19 ha disturbance footprint and is mapped as containing pre-European vegetation association 423 described as *Torndirrup: Shrublands; Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE* as shown in the tables below. The vegetation association is above the 30% threshold at all levels.

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 423 described as Torndirrup: Shrublands; Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE. (Government of Western Australia, 2019)	*Clearing of up to 1.83 ha for material extraction within the City of Albany.*	*Very Good -Excellent (EPA 2016)*	*Vegetation description and condition determined from Main Roads site visit on 6/11/20, aerial imagery and by Southern Ecology Biological Report.*

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 423	**Statewide**	*27,321*	*22,106*	*80.91*	*33.95*
	IBRA Bioregion *Warren*	*15,176*	*11,983*	*78.96*	*37.40*
	IBRA Sub-region *Warren*	*15,176*	*11,983*	*78.96*	*37.40*
	Local Government Authority *City of Albany*	*18,545*	*14,506*	*78.22*	*37.36*

Proposed clearing is not at variance to this Principle.

Methodology

EPA (2016)

Government of Western Australia (2019)

Sandiford and Barrett (2010)

Southern Ecology (2021a)

(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
Comment Constraints mapping indicates that the closest watercourse occurs approximately 3.4 km north-west of the Proposal area. Constraints mapping indicates no wetlands (RAMSAR, geomorphic, etc.) are located within the vicinity of the Proposal area. The nearest wetland listed in the South Coast Significant Wetlands dataset is located 6.7 km from the Proposal area. The Proposal area is a limestone ridge, featuring low peppermint and coastal heath – vegetation typically not growing in association with a wetland or watercourse. Accordingly, the proposed clearing is not at variance to this Principle.
Methodology DWER and DBCA shapefiles Southern Ecology (2021a)

(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
Comment Constraints mapping indicates that soil characteristics of the area feature Deep Sandy Soils – Calcareous – Calcareous deep sands, has a <3% moderate to high flood risk, <3% moderate to high salinity risk, with portions of the site in both the <3% and 30-50% high to extreme water erosion risk, and the 50-70% and >70% high to extreme wind erosion risk. The clearing of vegetation in this location may result in a possible dust risk, but it is unlikely to pose land degradation issues. Dust Management will be addressed through the Pit Management Plan.
Methodology DAFWA shapefiles Main Roads Site Inspection (6 November 2020)

(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
Comment Constraints mapping indicates no reserves or conservation areas are located within the vicinity of the Proposal area. The nearest conservation area is located approximately 1.5 km of the Proposal area. Extensive reserves exist along the coast adjacent to the Proposal area, owned by the State Government, but not in the conservation estate. Accordingly, clearing of vegetation will not have an impact on the environmental values of any adjacent or nearby conservation area.
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

Comment

The Proposal area is located within a Priority 1 area of the South Coast Water Reserve and is within the wellhead protection zone (WHPZ).

Although extractive industries (including limestone quarries) are a compatible landuse within a Priority 1 area, they are subject to conditions under Water Quality Protection Note (WQPN) no. 15 and 25 (relating to management of chemicals, depth of extraction in relation to the water table, rehabilitation criteria, and demonstrating that the risk of water contamination is effectively controlled under all circumstances). It is noted that the majority of these conditions relate primarily to operation of the pit, rather than the clearing proposed in this CAR. Main Roads will implement a Pit Management Plan for DWER to review to address compliance with WQPN no. 15 and 25.

Given no dewatering or major drainage modifications are required and the scale of clearing is minor, no deterioration of underground water level or quality is expected to result from clearing and the Proposal is not likely to be at variance to this Principle.

Methodology

DWER shapefiles

DWER WQPN no. 15 and 25

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

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

Comment

Constraints mapping indicates that the Proposal area is distant from any wetland or watercourses, and has a < 3% moderate to high flood risk. The majority of the area is located on a limestone ridge. DAFWA Soil Characteristics mapping classifies the area as having Deep Sandy Soils – Calcareous – Calcareous deep sands. Sandy soils typically have a significant infiltration capacity, so it is unlikely that runoff or flooding will occur as a result of the proposed clearing.

Drainage management will be addressed within the Pit Management Plan. Earthworks will be designed to direct potentially contaminated rainfall runoff to containment/soakage within the existing pit footprint, with uncontaminated runoff from uncleared areas being allowed to runoff to adjacent bush.

Methodology

DAFWA Shapefiles

Main Roads Site Inspection (6 November 2020)

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.	**No**	No further action required.
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**	Proceed with standard Vehicle and Plant management actions from PEMR's and Vehicle and Plant Hygiene Checklists. Hygiene and Weed Management will be addressed in the Pit Management Plan.

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**	No further action required. Hygiene and Weed Management will be addressed in the Pit Management Plan.

7 STAKEHOLDER CONSULTATION

Main Roads did not undertaken stakeholder consultation in accordance with CPS 818/15 Condition 8, as this is only required when the clearing is likely to be 'at variance' or 'maybe at variance' with the Clearing Principles.

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.

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10 APPENDICES

Appendix	Title
Appendix 1	Constraints Mapping Database Searches REDACTED

Appendix 1: Constraints Mapping Database Searches

Study Area – Water Source Areas, Wellhead Protection Zones, DBCA lands, Wetlands and TEC/PEC

Threatened and Priority flora observations

Vegetation units within disturbance footprint

Vegetation condition within disturbance footprint

Fauna habitat within disturbance footprint