Clearing Assessment Report – CPS 818

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Chester Pass - Menang Flyover

H054 Menang Drive
H008 South Coast Highway (Chester Pass Road)
Great Southern Region
3457

D25#884039
August 2024

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Document Control

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Environment Contractor	Rev 0	May 2024
Reviewer:	Senior Environment Contractor	Rev 0	May 2024
Author:	Environment Contractor	Rev 1	June 2024
Reviewer:	Senior Environment Contractor	Rev 1	June 2024
Author:	Environment Contractor	Rev 2	August 2024
Reviewer:	Senior Environment Contractor	Rev 2	January 2025

1 PROPOSAL

1.1 Purpose and Justification

The purpose of this Clearing Assessment Report (CAR) is to detail the assessment of native vegetation clearing proposed for the construction to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

Main Roads is proposing to develop a grade separated interchange south of the intersection of Chester Pass Road and Menang Drive, within the City of Albany, Western Australia (WA) (the Proposal). Grade separation of this intersection will improve road safety and allow for efficient access to the Albany Port, facilitating future growth in agricultural production and mining across the Great Southern Region by improving freight productivity and access to freight gateways.

The Proposal will:

- maximise efficiency of the Albany Ring Road route by providing free flowing access from Chester Pass Road to Albany Port;
- improve safety for all road users by removing a potentially dangerous conflict point used by a high proportion of heavy vehicles; and
- provide additional local jobs and investment in the Great Southern Region.

This report outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. The assessment evaluates the vegetation clearing impacts associated with the Proposal using the Ten Clearing Principles, and the strategies to be implemented to manage and mitigate the impacts of the proposed vegetation clearing.

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 and enhancing 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

The Proposal involves constructing a grade separated interchange south of the intersection of Chester Pass Road and Menang Drive. The grade separated interchange will allow southbound vehicles to exit Chester Pass Road via an elevated ramp, which will pass back over the top of Chester Pass Road in the form of a bridge and connect into Menang Drive westbound.

The Proposal will be constructed as an extension of the Albany Ring Road Project and therefore, will use the same water and material sources, for which approval has already been granted.

The Proposal will involve land acquisition, clearing of vegetation, groundwater abstraction/dewatering, excavation of soils for construction, service relocation and associated works such as construction or installation of drainage, safety barriers, street lighting, fencing, noise walls and roadside revegetation.

Due to project planning employing avoidance and minimisation measures, total clearing of native vegetation associated with the Proposal has been limited to 1.74 ha which comprises 0.83 ha of naturally occurring vegetation and 0.91 ha of revegetation with native species (revegetation associated with clearing permit CPS 739/1 and thus considered Native Vegetation in accordance with the *Environmental Protection Act 1986*).

1.3 Proposal Location

The Native Vegetation Clearing Area is located at the intersection of Chester Pass Road and Menang Drive, within the City of Albany, WA. The Proposal is located on South Coast Highway (H008) Straight Line Kilometre (SLK) 5.3-6.2 and Menang Drive (H054) SLK 0.0-1.3 as shown in Figure 1.

For reference, Figure 1 also shows the boundary of the biological survey area (GHD 2021). The central coordinate of the Proposal is 117.8851595°E -34.9607112°S.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: Up to 1.74 ha of native vegetation will be cleared under CPS 818/17 (Figure 2).

Areas of Native Vegetation Clearing:
The area of native vegetation to be cleared (the Native Vegetation Clearing Area) is shown in Figure 2.

Type of Native Vegetation:
Clearing of native vegetation for the Proposal comprises two naturally occurring Vegetation Types and planted revegetation associated with an existing clearing permit (GHD 2021), including:

- 0.77 ha of VT01 – *Allocasuarina fraseriana, Eucalyptus marginata* and *Corymbia calophylla* mixed open forest.

- 0.06 ha of VT03 – Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees over introduced grasses.

- 0.91 ha of Revegetation – Revegetation with native species including *Agonis flexuosa* var. *flexuosa, Allocasuarina fraseriana, Corymbia calophylla, Eucalyptus marginata* subsp. *marginata* and *Taxandria linearifolia.*

The vegetation types within the Native Vegetation Clearing Area the subject of this Proposal are displayed in Figure 2.

Figure 1. Proposal Location

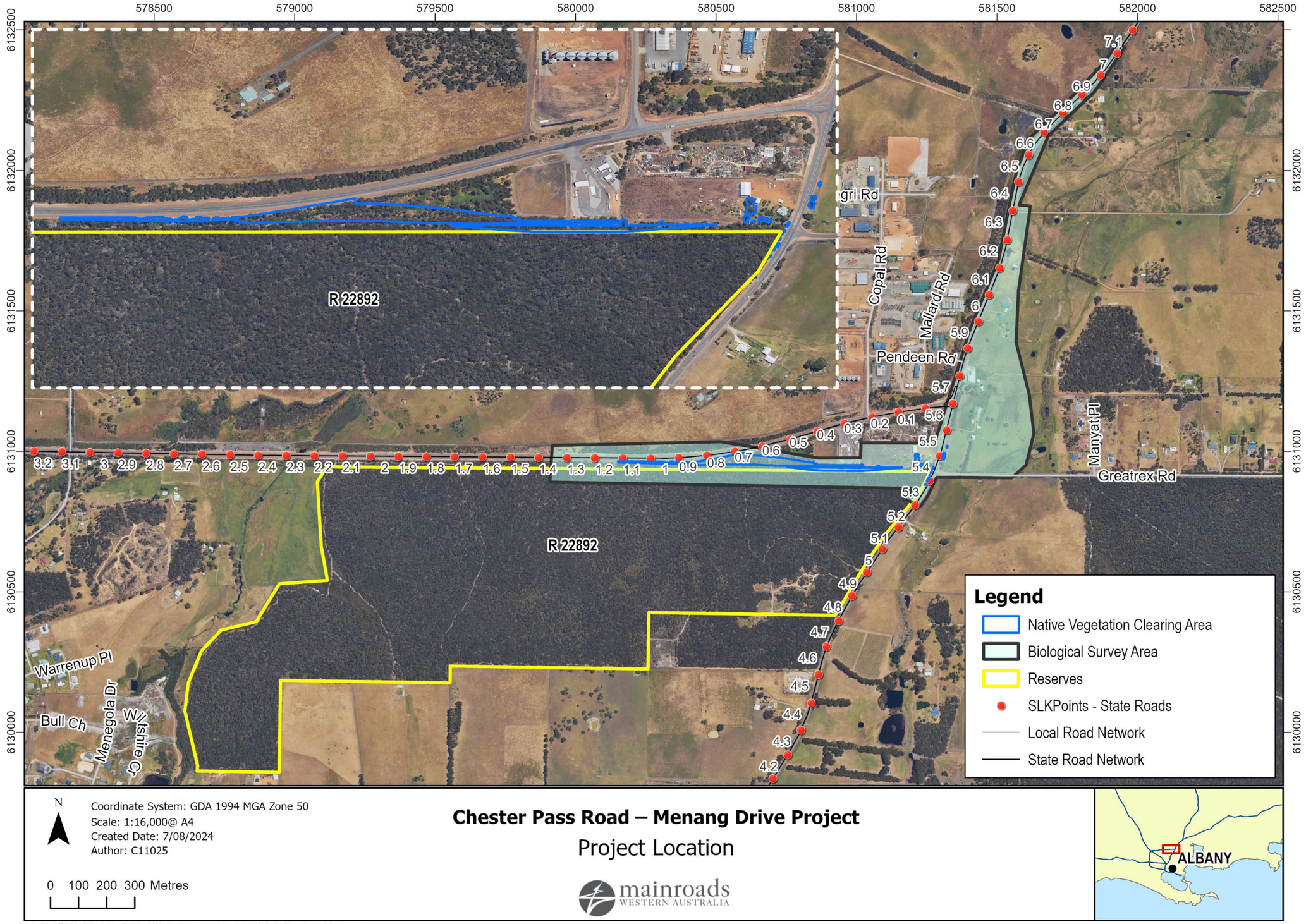

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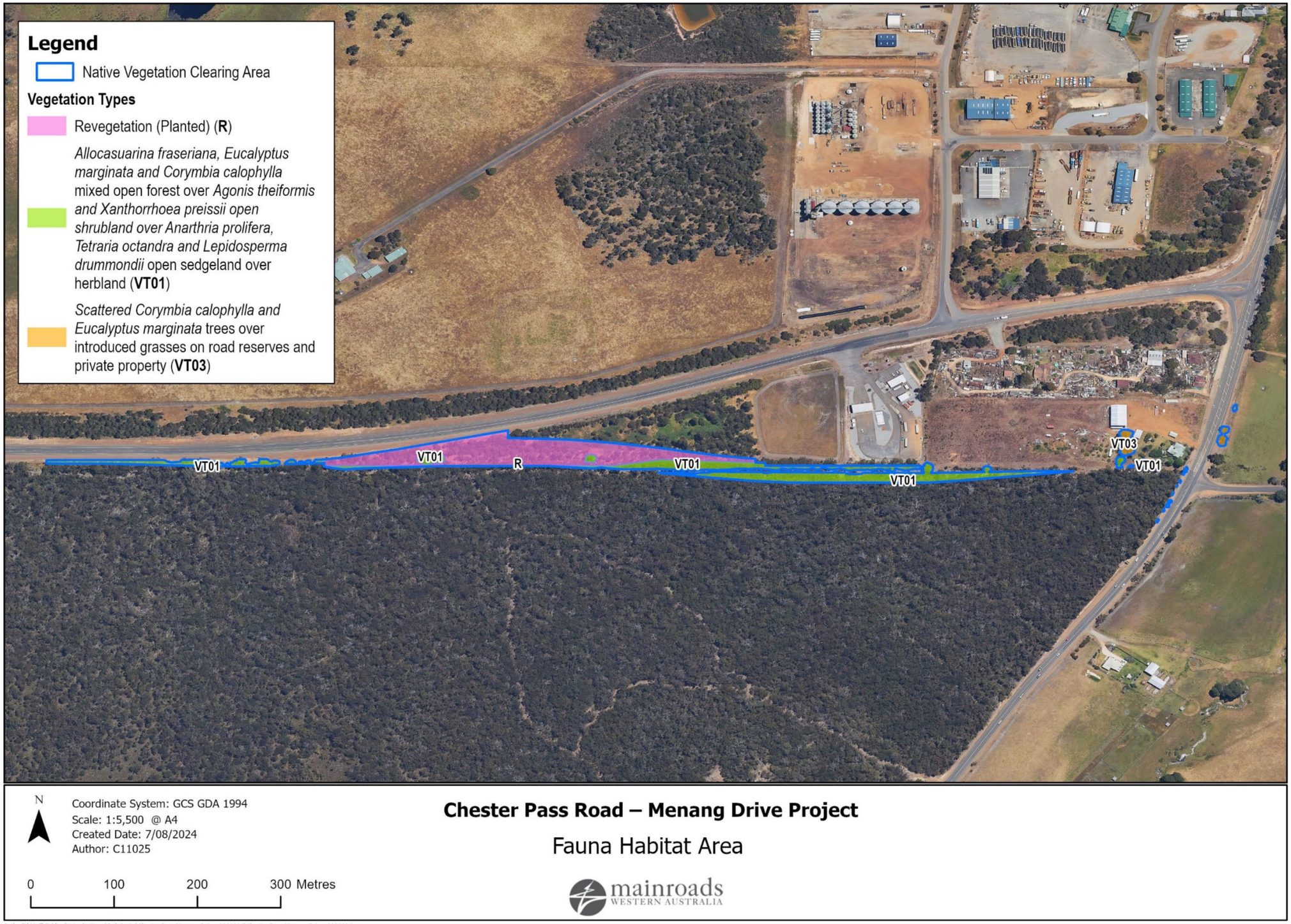
Figure 2. Native Vegetation Clearing Area



1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- Preferentially locating the new alignment in cleared pasture areas over the existing road reserve; however, this was considered cost prohibitive e.g. due to cost of resumption of farmland and construction of completely new road rather than widening in existing alignment and premature redundancy of State Road asset, lack of adequate funding, stakeholder engagement, resource requirements. Under this option, clearing would still be required for tie-ins to the existing road network.
- 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 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. This proposal aims to improve road user safety and efficient access to the Port through the construction of a grade separated interchange. 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
Alignment to one side of existing road	The Proposal involves development of a grade separated interchange. The design does not allow for the upgrade works to be located entirely on only one side of the existing road. However, a significant portion of the proposed works will be conducted east of Chester Pass Road. Proposal works will require ground disturbance within and outside of the road reserve corridor. Land acquisition will be required beyond the road reserve in some instances, which will preferentially select cleared areas.
Alternative alignment located within pasture or degraded areas	The Proposal involves the development of a grade separated interchange to mitigate the weaving and conflict points associated with Copal Road and a petrol station. The alignment for the tie into Menang Road has utilised an existing road reserve south of the petrol station. Areas of degraded vegetation will be preferentially cleared over good or better vegetation. Additionally, the alignment has been chosen to preferentially impact planted revegetation instead of native vegetation. Impact to adjacent native vegetation and environmental aspects have been minimised by the current design remaining mostly within the existing road reserve and widening the existing alignment or utilising predominantly cleared farmland. Design requirements (addressed below) have been stipulated to ensure the Proposal footprint is minimised and clearing impacts are reduced to the full extent possible.
Simplification of design to reduce number of lanes and/or complexity of intersections	Traffic volumes, traffic mix, and road safety influence the intersection layouts and carriageway cross section. Intersections and connecting roads will be located to reduce points of conflict and ensure maximum sight distance can be achieved for both mainline traffic and traffic on the minor roads.
Steepen batter slopes	The detailed design will seek to reduce earthworks (fill height/cut depth) in areas of heavy vegetation. Batter slopes will be designed to maximise the clear zone for errant vehicles to recover in accordance with Main Roads WA Guide to Road Design Part 6. Note that embankments of 4:1 (horizontal : vertical) are recoverable for cars; embankments between 4:1 and 3:1 are non-recoverable for cars; and embankments of 3:1 or steeper cannot be safely traversed by cars. Embankments at 4:1 over 2.5 m in height require barrier protection in accordance with Main Roads WA Guide to Road Design Part 3. Any embankments above 2.5 m will be investigated as to whether they can be steepened to 3:1 with an additional 1 m of barrier earthworks required for barrier protection.
Installation of barriers	Barriers for the protection of native vegetation will be considered during the detailed design stage, to reduce clear zone requirements. Clearing of vegetation and ground disturbance has been minimised as much as possible.
Installation of kerbing	Kerbing has been considered and will be implemented in the design where possible.
Use of existing cleared areas for access tracks, construction storage and stockpiling	Temporary access tracks, construction storage, and storage/stockpile locations have been located away from native vegetation as much as possible.

Design or Management Measure	Discussion and Justification
Drainage modification	Drainage design will seek to maintain existing flow lines/watercourses to avoid impacting existing vegetation. This will be investigated further at detailed design and following hydrological assessment. A drainage plan will be progressed during detailed design.
Other design treatments	The goal of reducing native vegetation clearing was a key driver in the selection of design elements and construction methodology. The following design measures and construction methodologies have been, or will be, implemented to achieve the goal of reducing clearing requirements: **1. Segmented MSE Wall Panels in Bridge Construction** The designers were instructed to use segmental MSE walls panels in the design of bridge (1881) abutments. Used in this way, segmental wall panels reduce both the prop footing distance from the base of the wall and the prop footing size, resulting in a smaller construction footprint required to erect and stabilise the walls during construction. The outcome for the Proposal was that Main Roads has been able to avoid the need to conduct localised clearing to install prop footings in the City of Albany Road Reserve (Land ID 3181639) and Reserve 22892 (Conservation of Flora) to the south of the alignment on the western side of Chester Pass Road. The use of segmental panels is a departure from Main Roads standards and required lengthy discussion with Main Roads Structures Engineering to gain approval. **2. Steep Batter Grades** The designers were instructed to use steep batter grades on embankments wherever possible, to reduce the total embankment footprint. This has meant the requirement to clear into Road Reserve 3181639 has been reduced, and Reserve 22892 (Conservation of Flora) has been eliminated. Steeper batter grades have resulted in additional costs associated with increased barrier installation requirements, embankment stabilisation considerations and a need to rely on scour prevention measures. **3. Retaining Walls** The use of retaining walls was requested by Main Roads when batter grade steepening didn't yield a sufficient embankment footprint reduction. The focus of this was to reduce the requirement to clear further into Road Reserve 3181639 and eliminate the requirement to clear in 22892 (Conservation of Flora). The design and construction of retaining walls to minimise the embankment footprint as much as practicable, imposes significant costs on the Proposal.

1.7 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the *Environmental Protection Act 1986* (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)
- *Biosecurity and Management Act 2007* (WA) (BAM 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).

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 (DWER October 2021)
- Procedure: Native vegetation clearing permits (DWER October 2021)
- Environmental Offsets Guidelines (DWER 2021)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)
- Referral guideline for 3 WA threatened black Cockatoo Species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) (Department of Agriculture, Water and the Environment (DAWE) 2022)
- EPBC Act Matters of National Environmental Significance, Significant Impact Guidelines 1.1 (DoE 2013)
- Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan (DPaW 2017).

The Proposal extends beyond the road reserve and intersects various Freehold, Crown and Reserve land. Main Roads will be required to commence the Development Application process under the *Planning and Development Act 2005* for the components of the Proposal which occur on land outside of the road reserve that is not vested with the Commissioner of Main Roads.

2 SCOPE AND METHODOLOGY OF CLEARING ASSESSMENT

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818/17.

To comply with CPS 818/17, Main Roads must prepare a CAR.

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 listed under s51 of the EP Act and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this CAR:

- **Native Vegetation 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.

- **GHD Survey Area** – A 41.42 ha area assessed by GHD (2021) which covered the Native Vegetation Clearing Area for the Proposal (Figure 1).

2.2 Desktop Assessment

A desktop assessment of the Native Vegetation Clearing Area 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 ArcGIS Pro 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, which are found under References in Section 10.

2.3 Surveys and Assessments

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

- Menang Drive Chester Pass Road Survey – Biological survey (GHD 2021): a single season detailed flora and vegetation field survey, a targeted survey for Threatened and Priority flora, a basic fauna survey, a targeted survey for Western Ringtail Possum (WRP) and a Black Cockatoo Habitat Assessment (TRIM Ref: D22#1114268).
- An assessment and update to the GHD (2021) spatial data completed by Main Roads to refine spatial data accuracy.
- Menang Drive Chester Pass Hollow Assessment Memorandum (GHD 2024) – Supplementary survey for collection of information to enable assessment of suitability for black cockatoo of hollows identified in GHD (2021) (TRIM Ref: D24#761320).
- Menang Drive / Chester Pass Road Project – Assessment of Potential Black Cockatoo Hollow (ABCS 2024) – Specialist assessment of information collected by GHD (2024) to determine hollow suitability for Black Cockatoo (TRIM Ref: D24#761352).

The biological and targeted surveys conducted for the Proposal are outlined in Table 2. A summary of the findings in these reports is presented in Section 3.1.

Table 2. Summary of Surveys/Assessments undertaken for the Proposal

Consultant & Survey Name	Survey Details
GHD Pty Ltd (GHD 2021) Menang Drive Chester Pass Road Survey – Biological Survey	**Survey Area:** The GHD survey area comprised approximately 41.42 ha, within the City of Albany, approximately 1.4 km north and 1.4 km west from the Chester Pass Road – Menang Drive intersection, and approximately 7 km north of the Albany town centre. **Type:** GHD undertook a single season, detailed flora and vegetation field survey, a targeted survey for Threatened and Priority flora, a basic fauna survey, a targeted survey for the WRP and a Black Cockatoo Habitat Assessment: • a single season flora and vegetation field survey to verify/ground truth the desktop assessment findings through a combination of Detailed, Targeted and Basic survey techniques; • a targeted survey for Threatened and Priority flora identified in the desktop assessment; • a basic fauna survey including fauna habitat mapping based upon vegetation units; • a targeted survey for WRP; and • a Black Cockatoo Habitat Assessment, to map Black Cockatoo foraging habitat, roosting habitat and breeding habitat. **Timing:** Detailed and targeted flora and vegetation, and fauna habitat survey and targeted black cockatoo habitat assessment fieldwork conducted from 28 September 2020 to 2 October 2020. **Survey Results Shapefile TRIM Ref:** D24#427690 **Document TRIM Ref:** D22#1114268
GHD Pty Ltd (GHD 2024) Menang Drive Chester Pass Hollow Assessment Memorandum	**Survey Area:** Eight trees with hollows or potential hollows identified during the GHD (2024) biological survey in Road Reserve or Reserve 22892 near the Chester Pass Road – Menang Drive intersection, and approximately 7 km north of the Albany town centre. **Type:** GHD undertook a single visit to inspect the eight identified potential hollows within the survey area for evidence of use by black cockatoos. The inspection was undertaken using a telescopic lens, pole camera and/or drone. **Timing:** Site visit conducted 30 April to 1 May 2024. **Survey Results Shapefile TRIM Ref:** Not applicable. **Document TRIM Ref:** D24#761320
Australian Black Cockatoo Specialist (ABCS 2024) Menang Drive / Chester Pass Road Project – Assessment of Potential Black Cockatoo Hollow	**Survey Area:** Not applicable. **Type:** A review of information for a single tree hollow where uncertainty existed as to its potential to be capable of supporting black cockatoo breeding. ABCS reviewed the pole camera photographs from GHD (2024), photographs and hollow dimension measurements collected by an

Consultant & Survey Name	Survey Details
	arborist using an elevated work platform and material collected from the hollow. **Timing:** Review conducted May 2024. **Survey Results Shapefile TRIM Ref:** Not applicable. **Document TRIM Ref:** D24#761352

3 SUMMARY OF SURVEYS

In accordance with CPS 818/17 condition 8 (e) (iii), a copy of the relevant sections of the executive summary and report conclusions from the biological survey are provided in Appendix 1.

3.1 Summary of Biological Survey

GHD (2021) undertook a single season flora and vegetation field survey, a targeted survey for Threatened and Priority flora, a basic fauna survey, a targeted survey for the WRP and a Black Cockatoo Habitat Assessment.

The survey extent (the GHD survey area) covered a total area of 41.42 ha, extending approximately 1.4 km north and 1.4 km west from the Chester Pass Road and Menang Drive intersection (Figure 1).

Main Roads reviewed the GHD (2021) spatial data which included amendments to refine the broad scale mapping conducted by GHD to improve accuracy of boundaries. This included an analysis of historic aerial imagery to refine an area mapped as revegetation (planted). Figure 3 displays Landgate aerial imagery from 2011 which evidences rip lines and uniform planting of vegetation within areas mapped by GHD (2021) as Revegetation (Figure 3), which is understood to have been completed as part of clearing permit CPS 739/1, and therefore comprises Native Vegetation in accordance with the EP Act. This additional analysis identified remnant trees incorrectly mapped as revegetation (planted) by GHD (2021), which have subsequently been mapped as naturally occuring native vegetation (VT01).

The areas cited within this CAR are from the updated spatial data prepared by Main Roads using the data from GHD (2021). The results and conclusions of the biological survey by GHD (2021) are not impacted by the spatial data amendments made by Main Roads.

Vegetation

Three naturally occurring native vegetation types and revegetation (with native species) were identified and mapped within the GHD (2021) Survey Area (Figure 4), representing 15.13 ha of native vegetation (as defined in the *Environmental Protection Act 1986*). These were:

- **VT01** - *Allocasuarina fraseriana, Eucalyptus marginata* and *Corymbia calophylla* mixed open forest (10.66 ha)
- **VT02** - *Melaleuca preissiana* scattered trees over *Baumea juncea* and *Anarthria laevis* (0.25 ha)
- **VT03** - Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees over introduced grasses (0.08 ha)
- **Revegetation** - Revegetation with native species (4.14 ha).

The Native Vegetation Clearing Area the subject of this CAR comprises:

- 0.77 ha of VT01 – *Allocasuarina fraseriana, Eucalyptus marginata* and *Corymbia calophylla* mixed open forest.
- 0.06 ha of VT03 – Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees over introduced grasses.
- 0.91 ha of Revegetation – revegetation with native species.

The remaining portions of the survey area were mapped as:

- **PI** - Planted local and non-local species – 1.48 ha
- **Firebreak (previously cleared)** – 0.13 ha

- **Cleared areas** – 24.68 ha.

None of the vegetation types identified and mapped represent Threatened or Priority ecological communities (TECs/PECs).

The vegetation condition within the survey area ranged from Excellent to Completely Degraded (Figure 5). Previous disturbances such as tracks, weeds, edge-effects and rubbish dumping have reduced the vegetation condition in some areas. Historical clearing for roads and farming have influenced the structure and composition of the remaining native vegetation in the road reserves.

The Condition rating of the 1.74 ha within the Native Vegetation Clearing Area the subject of this CAR comprises:

- Excellent Condition (0.38 ha);
- Very Good Condition (0.003 ha)[1];
- Good Condition (0.34 ha);
- Degraded Condition (0.94 ha); and
- Completely Degraded Condition (0.07 ha).

Flora

GHD (2021) recorded 132 flora taxa (including subspecies and varieties) representing 41 families and 92 genera within the survey area. This total comprised 101 native taxa and 31 introduced taxa.

No significant flora listed under the EPBC Act, BC Act and/or Department of Biodiversity, Conservation and Attractions (DBCA) Priority listed flora taxa were recorded in the survey area.

A likelihood of occurrence assessment was conducted post-field survey, with all significant flora species identified in the desktop assessment considered unlikely to occur within the survey area.

Of the introduced species recorded within the survey area, three are listed as Weeds of National Significance (WoNS), with two of these also listed as a Declared Plants (DP) under the BAM Act 2007:

- **Asparagus asparagoides* (Bridal Creeper) (DP and WoNS);
- **Genista linifolia* (Flaxleaf Broom) (WoNS); and
- **Rubus ulmifolius* (Blackberry) (DP and WoNS).

Of the above listed species, none were recorded within the Native Vegetation Clearing Area. Blackberry was recorded within the adjacent Reserve 22892 (Conservation of Flora).

Fauna

Twenty-four fauna species, including, 20 birds, one mammal and three reptiles were recorded within the survey area. A relatively low diversity of fauna was recorded, likely contributed to by limited availability of good quality fauna habitat.

GHD (2021) recorded two significant fauna species within the survey area:

- Carnaby's Cockatoo (*Zanda latirostris*) (EPBC Act & BC Act listed Endangered); and
- Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*) (EPBC Act & BC Act listed Critically Endangered).

[1] 0.003 ha rounds to zero to two decimal places. This area is accounted for in rounding of other condition ratings. Total required clearing area does not exceed 1.74 ha.

A likelihood of occurrence assessment concluded six additional significant fauna species are considered likely to occur within the broader survey area:

- Baudin's Cockatoo (*Zanda baudinii*) (EPBC Act & BC Act listed Endangered);
- Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii* subsp. *naso*) (EPBC Act & BC Act listed Vulnerable);
- Masked Owl (*Tyto novaehollandiae* subsp. *novaehollandiae*) (DBCA listed Priority 3 species)
- Chuditch (*Dasyurus geoffroii*) (EPBC Act & BC Act listed Vulnerable);
- Quenda (*Isoodon fusciventer*) (DBCA listed Priority 4 species); and
- South-western Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*) (BC Act listed Conservation Dependent).

Further assessment of likelihood of occurrence of the above species within the Native Vegetation Clearing Area has been presented Section 5(a) (Principle (b)).

Excluding cleared areas, the survey area contains the following fauna habitat types based on the predominant landforms, soil and vegetation structure of the area.

- **H01** - *Melaleuca* Dampland on road reserve which corresponds with vegetation type VT02 and was assessed as low habitat significance but may be suitable for Quenda. There was 0.25 ha of this habitat type within the Survey Area.
- **H02** - Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest which corresponds with vegetation type VT01 and includes the previously cleared firebreak. This habitat type was assessed as high habitat significance as it was considered suitable for the three black cockatoo species, WRP, Masked Owl, Chuditch, Quenda and Brush-tailed Phascogale. There was 10.66 ha of this habitat type within the Survey Area.
- **H03** - Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared which corresponds with vegetation type VT03 which was assessed as high habitat significance as it was considered suitable for the three black cockatoo species, potential habitat for WRP. There was 0.08 ha of this habitat type within the Survey Area.
- **R** – Revegetation (with native species) which was assessed as low habitat significance but may occasionally be used for foraging by black cockatoos, and potentially used by WRP. There was 4.14 ha of this habitat type within the Survey Area.
- **Pl** – Planted vegetation (non-local *Eucalyptus* species on farmland) which was assessed as low habitat significance but may occasionally be used for foraging by black cockatoos, and potentially used by WRP. There was 1.48 ha of this habitat type within the Survey Area.

Within the Native Vegetation Clearing Area the following fauna habitats were identified. These are displayed in Figure 6 and include:

- **H02** - Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest (0.77 ha).
- **H03** - Scattered Eucalyptus and Corymbia trees over parkland cleared (0.06 ha).
- **R** – Revegetation with native species (0.91 ha).

Black Cockatoo

Foraging, potential breeding and potential roosting habitat for black cockatoos was recorded within the Survey Area. In total, 16.49 ha of the Survey Area (corresponding to areas mapped as H02, H03, R, Pl and the area previously cleared for a firebreak) was considered to be potential foraging habitat for all three black cockatoo species. Habitat type H01 and cleared areas possess no value for black cockatoos (GHD 2021).

GHD (2021) recorded 313 trees with a diameter at breast height (DBH) greater than 500 mm within the survey area (Figure 6). Of the 313 trees, 56 contained one or more hollows (or potential hollows) of various sizes and eight trees were assessed from ground level as having hollows of a sufficient size to potentially support black cockatoo nesting. At the time of the survey, GHD (2021) did not observe any evidence of black cockatoo breeding (actual or secondary evidence such as chew chip marks at hollow entrances) or roosting occurring within the Survey Area. Further surveys were commissioned to determine hollow suitability for black cockatoos (Section 3.2).

Within the Native Vegetation Clearing Area, 28 trees with a DBH greater than 500 mm were recorded, seven containing potential cockatoo hollows:

- nine *Corymbia calophylla* (No hollows);
- two *Corymbia calophylla* (Hollow unsuitable);
- twelve *Eucalyptus marginata* (No hollows); and
- five *Eucalyptus marginata* (Hollow unsuitable).

Western Ringtail Possum (WRP)

A total of 16.49 was assessed as WRP habitat or potential WRP habitat within the GHD (2021) Survey Area, corresponding to areas mapped as H02, H03, R, Pl and the area previously cleared for a firebreak.

Within the Native Vegetation Clearing Area H03 (0.06 ha) is considered to be potential, low quality WRP habitat as these areas are small, degraded and fragmented from other areas of intact habitat by a major road or cleared land (Figure 6). No WRPs were recorded in this area or in any surveyed areas to the east of Chester Pass Road suggesting that WRP do not utilise this small scattered occurrence of potential habitat.

Fourteen WRPs were recorded at 12 locations during a nocturnal search of the survey area (GHD 2021). All WRPs were recorded west of Chester Pass Road and south of Menang Drive from vegetated areas within Reserve 22892 (Conservation of Flora) and the road reserve (South Coast Hwy / Menang Drive).

During consultation related to the Proposal, DBCA informed Main Roads of additional WRP observations located within revegetation adjacent to Menang Drive. The DBCA observed WRP activity within the revegetation area along northern and southern sides of Menang Drive. Two active dreys were detected using thermal imaging. Coordinates have been provided to Main Roads and are shown on Figure 6. Both active dreys are outside of the Native Vegetation Clearing Area and will not be directly impacted by the Proposal.

A single record of WRP, observed in the nocturnal survey was located within the Native Vegetation Clearing Area (Figure 6). All other WRP observations occur outside of the Native Vegetation Clearing Area.

3.2 Summary of Tree Hollow Inspection

GHD (2024) conducted a single visit to the survey area from 30 April to 1 May 2024 to assess eight tree hollows identified during the GHD (2021) biological survey as potentially capable of supporting black cockatoo nesting. The eight hollows were assessed using telescopic lens, pole camera and/or drone for signs of evidence of breeding use and to categorise the suitability of the hollow for breeding.

Of the eight assessed hollows, seven are located in the Native Vegetation Clearing Area.

Seven of the assessed hollows were immediately deemed not suitable for black cockatoo nesting during the inspection. One hollow was determined to be potentially suitable from the photographic analysis.

To obtain additional information to determine suitability of the one remaining hollow, Australian Black Cockatoo Specialists (ABCS) recommended engaging an arborist to inspect the hollow using an elevated work platform (EWP). An arborist was commissioned and inspected the hollow using an EWP. This inspection included measuring the hollow dimensions, photographing the hollow, inspecting the internal contents of the hollow for the presence of nesting evidence, and collecting material from within the hollow.

Evidence collected by the arborist was provided to ABCS for review by Mr Rick Dawson and Dr Peter Mawson. ABCS (2024) confirmed the hollow does not appear to have been used by black cockatoos, nor does it appear to have ever been used for black cockatoo nesting. ABCS (2024) reported that the hollow is not suitable for black cockatoo nesting for the following reasons:

- the floor of the hollow is uneven with edges of the floor falling through making it unsuitable for black cockatoos (nestling would fall through the gaps);
- the remains of an internal hollow in the centre of the floor with large sections of it sticking out of the floor reduces the floor diameter;
- the vine/creeper observed takes up a larger section of the hollow (and had not been chewed)
- the hollow floor was observed to be very soft (i.e. not compacted) and uneven which is not consistent with a black cockatoo nesting attempt; and
- one side of the hollow is much lower than the other, increasing the exposure of the hollow floor to the elements which is not ideal for black cockatoo breeding.

Subsequently, it has been determined that there are no hollows suitable for Black Cockatoo nesting within the Native Vegetation Clearing Area.

Figure 3: Historic Aerial Imagery Analysis

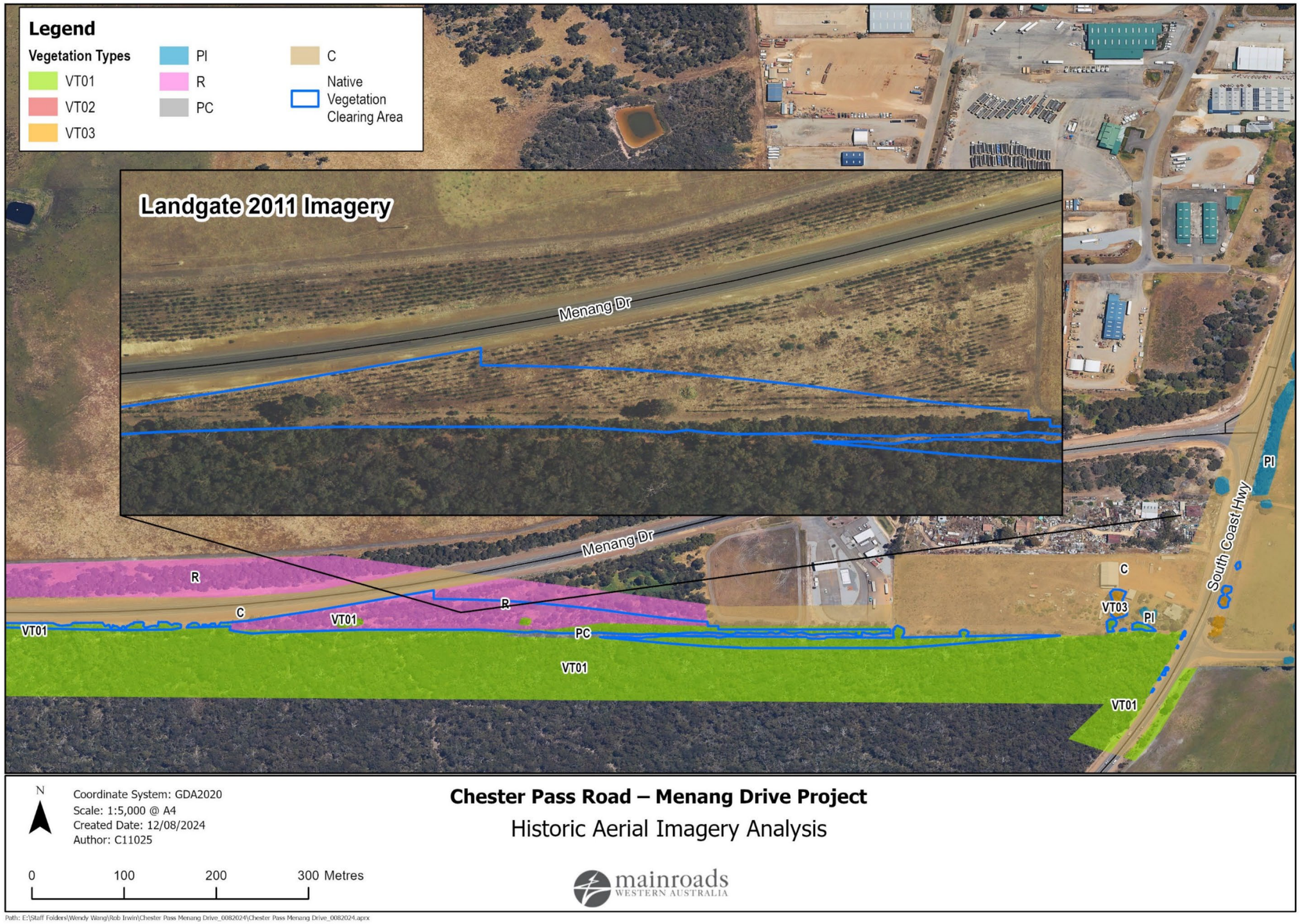


Figure 4. Vegetation Types

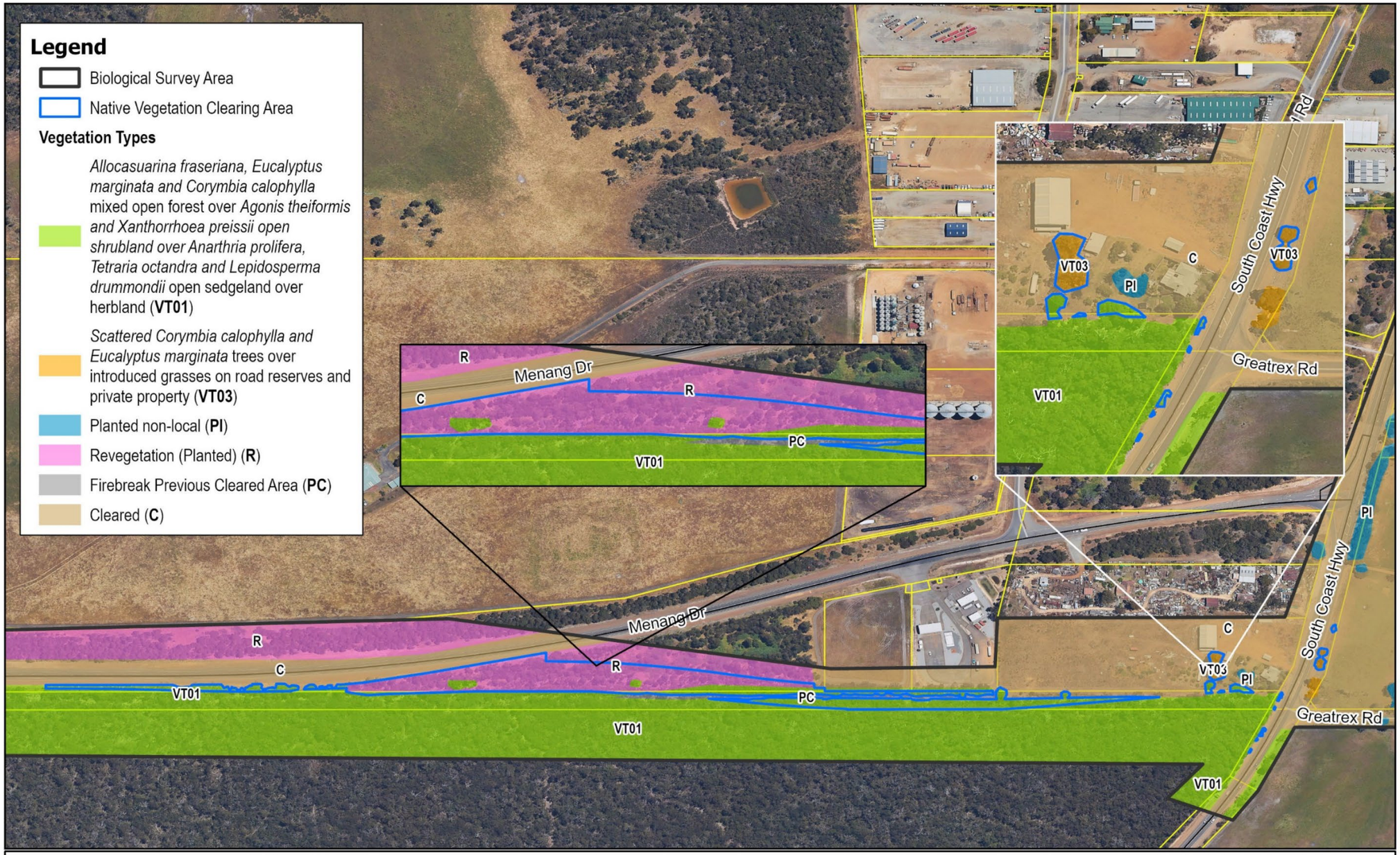


Figure 5. Vegetation Condition

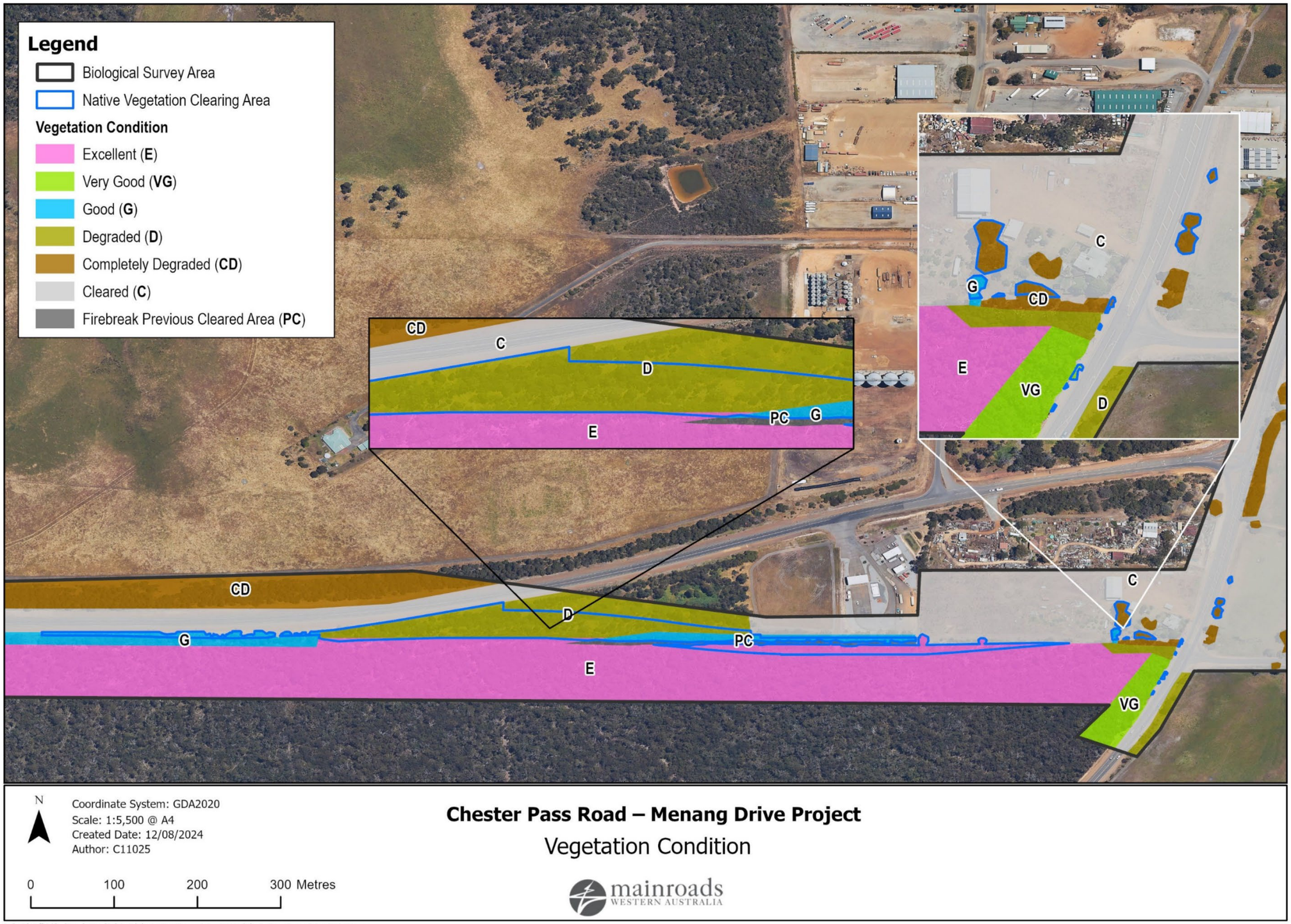
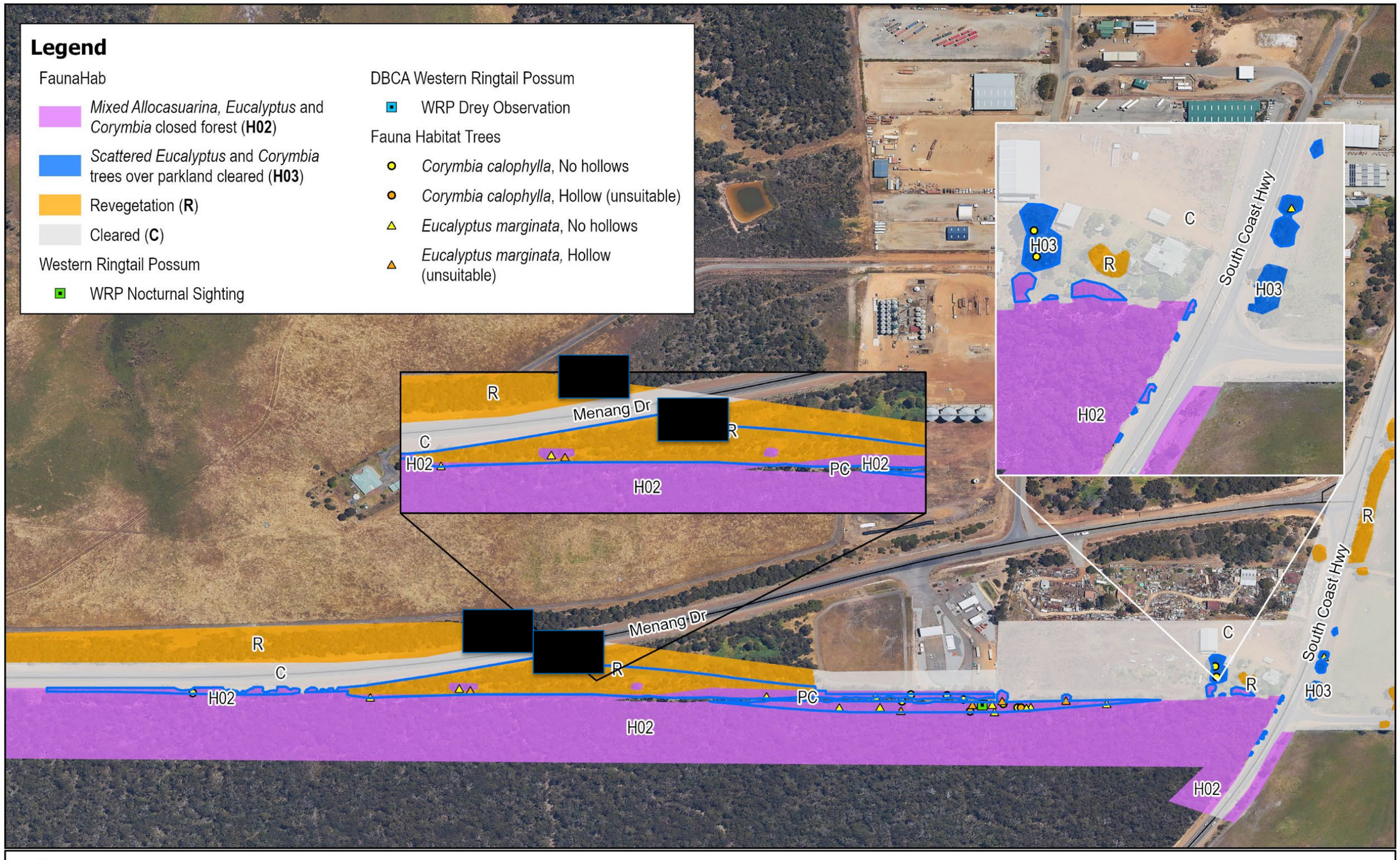


Figure 6. Fauna Habitat, Diameter Breast Height Trees and Western Ringtail Possum



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4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The Native Vegetation Clearing Area is located within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) region and the southern Jarrah Forest subregion (JAF02). The Jarrah Forest bioregion lies on the Duricrusted plateau of Yilgarn Craton and has a variety of species-rich shrublands with a warm Mediterranean climate. The southern jarrah forest subregion is characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo - Marri woodlands on clayey soils. Eluvial and alluvial deposits support *Agonis* shrublands.

There is one Vegetation Association within the Native Vegetation Clearing Area. Table 3 provides details of the Vegetation Association and the remaining extent of this association.

Table 3. Pre-European Vegetation Representation (Beard 1975)

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. 978	**Statewide** WA	53,230	18,855	35.42	9.47
	IBRA Bioregion Jarrah Forest	53,016	18,751	35.37	9.48
	IBRA Sub-region Southern Jarrah Forest	53,016	18,751	35.37	9.48
	Local Government Authority City of Albany	52,154	18,719	35.89	9.67

Two naturally occurring native vegetation types (VT01 – 0.77 ha and VT03 – 0.06 ha) were mapped within the Native Vegetation Clearing Area, and one area of revegetation with native species (0.91 ha) which was planted in association with CPS 739/1 (GHD 2021) and are summarised in Table 4.

Table 4. Summary of Native Vegetation Types within the Native Vegetation Clearing Area (GHD 2021)

Vegetation Type	Extent within Native Vegetation Clearing Area (ha)	Extent Mapped within the Survey Area (ha)
VT01 – *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Corymbia calophylla* mixed open forest. *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Corymbia calophylla* mixed open forest over *Agonis theiformis* and *Xanthorrhoea preissii* open shrubland over *Anarthria prolifera, Tetraria octandra* and *Lepidosperma drummondii* open sedgeland over *Xanthosia roturdifolia, Hibbertia cunninghamii* and *Conostylis setigera* subsp. *setigera* open herbland. Other	0.77	10.66 ha

Vegetation Type	Extent within Native Vegetation Clearing Area (ha)	Extent Mapped within the Survey Area (ha)
associated species include *Desmocladus fascicularis, Dampiera leptoclada, Kingia australis, Lindsaea linearis* and *Mesomelaena tetragona* over *Agonis theiformis* and *Xanthorrhoea preissii* open shrubland over *Anarthria prolifera, Tetraria octandra* and *Lepidosperma drummondii* open sedgeland over *Xanthosia roturdifolia, Hibbertia cunninghamii* and *Conostylis setigera* subsp. *setigera* open herbland. Other associated species include *Desmocladus fascicularis, Dampiera leptoclada, Kingia australis, Lindsaea linearis* and *Mesomelaena tetragona*.		
VT03 – Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees over introduced grasses on road reserves and private property.	0.06	0.08
Revegetation – Revegetation with native species including *Agonis flexuosa* var. *flexuosa, Allocasuarina fraseriana, Corymbia calophylla, Eucalyptus marginata* subsp. *marginata* and *Taxandria linearifolia*.	0.91	4.14
TOTAL (ha)	**1.74**	**14.88**

Native vegetation within the Native Vegetation Clearing Area is in variable condition, largely due to the presence of the existing roads and surrounding development (GHD 2021). Vegetation condition ranged from 'Excellent' to 'Completely Degraded' (Figure 5). Disturbances impacting the Native Vegetation Clearing Area include edge effects from the existing road, clearing, weed infestation, vehicle tracks and historic clearing (GHD 2021). Vegetation condition ratings for the Native Vegetation Clearing Area are summarised in Table 5.

Table 5. Vegetation Type by Condition in Development Envelope

Vegetation Type	Vegetation Condition	Area (ha)
VT01	Excellent	0.38
	Very Good	0.003[2]
	Good	0.34
	Degraded	0.03
	Completely Degraded	0.01
VT03	Completely Degraded	0.06
Revegetation	Degraded	0.91
	TOTAL	**1.74**

[2] 0.003 ha rounds to zero to two decimal places. This area is accounted for in rounding of other condition ratings. Total required clearing area does not exceed 1.74 ha.

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 (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 at variance to Clearing Principle (b), may be at variance with Clearing Principle (a) and (h), and is not at, or not likely to be at, variance with the remaining seven Clearing Principles.

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

Proposed clearing may be at variance to this Principle.

Assessment

Vegetation and Flora

The Native Vegetation Clearing Area (Figure 2) will impact two naturally occurring native vegetation types (VT01 and VT03) , totalling 0.83 ha (VT01 – 0.77 ha, VT03 – 0.06 ha), ranging in condition from Excellent to Completely Degraded, and an area of revegetation with native species totalling 0.91 ha all rated as Degraded (GHD 2021). The vegetation condition by vegetation type is summarised in Table 5.

The native vegetation proposed to be cleared is not representative of any listed PECs or TECs, and no other conservation significant vegetation communities were identified within the Native Vegetation Clearing Area or broader Survey Area.

A total of 132 flora taxa (including subspecies and varieties) representing 41 families and 92 genera were recorded from the broader Survey Area (GHD 2021). This comprised 101 native taxa and 31 introduced taxa. GHD (2021) did not record any Threatened flora listed under the EPBC Act or BC Act, or any DBCA listed Priority flora. The likelihood of occurrence assessment completed post field survey concluded that the remaining significant flora identified in the desktop assessment is unlikely to occur, due to the absence of suitable habitat and adequate search effort (GHD 2021).

VT01 most closely aligns with the Albany Regional Vegetation System (ARVS) unit 'Jarrah / Marri / Sheoak laterite forest'. Sandiford and Barrett (2010) found this ARVS unit had a mean species richness of approximately 26 species, which is comparable to the mean species richness recorded by GHD (2021) for VT01 of approximately 29 species. The similarity of species richness indicates the survey area is no more diverse than other areas assessed at a regional scale.

Areas mapped as VT03 were too degraded (all areas were Completely Degraded) for comparison with any ARVS units. Due to historic disturbance, all areas of VT03 have low species richness.

The area mapped as revegetation with native species comprises was planted and as such, is not representative of any ARVS unit.

Fauna and Fauna Habitat

The Proposal will directly impact 0.83 ha of naturally occurring native fauna habitat and 0.91 ha of revegetation with native species (Figure 6), comprised of:

- **H02** - Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest (0.77 ha)
- **H03** - Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared (0.06 ha)
- **R** – Revegetation (with native species) (0.91 ha).

Twenty-four fauna species, including, 20 birds, one mammal and three reptiles were recorded from the broader Survey Area. The fauna species richness recorded is relatively low and likely attributed to limited availability of good quality fauna habitat.

Native vegetation communities and fauna habitat within the Native Vegetation Clearing Area are surrounded by areas cleared for farming, rural residences or other built-up areas. Areas of native vegetation have been impacted by historical clearing, human activities, man-made drainage, edge effects, weed invasion and introduced fauna (GHD 2021). These are likely contributing factors to a low fauna species richness for the survey area.

Two significant fauna species were recorded by GHD (2021) during the survey:

- Carnaby's Cockatoo (*Zanda latirostris*) – EPBC Act and BC Act: Endangered
- Western Ringtail Possum (*Pseudocheirus occidentalis*) – EPBC Act and BC Act: Critically Endangered.

A post survey likelihood of occurrence assessment (GHD 2021) identified an additional six significant fauna species as 'likely' to occur within the broader Survey Area based on: species' biology, habitat requirements, the quality and availability of suitable habitat as determined during the survey, and records of the species in the locality:

- Baudin's Cockatoo (*Zanda baudinii*) (EPBC Act & BC Act listed Endangered)
- Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii* subsp. *naso*) (EPBC Act & BC Act listed Vulnerable)
- Masked Owl (*Tyto novaehollandiae* subsp. *novaehollandiae*) (DBCA listed Priority 3 species)
- Chuditch (*Dasyurus geoffroii*) (EPBC Act & BC Act listed Vulnerable)
- Quenda (*Isoodon fusciventer*) (DBCA listed Priority 4 species)
- South-western Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*) (BC Act listed Conservation Dependent).

Further analysis of species likelihood within the Native Vegetation Clearing Area has been provided in Principle (b) below. The outcome of the further assessment which also considers distance and observation date of species records, habitat connectivity, and availability of habitat within the locality and region, concludes that no impacts are anticipated to the above species from the proposed clearing of native vegetation.

The Proposal will result in the loss of up to 0.83 ha of naturally occurring native vegetation/fauna habitat and 0.911 ha of planted native vegetation. At a regional level this loss is very low (0.004% of naturally occurring native vegetation or 0.009% inclusive of planted native vegetation of the remaining extent of Vegetation Association 978 within the City of Albany). Furthermore, the

Native Vegetation Clearing Area comprises a narrow linear corridor on the northern edge of a much larger 168.07 ha patch of intact vegetation.

The species richness recorded within the broader Survey Area is not of greater diversity than recorded during the ARVS by Sandiford and Barrett (2010) and the Native Vegetation Clearing Area does not comprise a high level of biological diversity.

The proposed clearing may be at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Protected Matters Search Tool Report
- Government GIS Shapefiles:
  - DBCA Threatened and Priority Ecological Community database search (Accessed January 2024)
  - DBCA Threatened and Priority flora database search (Accessed December 2022)
  - DBCA Threatened and Priority fauna database search (Accessed December 2022)
  - WA Herbarium Threatened and Priority flora (Accessed December 2022)
  - Ecological Linkages (Accessed January 2024).

(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 at variance to this Principle.

Assessment

The Proposal will directly impact 0.83 ha of naturally occurring native fauna habitat and 0.91 ha of planted habitat (revegetation) (Figure 6), comprised of:

- **H02** - Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest (0.77 ha)
- **H03** - Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared (0.06 ha)
- **R** – Revegetation (with native species) (0.91 ha).

More than half (52%) of the proposed clearing will impact planted native vegetation (revegetation) that is approximately 15 years old. This habitat is of lower quality than H02 due to its age and lower species diversity; however, provides habitat for WRPs and foraging resources for Black Cockatoos which may be used on an occasional basis. The dominant naturally occurring native fauna habitat type proposed to be cleared is 'Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest' (H02) representing 44% of the impacted native vegetation (Figure 6). This habitat provides the highest value for a range of common birds, lizards, snakes, frogs, macropods, possums and small ground dwelling mammals (GHD 2021).

One other habitat type, 'Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared' (H03) will also be impacted by the proposed clearing. This habitat type provides some value for some species of birds and potentially WRP (GHD 2021).

The proposed native vegetation clearing area (Figure 1) comprises a thin, linear area of habitat and isolated patches of habitat adjacent to existing roads or cleared/developed areas. The portions of native fauna habitat west of Chester Pass Road within the Road reserve (and within

the Native Vegetation Clearing Area) is adjacent to and contiguous with, habitat within Reserve 22892 (Conservation of Flora).

GHD (2021) recorded 24 fauna species, including, 20 birds, one mammal and three reptiles within the broader Survey Area. This included direct evidence of two significant fauna species:

- Carnaby's Cockatoo (*Zanda latirostris*) – EPBC Act and BC Act: Endangered; and
- Western Ringtail Possum (*Pseudocheirus occidentalis*) – EPBC Act and BC Act: Critically Endangered.

Evidence of Carnaby's Cockatoo foraging on *Corymbia calophylla* and *Eucalyptus marginata* was observed by GHD (2021), specifically within habitat type H02 outside of the Native Vegetation Clearing Area.

A total of 14 WRPs were recorded during a nocturnal survey of the broader Survey Area (GHD 2021). All WRPs observed were within vegetation west of Chester Pass Road and south of Menang Drive (Figure 6). One WRP individual was recorded within the Native Vegetation Clearing Area. All other individuals were observed outside of the Native Vegetation Clearing Area.

The DBCA observed evidence of WRPs within the revegetation along the northern and southern sides of Menang Drive, with two active dreys recorded outside of the Native Vegetation Clearing Area using observation and thermal imaging. As the WRP habitat within the Native Vegetation Clearing Area is located on the fringe of the larger, intact patch of vegetation and is subject to edge effects and other disturbances, and adjacent to Menang Drive, it likely has reduced value.

A post survey likelihood of occurrence desktop assessment (GHD 2021) determined an additional six significant fauna species are 'likely' to occur within the broader Survey Area, based on species' biology, habitat requirements, the quality and availability of suitable habitat as determined during the survey, and records of the species in the locality. These species were:

- Baudin's Cockatoo (*Zanda baudinii*) (EPBC Act & BC Act listed Endangered)
- Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii* subsp. *naso*) (EPBC Act & BC Act listed Vulnerable)
- Masked Owl (*Tyto novaehollandiae* subsp. *novaehollandiae*) (DBCA listed Priority 3 species)
- Chuditch (*Dasyurus geoffroii*) (EPBC Act & BC Act listed Vulnerable)
- Quenda (*Isoodon fusciventer*) (DBCA listed Priority 4 species)
- South-western Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*) (BC Act listed Conservation Dependent).

Analysis of the potential for the proposed clearing to impact the two significant species recorded in the GHD (2021) survey is presented below, Additionally, further analysis has been conducted on the significant species identified in the GHD (2021) desktop assessment of the broader Survey Area. Regard has been given to likelihood of occurrence within the 1.74 ha Native Vegetation Clearing Area the subject of this Proposal, distance to known records of the species and date of occurrence. and potential impacts to species and species habitat in the context of the large patch (168.07 ha) of intact vegetation directly adjacent to the south, which includes Reserve 229892 (Conservation of Flora).

Black Cockatoos

The FRTBC and Baudin's Cockatoo were not recorded during the GHD (2021) survey; however, may occur due to the presence of suitable habitat within the survey area and that the species are known to occur locally. The Native Vegetation Clearing Area is located within the modelled feeding distribution for all three species of black cockatoo (DAWE 2022). The Native Vegetation Clearing Area is situated approximately 6.2 km north of two confirmed black cockatoo roost areas (GoWA 2024). However, no evidence of roosting was identified within the Survey Area during the biological survey. The Albany area is within the reported breeding area of Baudin's Cockatoo and within the modelled breeding range of FRTBC and Carnaby's Cockatoo (DAWE 2022). However, the closest known record of black cockatoo breeding is more than 60 km north of the Native Vegetation Clearing Area (GoWA 2024). No evidence of black cockatoo breeding was recorded during the survey (GHD 2021).

Table 6 summarises the native vegetation which provides foraging habitat for all three black cockatoo species that is proposed to be cleared for the Proposal.

Table 6. Native Vegetation - Black Cockatoo Foraging Habitat

Native Foraging Habitat (Quality)	Area within Native Vegetation Clearing Area
Mixed *Allocasuarina*, *Eucalyptus* and *Corymbia* open forest (high value habitat) – H02	0.77 ha
Scattered *Eucalyptus* and *Corymbia* trees over parkland Cleared (high value habitat) – H03	0.06 ha
Revegetation with native species (low value habitat)	0.91 ha
Total	**1.74 ha**

Within the Native Vegetation Clearing Area there are 28 trees with a suitable DBH (>500mm). Based on observations from ground level, seven trees contained potentially suitable hollows for black cockatoo breeding.

Further hollow assessment was conducted by GHD (2024) using telescopic lens, pole camera and/or drone for signs of evidence of breeding use and to categorise the suitability of the hollow for breeding. Seven of the eight hollows were immediately deemed unsuitable for nesting. One hollow was determined to be potentially suitable from the photographic analysis.

To obtain additional information to determine suitability of the one remaining hollow, Australian Black Cockatoo Specialists (ABCS) recommended engaging an arborist to inspect the hollow using an EWP. An arborist was commissioned and inspected the hollow using an EWP. This inspection included measuring the hollow dimensions, photographing the hollow, inspecting the internal contents of the hollow for the presence of nesting evidence and collecting material from within the hollow. Evidence collected by the arborist was provided to ABCS for review by Mr Rick Dawson and Dr Peter Mawson. ABCS (2024) confirmed the hollow does not appear to have been used by black cockatoos, nor does it appear to have ever been used for black cockatoo nesting.

Subsequently, it has been determined that there are no hollows suitable for Black Cockatoo nesting within the Native Vegetation Clearing Area.

Clearing of up to 0.83 ha of high quality and 0.91 ha of low quality black cockatoo habitat represents a 0.02% reduction in potential habitat for the species within a 10 km radius (based on an extent of 8,741 ha) (GoWA 2022).

Western Ringtail Possums

GHD (2021) recorded 14 individual WRPs during the nocturnal search of the broader Survey Area. Of these, one WRP individual was recorded within the Native Vegetation Clearing Area. All other records were observed south of the Native Vegetation Clearing Area, outside of the road reserve in the large patch (168.07 ha) of intact vegetation directly adjacent, which includes Reserve 229892 (Conservation of Flora). No dreys (daytime refuge sites) were observed (GHD 2021). Two active dreys were recorded by the DBCA in the revegetation area along the southern and northern sides of Menang Drive. The active dreys are located outside of the Native Vegetation Clearing Area (Figure 6).

GHD recorded WRP solely in habitat type H02 Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest. Other native habitat within the Native Vegetation Clearing Area considered suitable for this species includes the Revegetation with native species (R) and scattered habitat type H03, *Eucalyptus* and *Corymbia* trees over parkland cleared (GHD 2021). Habitat type R was assessed by GHD (2021) as low value. However, as WRP have been recorded in his habitat type it has been classified as moderate quality. As habitat type H03 comprises scattered trees providing no arboreal linkage to areas of vegetation known to be utilised by WRP, it is considered to be of lower value and has reduced likelihood of use.

Within the Native Vegetation Clearing Area a fragmented portion of H03 (0.02 ha) east of Chester Pass Road is considered to be potential, low quality WRP habitat as this area is small, degraded and fragmented from other areas of intact habitat by a major road. No WRPs were recorded in this area or in any surveyed areas to the east of Chester Pass Road suggesting that WRP do not utilise this patch of potential habitat. The small patch of H03 west of Chester Pass Road comprises remnant trees over a parkland cleared understory and is associated with buildings, this patch is also assessed as low habitat value as it is fragmented from native vegetation to the south.

Areas of naturally occurring habitat type H01 (0.77 ha) representing WRP habitat west of Chester Pass Road are considered high quality due to habitat composition, habitat quality, connectivity and the confirmed presence of WRPs. Habitat type R (0.91 ha) along Menang Drive is approximately 15 years old and is considered moderate quality due to its age, species diversity and habitat quality.

Habitat type H02: Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest, within which WRP were observed, occurs extensively outside of the Native Vegetation Clearing Area, including in the large patch (168.07 ha) of intact vegetation directly adjacent, incorporating Reserve 229892 (Conservation of Flora). Due to the large quantity of habitat available directly adjacent to the Native Vegetation Clearing Area, the proposed road development is not anticipated to have a significant impact on the species persistence in the local area.

The proposed clearing of native vegetation will impact 0.77 ha of high quality WRP habitat, 0.91 ha of moderate quality habitat and 0.06 ha of low quality potential WRP habitat. Combined, this

impact represents a 0.02% reduction in potential habitat for the species within a 10 km radius (based on an extent of 8,741 ha) (GoWA 2022).

Masked Owl

The Priority 3 Masked Owl was not recorded during the GHD (2021) survey. The Native Vegetation Clearing Area contains 0.83 ha of potentially suitable habitat for the Masked Owl based on habitat preference (GHD 2021). Revegetated areas along Menang Drive were not identified by GHD (2021) as suitable habitat for this species.

There are no recent records of Masked Owl in the region with the only two records located on DBCA restricted databases within a 20 km radius being:

- 2001 – 12.8 km distant on the boundary of the Mill Brook Nature Reserve
- 1954 – 5.4 km distant within the Albany Town site

As the species is aerial there may be some possibility that it may at some stage visit the Native Vegetation Clearing Area; however, it is unlikely due to scarcity and lack of recent records in the region.

Due to the small area of impact the likelihood of occurrence of this highly mobile aerial species is further reduced. This small 1.74 ha Native Vegetation Clearing Area presents 0.02% of potential habitat for the species within a 10 km radius (based on an extent of 8,741 ha) (GoWA 2022). Additionally, considerable areas of habitat in equivalent or better condition are available directly adjacent to the south of the Native Vegetation Clearing Area, in the large patch (168.07 ha) of intact vegetation, which includes Reserve 229892 (Conservation of Flora).

In consideration of the above, it is considered unlikely the Masked Owl would occur in the Native Vegetation Clearing Area. Furthermore, the small (1.74 ha) reduction in habitat will have no impact to individuals or the persistence of the species in consideration of available habitat in the region.

Chuditch

Based on availability of suitable habitat the Chuditch (EPBC Act & BC Act listed Vulnerable), may have some limited potential to occur. However, although Chuditch may have the potential to occur, none were recorded during the GHD (2021) survey.

There are no recent records of Chuditch in the region with the only three records located on DBCA restricted databases within a 20 km radius being:

- 1995 – 6.8 km distant within the Albany Townsite
- 1982 – 11.2 km distant within the Gull Rock National Park
- 1974 – 7.8 km distant on the outskirts of the Albany Town site.

There is no habitat connectivity between the location of these records and the Native Vegetation Clearing Area.

As there have been no records of Chuditch in the broader region for 29 years, and records of the species are located a significant distance away from the Native Vegetation Clearing Area, the Chuditch is unlikely to occur.

Quenda

The Native Vegetation Clearing Area contains 0.77 ha of potentially suitable naturally occurring habitat for Quenda and 0.91 ha of planted habitat (revegetation). Habitat that has the potential to be used by this species within the Native Vegetation Clearing Area comprises habitat types H02 (Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest) and R (revegetation with native species) along Menang Drive.

The same habitat type (H02) occurs outside of the Native Vegetation Clearing Area, including in the large patch (168.07 ha) of intact vegetation directly adjacent, which incorporates Reserve 229892 (Conservation of Flora). The proposed clearing (of H02 and R) represents 0.02% of potential habitat for the species within a 10 km radius (based on an extent of 8,741 ha) (GoWA 2022).

Although Quenda may have the potential to occur, none were recorded during the GHD (2021) survey. The proposed road development is not anticipated to impact individuals or have a significant impact on the species persistence in the local area.

South-western Brush-tailed Phascogale

The Native Vegetation Clearing Area contains potentially suitable habitat for South-western Brush-tailed Phascogale. Habitat that has the potential to be used by this species within the Native Vegetation Clearing Area comprises habitat type H02 (Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest) and planted habitat (revegetation) along Menang Drive (due to its connectivity with intact vegetation communities to the south). A total of 0.77 ha of potential naturally occurring habitat is available in the Native Vegetation Clearing Area and 0.91 ha of planted (revegetation) habitat which may be cleared for the proposal, representing 0.02% of potential habitat for the species within a 10 km radius (based on an extent of 8,741 ha) (GoWA 2022). Although the South-western Brush-tailed Phascogale may have the potential to occur, none were recorded during the GHD (2021) survey. The small area of impact to potential habitat further reduces the probability of occurrence of the species.

Impact to Fauna and Fauna Habitat

The proposed clearing will impact on native habitat suitable for fauna indigenous to WA. However, significant fauna species are unlikely to be solely reliant on the habitat within the Native Vegetation Clearing Area. The majority of habitat available is considered to be of moderate to high value as the Native Vegetation Clearing Area is almost completely surrounded by cleared and developed areas. The woodland habitat types may provide some food resources, shelter and habitat linkage for birds, reptiles, amphibians and small mammals; however, given the thin, linear nature of the clearing proposed, the proximity to existing roads and adjacent development, and the relatively small scale of clearing required, it is considered highly unlikely that the proposed clearing will impact significant habitat for fauna indigenous to Western Australia. The absence of, or limited sightings of species in the Native Vegetation Clearing Area and availability of habitat in areas of less disturbance, both directly adjacent within Reserve 22892 (Conservation of Flora) and within the region, indicate the proposed clearing impacts are likely to be negligible at a local and regional level.

The proposed clearing is at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)

- Protected Matters Search Tool Report
- Government GIS Shapefiles:
  - DBCA Threatened and Priority fauna database search (Accessed December 2022)
  - Ecological Linkages (Accessed January 2024)
- Referral guideline for 3 WA threatened black Cockatoo Species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) (DAWE 2022)
- Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan (DPaW 2017).

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

Proposed clearing is not at variance to this Principle.

Assessment

Utilising the EPBC Act Protected Matters Search Tool (DAWE 2020a), the DBCA's *NatureMap* database, the DBCA's Threatened and Priority flora database, and the WA Herbarium dataset, there are 66 conservation significant flora species either present or potentially present within 10 km of the survey area (GHD 2021). This included 14 taxa listed under the EPBC Act and/or Threatened under the BC Act and one taxon listed as presumed extinct.

No threatened flora protected under the EPBC Act or the BC Act was recorded during the biological survey by GHD (2021). The likelihood of occurrence assessment conducted post field survey, concluded that no Threatened flora are considered likely, or possible to occur, due to the absence of suitable habitat and adequate search effort (GHD 2021).

Based on the biological survey findings that no Threatened or Priority flora are present within or adjacent to the proposed clearing area, or considered likely to occur, the proposed clearing does not include, or is not necessary to support the continued existence of Threatened flora.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Protected Matters Search Tool Report
- Government GIS shapefiles:
  - DBCA Threatened flora database search (Accessed December 2022)
  - WA Herbarium Threatened and Priority flora (Accessed December 2022).

(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.

Assessment

A desktop search of the Protected Matters Search Tool and the DBCA's TEC/PEC database did not identify any TECs or PECs within the Survey Area (GHD (2021).

In the desktop assessment conducted by GHD (2021) the following TECs were identified as potentially occurring within the survey area:

- *Banksia coccinea* Shrubland/*Eucalyptus staeri*/Sheoak Open Woodland (DBCA – Priority 1, EPBC Act – Endangered)

- Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (EPBC Act – Endangered)
- *Empodisma* peatlands of southwestern Australia (EPBC Act – Endangered)
- Subtropical and Temperate Coastal Saltmarsh (EPBC Act – Vulnerable, DBCA – Priority 3)

The survey conducted by GHD (2021) confirmed that based on dominant species, landform features and field observations, no vegetation types recorded from the survey are considered representative of a known TEC (GHD 2021), and therefore no TECs are present in the Native Vegetation Clearing Area.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Protected Matters Search Tool Report
- Government GIS shapefiles:
  - DBCA Threatened Ecological Community database search (Accessed December 2022).

(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.

Assessment

Vegetation Association

The Native Vegetation Clearing Area is located within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) region and the southern Jarrah Forest subregion (JAF02). The vegetation within the Native Vegetation Clearing Area has been broadly mapped as Vegetation Association 978 described as Low forest; Jarrah, *Eucalyptus staeri* & *Allocasuarina fraseriana*. Table 3 in Section 4.1 summarises the extent of pre-European Vegetation Association 978 remaining.

The national objectives and targets for biodiversity conservation Australia have been set to prevent clearance of ecological communities with less than 30% of their pre-European extent, below which species loss appears to accelerate exponentially (Commonwealth of Australia 2001). Given that the Proposal is not within the constrained Swan Coastal Plain area, the retention objective of 30% applies (EPA 2016).

The current extent of Vegetation Association 978 is higher than 30% for pre-European extent at all scales (Statewide, IBRA Bioregion, IBRA Subregion, LGA). The proposed clearing of 0.83 ha of naturally vegetation that is representative of Vegetation Association 978 represents approximately 0.005% of the extent remaining within the City of Albany. The proposed clearing will not lower the remaining extent of Vegetation Association 978 below the 30% threshold at a local, regional or State scale. Revegetated areas have been excluded from this calculation on the basis that this vegetation is not representative of a naturally occurring ecological community.

Ecological linkages

The area of native vegetation proposed to be cleared is immediately adjacent to Reserve 22892 (C Class reserve for the purpose of the Conservation of Flora). The proposed clearing will not fragment or interrupt any ecological linkages connecting native vegetation remnants within the

local area. Clearing will not remove the entirety of the area's remnant native vegetation, instead the clearing is limited to thin strips adjacent to the existing roads, the majority of which is located within road reserves, with small areas located on freehold land surrounded by cleared areas. Approximately 1 ha of degraded revegetation (planted) south of Menang Drive and north of the proposal will become isolated.

The proposed clearing occurs in an area that has not been extensively cleared at a local and regional scale and therefore, is not significant as a remnant of native vegetation.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Government GIS shapefiles:
  - Pre-European vegetation (Accessed January 2024)
- Commonwealth of Australia (2001)
- Statewide Vegetation Statistics (Government of Western Australia 2018).

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

Proposed clearing is not at variance to this Principle.

Assessment

The native vegetation proposed to be cleared is not within, and does not intersect:

- an Internationally Important Wetland (i.e. RAMSAR);
- a Nationally Important Wetland;
- a surface water area that is proclaimed under the RIWI Act; or
- any mapped South Coast Significant Wetlands (GoWA 2024).

No watercourses or rivers intersect or are in the vicinity of the Native Vegetation Clearing Area. The closest watercourse to the proposed clearing is a minor, non-perennial, un-named tributary that is approximately 190m to the south-east of the Native Vegetation Clearing Area. Vegetation proposed to be cleared for the Proposal is not representative of riparian vegetation.

The proposed clearing comprises a narrow, linear strip of roadside vegetation that is not located in, or not growing in association with a watercourse or wetland.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Government GIS shapefiles:
  - Ramsar Wetlands (Accessed January 2024)
  - Important Wetlands (Accessed January 2024)
  - Watercourses (Accessed January 2024)
  - RIWI Act Rivers (Accessed January 2024).

(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.

Assessment

Two soil landscapes are mapped within the Native Vegetation Clearing Area (GoWA 2024), these are summarised in Table 7.

Table 7. Soil Landscape Units

Code	Name	Description
242KgDMc	Dempster crest	Phase Sands and laterite on elongate crests, Jarrah-Albany Blackbutt-Marri forest
242KgS7h	Minor Valleys S7 slope Phase	Broad valleys in sedimentary rocks; 30 m relief; smooth slopes. Deep sands and iron podzols on slopes; Albany Blackbutt-jarrah-sheoak woodland. Podzols and yellow duplex soils on floors; paperbark woodland, teatree heath

The Native Vegetation Clearing Area is mapped as having:

- a low salinity risk (i.e. <3% of map unit has a moderate to high salinity risk or is presently saline);
- a flood risk code L1 (i.e. <3% of map unit has a moderate to high flood risk) or L2 (i.e. 3 – 10% of map unit has a moderate to high flood risk);
- a waterlogging risk rating of L1 (<3% of map unit has moderate to very high waterlogging risk) or M1 (10 – 30% of map unit has a moderate to very high waterlogging risk);
- a water erosion risk code L1 (i.e. <3% of map unit has a high to extreme water erosion risk) or L2 (i.e. 3 – 10% of map unit has a high to extreme water erosion risk);
- a wind erosion risk rating of H2 (i.e. >70% of map unit has a high to extreme wind erosion risk).

Acid sulphate soils (ASS) risk mapping for Albany – Torbay (dataset DWER-054) (GoWA 2024) indicates land broadly west of Chester Pass Road, where the majority of the clearing is proposed, is mapped as having no known risk of ASS, and land east of Chester Pass Road is mapped as a Class II risk area. Class II ASS risk is defined as 'moderate to low risk of ASS within 3 m of the natural soil surface but a high to moderate risk of ASS occurring beyond 3 m'.

The proposed clearing will temporarily expose the natural soils which may increase the risks related to erosion. However, the minimal amount of clearing proposed, is not likely to cause appreciable land degradation.

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

Methodology

- Biological Survey (GHD 2021)
- Government GIS Shapefiles:
  - Acid Sulphate Soil Risk Map (Accessed December 2022)
  - Soil landscape land quality – Water Erosion Risk (Accessed January 2024)
  - Soil landscape land quality – Wind Erosion Risk (Accessed January 2024)
  - Soil landscape land quality – Salinity Risk (Accessed January 2024)

- Soil landscape land quality – Surface Acidity (Accessed January 2024)
- Soil landscape land quality – Waterlogging Risk (Accessed January 2024)
- Soil landscape land quality – Flood Risk (DPIRD-007) (Accessed January 2024)
- Soil landscape mapping – Best Available (DPIRD-027) (Accessed January 2024).

(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 may be at variance to this Principle.

Assessment

The proposed clearing will not impact any environmentally sensitive areas, ecological linkages connecting native vegetation remnants, or DBCA managed lands. The closest DBCA managed reserve is the Bon Accord Road Nature Reserve (R 30469 class A), located more than 4 km north-east from the native vegetation clearing area.

A C-Class reserve with the purpose of Conservation of Flora (Reserve 229892) is situated adjacent to the road reserve, immediately south of the proposed clearing area. The responsible agency for Reserve 22892 is the Department of Planning, Lands and Heritage, with a management order to the City of Albany. The Native Vegetation Clearing Area does not intersect Reserve 22892.

The proposed clearing of 1.74 ha will not directly impact Reserve 22892, nor will it fragment the reserve from nearby conservation areas or other areas of naturally occurring native vegetation communities. However, the clearing will remove some of the vegetation within the road reserve that provides a buffer to Reserve 22892. Management measures will be implemented during construction to avoid indirect impacts to the vegetation within Reserve 22892. Vegetation management is addressed in Section 6 and Appendix 2 of this CAR.

The proposed clearing may be at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- DCCEEW Protected Matters Search Tool Report (DCCEEW 2024)
- Government GIS Shapefiles:
  - DBCA Legislated Lands and Waters & Lands of Interest (Accessed January 2024).

(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.

Assessment

The Native Vegetation Clearing Area is not located within a surface water area that is proclaimed under the RIWI Act (GoWA 2024). There are no RAMSAR or Nationally Important Wetlands within the Native Vegetation Clearing Area.

No watercourses or rivers intersect or are in the vicinity of the Native Vegetation Clearing Area. The closest watercourse to the proposed clearing is a minor, non-perennial, un-named tributary that is approximately 190m to the south-east of the Native Vegetation Clearing Area.

A review of the ArcGIS shapefiles (ASRIS 2022) indicates the Native Vegetation Clearing Area is mapped as having a Low to Extremely Low Probability of Occurrence of encountering ASS.

The Native Vegetation Clearing Area is mapped as having a low salinity risk (i.e. <3% of map unit has a moderate to high salinity risk or is presently saline). In addition, the Native Vegetation Clearing Area has a low to moderate risk of surface acidity (i.e. <50% of map unit has pHCa <4.5).

The Native Vegetation Clearing Area does not intersect a proclaimed Groundwater Area, nor a Public Drinking Water Source Area (PDWSA) (GoWA 2024).

The Proposal is located in an area that is highly disturbed and degraded as a result of the existing agricultural activities, development and roads. The small area of clearing proposed is unlikely to cause direct or indirect deterioration in surface or groundwater quality.

Given the small area of native vegetation proposed to be cleared, the distance to the nearest watercourse and the clearing area not located within or in proximity of a sensitive surface or groundwater area, the clearing is not likely to cause deterioration in surface or groundwater quality.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- Government GIS Shapefiles:
  - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed January 2024)
  - RIWI Act, Groundwater Areas (Accessed January 2024)
  - Public Drinking Water Source Areas (Accessed January 2024)

(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.

Assessment

Based on climate data from the nearby Bureau of Meteorology (BoM) Albany weather station (Site number: 009500) the region receives an annual average of 922.2 mm, with most of the rainfall occurring during the winter months of June, July and August (BoM 2024).

The native vegetation clearing area intersects two soil landscape map units (GoWA 2024):

- 242KgDMc – Dempster crest: Phase Sands and laterite on elongate crests, Jarrah-Albany Blackbutt-Marri forest
- 242KgS7h – Minor Valleys S7 slope Phase: Broad valleys in sedimentary rocks; 30 m relief; smooth slopes. Deep sands and iron podzols on slopes; Albany Blackbutt-jarrah-sheoak woodland. Podzols and yellow duplex soils on floors; paperbark woodland, teatree heath.

The majority of the Native Vegetation Clearing Area is mapped as having a low to moderate waterlogging risk (i.e. <30% of map unit has a moderate to very high waterlogging risk). The proposed native vegetation clearing area occurs within areas mapped with a low risk of waterlogging which is consistent with the position in the landscape, i.e. the clearing area is situated higher in the landscape with elevation ranging from approximately 24 m AHD to 36 m AHD.

Due to the small amount of clearing, the distance to the nearest watercourse (190 m) and no intersection or proximity to permanent rivers or wetlands, the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (GHD 2021)
- BoM Website (Accessed January 2024)
- Government GIS Shapefiles:
  - Soil Mapping (Accessed January 2024)
  - Soil landscape land quality - Waterlogging Risk (Accessed January 2024)
  - Soil landscape land quality - Flood Risk (Accessed January 2024)
  - 2-metre contours (Accessed May 2024).

6 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum. A Vegetation Management Plan (VMP) has been developed to manage and minimise clearing for the Proposal (refer to Appendix 2).

7 REHABILITATION, REVEGETATION & OFFSETS

7.1 Revegetation and Rehabilitation

No temporary clearing will be undertaken as part of the Proposal activities.

7.2 Offset Proposal

Main Roads has prepared an offset proposal in accordance with CPS 818/17 condition 11(a), and in accordance with current WA environmental offsets Policy.

Main Roads proposes to offset the residual impacts from clearing 1.74 ha of black cockatoo and Western Ringtail Possum habitat by revegetating degraded land near the Native Vegetation Clearing Area within the City of Albany and will work with DWER on the finalisation of the offset proposal.

8 STAKEHOLDER CONSULTATION

Main Roads has undertaken stakeholder consultation in accordance with CPS 818/17 Condition 8. The Clearing Assessment Report was advertised from 25 June 2024 to 16 July 2024.

Main Roads received submissions from the following stakeholders:

- Albany Community Environment Centre (ACEC).

Table 8 details the key issues raised and Main Roads response to these key issues.

Table 8. Summary of Main Roads Responses to Stakeholder Submissions

Name of Stakeholder	Date of Consultation	Key Issue/Comment	Main Roads Response/Comment	TRIM Ref of Consultation
Albany Community Environment Centre	16 July 2024	The ACEC raised concerns regarding the proposed clearing of 0.83 ha and noted the clearing contributes to incremental loss of vegetation, biodiversity and fauna habitat, and any potential habitat loss impacts native wildlife, particularly to critically endangered Western Ringtail Possum and the threatened Black Cockatoos. In addition the ACEC raised concerns that the reasons given for choosing a site for the Chester Pass – Menang flyover that requires clearing native vegetation, instead of a cleared site was due to the cost of land acquisition and time delays and is indicative of the lack of value given to the protection of nature	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, and that it has a responsibility to conserve the environmental values that occur within the State's road network, and minimise the impact its projects have on the environment. 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 offsetting our environmental impacts. This has been achieved through changes in the Chester Pass - Menang flyover project scope and design which included: • Selection of an alternative alignment to utilise more degraded and predominantly cleared areas; • Acquisition of cleared farmland to accommodate the project design; • Utilisation of retaining walls for the bridge over Chester Pass Road resulting in a reduction in the extent of native vegetation clearing required; • steepening of batter slopes to reduce earthworks for the protection of native vegetation; and	D24#1589882

Name of Stakeholder	Date of Consultation	Key Issue/Comment	Main Roads Response/Comment	TRIM Ref of Consultation
			• use of cleared land for storing machinery and equipment To further mitigate clearing impacts, Main Roads will undertake landscaping within areas adjacent to the new road using native species. In addition, a revegetation offset will be implemented in the immediate vicinity of the project area to enhance local biodiversity values and provide habitat for Western Ringtail Possums and Black Cockatoos.	

		The ACEC raised concerns that the clearing impacts to native vegetation are immediate whilst revegetation is a long-term proposition and noted it may not be a viable offset for critically endangered species. The ACEC also noted that any revegetation of degraded land near the clearing should commence immediately with the objective to achieve a substantial net gain in native vegetation and improved biodiversity.	Main Roads acknowledges clearing impacts are immediate and that revegetation takes time to become established and provide habitat for fauna species. For this reason, significant steps have been taken to avoid and minimise native vegetation through the project design process. While immediate commencement of revegetation is desirable, successful revegetation outcomes are best achieved with careful planning and implementation. This allows for revegetation design, sourcing of local provenance seed and procuring tube stock from nurseries. Main Roads is experienced in planning and delivering revegetation programs to enhance local biodiversity. The established revegetation along Menang Drive is an example of this, with the area being planted approximately 15 years ago. This area is well established, providing fauna habitat.	

Name of Stakeholder	Date of Consultation	Key Issue/Comment	Main Roads Response/Comment	TRIM Ref of Consultation
		The native vegetation clearing entails removing vegetation within the road reserve that provides a buffer to Reserve 22892. The ACEC reiterated that the management measures stated in the Clearing Assessment Report should be rigorously implemented and monitored to ensure impacts to Reserve 22892 are avoided.	Main Roads will ensure the management measures contained in this Clearing Assessment Report are implemented. This will be achieved through the inclusion of environmental management requirements within environmental specification and contract documentation and on-going compliance monitoring.	
		The ACEC questioned the assessment conclusions in regard to black cockatoo breeding, noting that ACEC is aware that the Torbay Catchment Group has photos of Black Cockatoo chicks in nesting boxes within 10 km and 20 km of the proposed road works.	Department of Biodiversity Conservation and Attractions (DBCA) records indicate that the nearest known record of Black Cockatoo breeding using naturally occurring tree hollows is approximately 60 km north of the project area. The project area is not within an area that is typically known as a Black Cockatoo breeding zone. The installation of artificial nest hollows outside of the species natural breeding range increases the chance of breeding attempts in areas where the species has not traditionally been known to nest. As outlined in this Clearing Assessment Report, the biological investigations completed for the project, including further assessment of potentially suitable hollows has demonstrated that there is no known or no potentially suitable breeding hollows within the proposed clearing area, or the broader survey area.	

Name of Stakeholder	Date of Consultation	Key Issue/Comment	Main Roads Response/Comment	TRIM Ref of Consultation
		The ACEC requested Main Roads offset the total carbon and environmental footprint of the proposed works and demonstrate a genuine environmental commitment that exceeds regulatory requirements.	Main Roads recognises the importance of the natural environment, social and heritage values and the broader benefits for the community to be derived from its projects. The Chester Pass – Menang Drive Flyover project aims to not only enhance road safety outcomes but improve transportation efficiencies through network enhancement. The proposed offsets are specific to counterbalancing impacts to habitat for Black Cockatoos and Western Ringtail Possums. The extent of the offsets proposed have been calculated using the Western Australian offset calculator and approved by the regulator (DWER). Outside of the revegetation offset, additional plantings using native species will be undertaken within the project area.	
		The ACEC noted the Clearing Assessment Report does not mention the measures to be implemented for the monitoring and protection of the Western Ringtail Possum and other native fauna which may be at risk during clearing and road works. Monitoring of Western Ringtail Possums and measures to protect this critically endangered species should be introduced and rigorously implemented.	Main Roads has added additional information to the Clearing Assessment Report (refer to Appendix 2) which outline the measures to be implemented during construction. The proposed measures are consistent with those successfully implemented during the Albany Ring Road project and consistent with the DBCA's procedures to minimise the risk to Western Ringtail Possums during vegetation clearing and building demolition (DPAW 2015).	

Name of Stakeholder	Date of Consultation	Key Issue/Comment	Main Roads Response/Comment	TRIM Ref of Consultation
Department of Water and Environment Regulation	23 August 2024	I note that MRWA considers the proposed clearing is at variance to clearing principle (b), may be at variance to clearing principle (h), not likely to be at variance to clearing principles (a), (g), and (i), and not at variance to the remaining clearing principles. DWER determines that the proposed clearing is at variance with clearing principle (b), may be at variance with clearing principles (a) and (h), not likely to be at variance with clearing principle (g) and not at variance with the remaining clearing principles.	In Section 5 "Assessment Against the Ten Clearing Principles", Clearing Principle (a) has been updated from 'not likely to be at variance' to 'maybe at variance' and Clearing Principle (i) has been updated from 'not likely to be at variance' to 'not at variance', in line with DWER's comments	D24#1143421

9 COMPLIANCE WITH CPS 818

Table 8 summarises what further pre-clearing impact assessment is required in accordance with CPS 818/17.

Table 9. 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.	**Yes**	The Proposal is at variance to Clearing Principle (b), and may be at variance with Principle (a) and (h), therefore: 1. Clearing Report to be published on website and submissions sought for 21 days. 2. Submissions invited from relevant parties, including the LGA, the owner or occupier of the land and other stakeholders in accordance with Condition 8 of CPS 818/17. 3. VMP has been completed, refer to Appendix 2. 4. An offset proposal for approval by DWER has been prepared 5. Summary of submissions and a statement addressing each of those submissions to be published on website.
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.	**Yes**	Comply with the Main Roads Dieback Management Process.
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	**No**	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
susceptible to a pathogen other than dieback.		
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.
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.

10 REFERENCES

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11 APPENDICES

Appendix 1: CPS 818 condition 8 (e) (iii) Biological Surveys and Field Assessment Executive Summary and Report Conclusions

BIOLOGICAL SURVEY REPORT (GHD 2021)

EXECUTIVE SUMMARY

Main Roads is proposing to a construct a grade separated interchange south of the intersection of Chester Pass Road and Menang Drive, in the City of Albany. GHD Pty Ltd (GHD) was engaged by Main Roads to undertake a biological survey for the project. The survey area covers a total area of 41.4 hectares (ha).

The purpose of the survey is to delineate key flora, fauna, soil, groundwater and surface water values and potential sensitivity to impact. The biological survey report will be used to inform the environmental assessment and approvals process. The results of the biological survey may also assist in the preparation of State or Commonwealth referral documentation.

This report is subject to, and must be read in conjunction with, the limitations and assumptions contained throughout the report.

Key findings (flora and vegetation)

Three vegetation types were identified and mapped within the survey area, excluding revegetation areas and cleared areas. The vegetation types include; *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Corymbia calophylla* mixed open forest, *Melaleuca preissiana* scattered trees over *Baumea juncea* and *Anarthria laevis,* Scattered *Corymbia calophylla* and *Eucalyptus marginata* trees over introduced grasses. Revegetation areas consisted of native plantings. None of the vegetation types represent Threatened or Priority ecological communities. 24.6 ha (59 %) of the survey area was cleared.

The vegetation condition of the survey area ranged from Excellent to Completely Degraded. Previous disturbances such as tracks, weeds, edge-effects and rubbish dumping have reduced the vegetation condition in some areas. Historical clearing for roads and farming have influenced the structure and composition of the remaining native vegetation in the road reserves.

The survey recorded 132 flora taxa (including subspecies and varieties) representing 41 families and 92 genera during the field survey. This total comprised 101 native taxa and 31 introduced taxa. No significant flora listed under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999*, *Biodiversity Conservation* (BC) *Act 2016* or Department of Biodiversity, Conservation and Attractions (DBCA) Priority listed flora taxa were recorded in the survey area. A likelihood of occurrence assessment was conducted post-field survey, with all significant flora species identified in the desktop assessment considered unlikely to occur within the survey area.

Of the introduced species recorded, three are listed as WoNS, with two of these also listed as a Declared Pest (DP) under the *Biosecurity and Management* (BAM) *Act 2007*; **Asparagus asparagoides* (DP and WoNS)*, *Genista linifolia* (WoNS) *and *Rubus ulmifolius* (DP and WoNS).

Key findings (fauna)

The survey area contains four fauna habitat types (excluding previously cleared areas) based on the predominant landforms, soil and vegetation structure of the area. These are; Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest, *Melaleuca* dampland on road reserve, Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared and Revegetation.

Twenty-four fauna species, including, 20 birds, one mammal and three reptiles were recorded from the survey area. A relatively low diversity of fauna was recorded, likely contributed to by limited availability of good quality fauna habitat.

The survey area recorded two significant fauna species: Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and Western Ringtail Possum (*Pseudocheirus occidentalis)*. A likelihood of occurrence assessment concluded six additional significant fauna species are considered likely to occur, including: Baudin's Cockatoo (*Calyptorhynchus baudinii*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp*. naso)*, Masked Owl (*Tyto novaehollandiae* subsp*. novaehollandiae)*, Chuditch (*Dasyurus geoffroii)*, Quenda (*Isoodon fusciventer*) and South-western Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*).

Foraging and potential breeding/roosting habitat for black cockatoos was identified throughout most of the survey area that contained intact vegetation. In total, 10.95 ha of the survey area is considered to be high quality foraging habitat and potential breeding/roosting habitat. Three hundred and thirteen potential black cockatoo trees with a suitable DBH greater than 500 mm were identified from the survey area. Of these 56 contained hollows or potential hollows of various sizes, with eight trees containing hollows of sufficient size to potentially be used for breeding. No actual black cockatoo breeding activity was observed within the survey area and no secondary evidence (e.g. chew chip marks at hollow entrances) was observed. Additionally, no actual or secondary evidence of roosting was observed during the survey.

Fourteen Western Ringtail Possum individuals were recorded during a nocturnal search. Suitable habitat for Western Ringtail Possum occurs in Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest, Scattered *Eucalyptus* and *Corymbia* trees over parkland cleared and revegetation areas (16.58 ha).

REPORT CONCLUSIONS

Vegetation types and condition

Three vegetation types were identified and mapped within the survey area, excluding revegetation areas and cleared areas. The *Allocasuarina fraseriana, Eucalyptus marginata* and *Corymbia calophylla* mixed open forest vegetation type (VT01) was the most widespread within the survey area, with the majority of this vegetation occurs to the south of Menang Drive, and extends beyond the survey area, forming a much larger intact remnant. VT01 south of Menang Drive contains areas that are in Excellent condition, intact, low weed cover and typical native species diversity.

The remaining vegetation consisted of scattered trees on road reserves and farmland, with revegetation also present. Occurring in a relatively cleared landscape for agricultural and other

purposes the structure and composition of remaining vegetation has been modified through clearing, firebreaks, grazing, tracks, aggressive weed species and edge effects.

None of the vegetation types recorded in the survey area were considered to represent TECs or PECs.

Flora

The survey recorded 132 flora taxa (including subspecies and varieties) representing 41 families and 92 genera during the field survey. This total comprised 101 native taxa and 31 introduced taxa. All of the introduced species have been previously recorded in the Albany area.

The flora taxa recorded from the survey area are typical for the Albany area and wider Jarrah Forest bioregion, southern areas. The flora diversity of the survey area (in particular VT01) is considered to be comparable in species diversity when compared with vegetation of similar condition in protected areas in the local area, such as DBCA managed lands, that have not been subject to continued disturbances.

No significant flora taxa listed under the EPBC Act, BC Act or DBCA Priority listed flora taxa were recorded in the survey area. A likelihood of occurrence assessment was conducted post- field survey, which concluded that all significant flora identified in the desktop assessment are unlikely to occur within the survey area. None of the flora identified within the survey area are considered to be other significant flora.

Fauna

The survey area contains four fauna habitat types in the survey area (excluding previously cleared areas). In general, the mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest provided the highest value for a range of common birds, lizards, snakes, frogs, macropods, possums and small ground dwelling mammals.

Twenty-four fauna species, including, 20 birds, one mammal and three reptiles were recorded from the survey area. A relatively low diversity of fauna was recorded, likely contributed to by the small survey area and the limited availability of good quality fauna habitat in some areas.

Two significant fauna species are known to occur in the survey area, Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and Western Ringtail Possum (*Pseudocheirus occidentalis*). An additional six significant fauna species are considered likely to occur. The Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest are extensively utilised foraging habitat for black cockatoos, and contain potential breeding trees for Carnaby's, Baudin's and Forest Red-tailed Black Cockatoos. The Albany area is a known breeding area of Baudin's Cockatoo and within the modelled breeding ranges of Forest Red-Tailed Black Cockatoo and Carnaby's Cockatoo.

Foraging and potential breeding/roosting habitat was identified throughout the survey area. In total, 10.95 ha of the survey area is considered to be high value black cockatoo foraging habitat and potential breeding/roosting habitat.

Three hundred and thirteen potential black cockatoo trees with a suitable DBH greater than 500 mm were identified from the survey area. Of these 56 contained hollows or potential hollows of various sizes, with eight trees containing hollows of sufficient size to be potentially suitable for breeding. No actual Black Cockatoo breeding activity was observed within the survey area and no secondary evidence (e.g. chew chip marks at hollow entrances) was observed.

The Western Ringtail Possum occurs within the survey area with fourteen individuals recorded during a nocturnal search, within the Mixed *Allocasuarina, Eucalyptus* and *Corymbia* open forest.

Appendix 2: Vegetation Management Plan

CHESTER PASS – MENANG FLYOVER

Purpose and Scope

This Vegetation Management Plan (VMP) has been prepared by Main Roads for the purpose of managing native vegetation clearing impacts associated with the Chester Pass – Menang Flyover.

The Proposal involves the development of a grade separated interchange south of the intersection of Chester Pass Road and Menang Drive. The grade separated interchange will allow southbound vehicles to exit Chester Pass Road via an elevated ramp, which will pass back over the top of Chester Pass Road in the form of a bridge and connect into Menang Drive westbound.

The Proposal will be constructed as an extension of the Albany Ring Road Project and therefore, will use the same water and material sources, for which approval has already been granted. A total of 1.74 ha of native vegetation will be impacted by the proposal.

In specified circumstances, Main Roads VMP is required to be approved by Department of Water and Environmental Regulation (DWER) as a condition of the Main Roads Statewide Clearing Permit CPS 818/17.

Actions, and their relevant timeframes, from this VMP will be documented within the relevant Tender Documentation (Specifications), such as:

- Specification 204 Environmental Management
- Specification 301 Vegetation Clearing and Demolition
- Specification 303 Materials and Water
- Specification 304 Revegetation
- Specification 304 Rehabilitation of Disturbed Areas.

Once the Contract has been awarded, the Superintendent's Contract Management Team (or equivalent roles) are to ensure that the requirements are implemented by the Contractor.

Avoiding, Mitigating and Managing the Impacts of Clearing

A number of measures were undertaken during the development and design of the proposal to reduce its impact on the environment.

For further information on the alternatives that were considered during the proposal development, please go to Section 1.5 of the Clearing Assessment Report for the proposal.

For further information on the measures undertaken to avoid, minimise, reduce and manage the proposal's clearing impacts, please go to Section 1.6 of the Clearing Assessment Report for the proposal.

VMP Actions

General vegetation management actions to be undertaken is shown in Appendix 2.1: General Vegetation Management Actions for Clearing.

Appendix 2.1: General vegetation management actions for clearing

Management Action	Responsibility	Timing
The Contractor must ensure plant, machinery and equipment, is cleaned down prior to arrival to the site.	Superintendent	During construction
Vehicle hygiene inspection checklists will be utilised to manage potential weed/dieback spread on earth-moving machinery.	Superintendent	During construction
No known dieback infested soil, mulch, fill or other material will be permitted into the works area.	Superintendent	During construction
All Clearing must be undertaken in such a way to allow fauna to move out of the Clearing area.	Superintendent	During construction
The Limits of Vegetation Clearing will be demarcated on site prior to the commencement of clearing to prevent entry into areas of native vegetation.	Superintendent	During construction
Natural drainage pathways will not be obstructed from stockpile gravel, crushed rock and excavated material.	Superintendent	During construction
All recently cleared, exposed and loose surface areas shall be protected from wind, water and soil erosion.	Superintendent	During construction
The Contractor will ensure that clearing of native vegetation is only undertaken in dry conditions, unless otherwise approved and / or directed by the Superintendent.	Superintendent	During construction
All Special Environmental Areas will be pegged in accordance with Main Roads' Drawing 201928-0001-1 Construction Peg Colour Code (https://www.mainroads.wa.gov.au/globalassets/technical-commercial/technical-library/standard-contract-drawings/vegetation/construction-environmental-management/201928-0001-construction-peg-colour-code-drawing.pdf?v=49bd3b).	Superintendent	During construction
The Contractor must develop and detail a Site induction training program as part of the CEMP that includes as a minimum, the significant environmental impacts, actual or potential, of work activities associated with the Contract	Superintendent	During construction

The following specific actions shall also be implemented and will be the responsibility of the Superintendent to ensure they are completed prior to clearing commencing, unless otherwise specified:

- Prepare and implement a Construction Environmental Management Plan.
- Obtain section 40 authorisation (under *Biodiversity Conservation Act 2016*) to take or disturb threatened fauna prior to the commencement of clearing activities.
- Engage an environmental specialist (fauna) to undertake a preclearance check of conservation significant fauna residences.
- A ground disturbance process is developed and implemented by the Contractor and signed off by the Main Roads Superintendent.
- The Contractor is to ensure that a suitably qualified ecologist with species experience in Black Cockatoos and Western Ringtail Possums is on-site during clearing of Black Cockatoo and Western Ringtail Possum habitat.
- Ensure Black Cockatoo and Western Ringtail Possum habitat (including suitable DBH trees) within the construction area not required to be cleared will be marked and identified as 'no go areas' and demarcated on plans.

Black Cockatoos

- Within 7 days prior to clearing, trees with hollows used by or suitable for use by Black Cockatoos will be inspected by a suitably qualified ecologist to confirm that there are no hollows being used within the area to be cleared. Inspection will be undertaken via drone, pole camera, elevated work platform or other suitable method. If the hollow is not in use, it shall be blocked using a suitable method to prevent use of the hollow prior to clearing.
- Trees should be bumped gently with machinery prior to felling. The machine operator and supervising ecologist will wait and observe the tree for a short time after. If no fauna appears present, then the tree shall be pushed over slowly to minimise the risk of injury to an undetected animal.
- Where trees that are known to be black cockatoo habitat are retained but are located within 10 m of the edge of the road seal the risk of vehicle strike will be assessed to determine if wildlife hazard signage is required.
- A post-clearing survey shall be undertaken to ensure no injured Black Cockatoo individuals are present.
- Revegetation shall not include black cockatoo foraging or breeding plant species within 10 m of the road.

Western Ringtail Possums

- Pre-clearing fauna assessment and spotlighting will be undertaken by a suitably qualified person over two nights within the five nights prior to clearing. The assessment will include hollows, dreys, ground debris, dense ground-level vegetation, timber and logs. The assessment will include areas of native vegetation within the clearing area as well as areas of vegetation that will become isolated as a result of the Project.
- No night-time clearing of vegetation will occur.
- Vacant dreys will be removed prior to clearing where they are accessible, in accordance with the DBCA *Procedures to minimise the risk to Western Ringtail Possums during vegetation*

clearing and building demolition (DPaW 2015). This will include dreys within vegetated areas which will become isolated as a result of the Project.

- Vacant tree hollows suitable for possums will be removed or blocked prior to clearing where they are accessible. Blocking may include wood nailed over the hollow, non-toxic expanding foam or similar.
- Cleared vegetation will be chipped immediately or transported at least 100 m from western ringtail possum habitat before further processing.
- Movement / disturbance of clearing stockpiles will be confined to the period between one hour after sunrise and one hour prior to sunset.
- Habitat clearing is to commence from existing edge lines / roads and progress towards habitat that will be retained, where possible.
- If western ringtail possums are observed during clearing operations, the tree containing the animal will be left for up to 48 hours to allow for the animal to vacate, while clearing continues in adjacent vegetation. If the tree continues to be occupied after 48 hours, the animal will be coerced / moved to a safe area outside of the clearing footprint by the appointed ecologist in accordance with *Procedures to minimise the risk to Western Ringtail Possums during vegetation clearing and building demolition* (DPaW 2015). This may include removal using an elevated platform or gently pushing over the tree as detailed below. The ecologist will be experienced with western ringtail possums and have a fauna handling licence.
- Trees, as noted above, that are observed to support western ringtail possums after 48 hours will be 'bumped gently' with a machine prior to felling. The operator and supervising ecologist will wait and observe the tree for a short time. If the animal remains in the tree, the tree shall be pushed over slowly onto vegetation within the clearing area that is yet to be cleared. The 'soft felling' of habitat trees will provide a 'cushion' for the vegetation being felled, minimising the risk of injury to the animal and allowing any western ringtail possums present with the opportunity to safely vacate.
- Felled trees with hollows will be checked immediately for western ringtail possums after felling and prior to further processing. If it is not possible to fully inspect the hollow the tree will be left on the ground overnight to allow time for any undetected fauna to vacate.
- Any western ringtail possums showing signs of injury or illness will be recorded and taken by a qualified fauna handler to a veterinarian or qualified wildlife carer.
- A post-clearing survey shall be undertaken to ensure no injured western ringtail possums are present.

The above actions will be documented within Specifications 204 and 301.

Main Roads' preclearing **Hold Point** applies to all projects that require vegetation clearing, as documented within Specification 301 (301.12 PRE-CLEARING PROCESS). Accordingly, all Hold Point actions must be signed off prior to clearing commencing. This Hold Point comprises the following actions:

1. Prior to the commencement of any clearing operations, the Contractor must certify for the Superintendent's verification and approval that the following activities have been completed in accordance with the relevant specification:

a) The pegging of limits of vegetation clearing has been undertaken.

b) The pegged vegetation clearing area does not exceed the Limits of Vegetation Clearing.

c) Mature trees have been conserved as far as practicable.

d) The pegging of special environmental areas has been undertaken.

f) All pre-clearing weed control has been undertaken.

g) All pre-clearing fauna operational controls have been undertaken.

h) All pre-clearing dieback operational controls have been undertaken.

i) Suitable and unsuitable topsoil zones have been identified.

j) Vegetation and topsoil stockpile locations have been identified.

o) All clearing machinery is compliant with controls.

Monitoring and Maintenance Program

The Superintendent's Contract Management Team shall monitor the implementation of management actions that are a **Hold Point**. **Hold Point** actions must be signed off by the Superintendent's Representative to confirm it has occurred and recorded within the Superintendent's Contract Management Plan.

Non-Compliance

Non-compliance with management actions will trigger corrective actions, preventative actions and/or an incident investigation. Non-compliances will be recorded within Main Roads incident management system and reviewed by Director Main Roads Environment and Heritage.

The need for reporting non-compliances with VMP management actions to DWER will be determined as part of an incident investigation.

Revegetation

Revegetation will be undertaken in accordance with Condition 9 of CPS 818/17. Relevant requirements from Condition 9 have been incorporated into Project Revegetation Plan Template. The elements to be implemented by the Contractor will be incorporated into the relevant Specification 304.