# Clearing Assessment Report – CPS 818

We're working for Western Australia.

Albany Highway 300 – 308 SLK
Gordon North
Great Southern Region
EOS 1914



D23#1300848
July 2025

# Contents



## List of Figures

# List of Tables

# Document Control

| Report Compilation & Review | Name and Position | Document Revision | Date |
|---|---|---|---|
| Author: | Senior Environment Officer | Draft v1 | 27-Mar-2025 |
| Reviewer: | Senior Environment Officer | Draft v1 | 30-Apr-2025 |
| Author: | Senior Environment Officer | Rev 0 | 07 July 2025 |
| Reviewer: | Senior Environment Officer | Rev 0 | 07 July 2025 |

# 1 PROPOSAL

## 1.1 Purpose and Justification

Albany Highway is a strategic freight, tourist and inter-town route. The efficiency and reliability of Albany Highway is vital to the mining and agricultural sectors of the Wheatbelt and Great Southern regions.

Main Roads proposes to upgrade Albany Highway (H001) between 300.3 and 308.0 Straight Line Kilometre (SLK) to improve safety and efficacy of the road in this location, nominally north of the Gordon River, Cranbrook.

The Proposal was initially referred to as 'Gordon South Stage 2' however is now more commonly referred to as 'Gordon North'. The Gordon North Proposal has been proposed for major improvement works since at least 1998 and is a high priority "Investment Initiative" in the Route Plans (Priority No.6 state-wide).

The section of Albany Highway between SLK 300.3 and SLK 308 (Gordon North) was constructed in the mid 1960's and does not meet current day safety standards for the following reasons:

- The current seal (pavement) width is not adequate for the class and volume of traffic currently utilising this section of road.
- There are several sections where poor vertical and horizontal alignments fail to provide the required vehicle sight stopping distances.

Due to the age, poor condition and increased traffic loads, the road requires widening, reconstruction and maintenance to ensure the safety of road users. Between the towns of Kojonup and Cranbrook, for the period 2018-2022, 45 crashes were recorded, resulting in one fatality, 30 major injuries and 9 hospital admissions or medical attention.

Reconstruction and realignment have been recommended as the preferred approach to provide a roadway that meets the current design standards including a pavement with an expected 40 years' life. The Proposal will involve widening and overlay works as well as reconstruction of substandard geometry (vertical and horizontal curves). The scope of works includes associated drainage works, side tracks, installation of fencing, and relocation of services.

The proposed upgrade will greatly improve road user safety by reducing the estimated Killed or Seriously Injured crash rate by more than 50%, as well as increase the efficiency of freight movements.

### *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

Main Roads proposes to upgrade an 8 km section of Albany between between 300.3 SLK and 308.0 SLK to improve road safety and improve a strategic freight route. The upgrade will comprise the following components:

- Overlay and widening to achieve 11 m seal on an 11 m wide formation;
- Intersection improvements with local roads including Yonka and Weir Roads; and
- Upgrades to drainage infrastructure.

## 1.3 Proposal Location

The Proposal area is located on Albany Highway (H001) between 300.3 SLK and 308.0 SLK in the Shire of Cranbrook, as shown in Figure 1.

MGA reference: GDA 2020 MGA Z50
Northern extent: 117.405 -34.176
Southern extent: 117.469 -34.223

The location and boundaries of the study area (10 km radius) for the Proposal are shown in Figure 2.

## 1.4 Clearing Details

**Proposed Clearing to be undertaken using CPS 818:** Up to 9.765 ha in a 34.84 ha Proposal area (D25#633109). Approved Clearing Area Shapefile: D25#312001.

**Areas of Native Vegetation Clearing:**
The areas of native vegetation to be cleared are shown in Figure 3 (and Appendix 2).

**Type of Native Vegetation:**
The type of vegetation to be cleared under this Proposal comprises of various Eucalypt woodland vegetation types, with a mix of *Melaleuca* and *Acacia* shrublands as shown in Figure 3 (and Appendix 2).

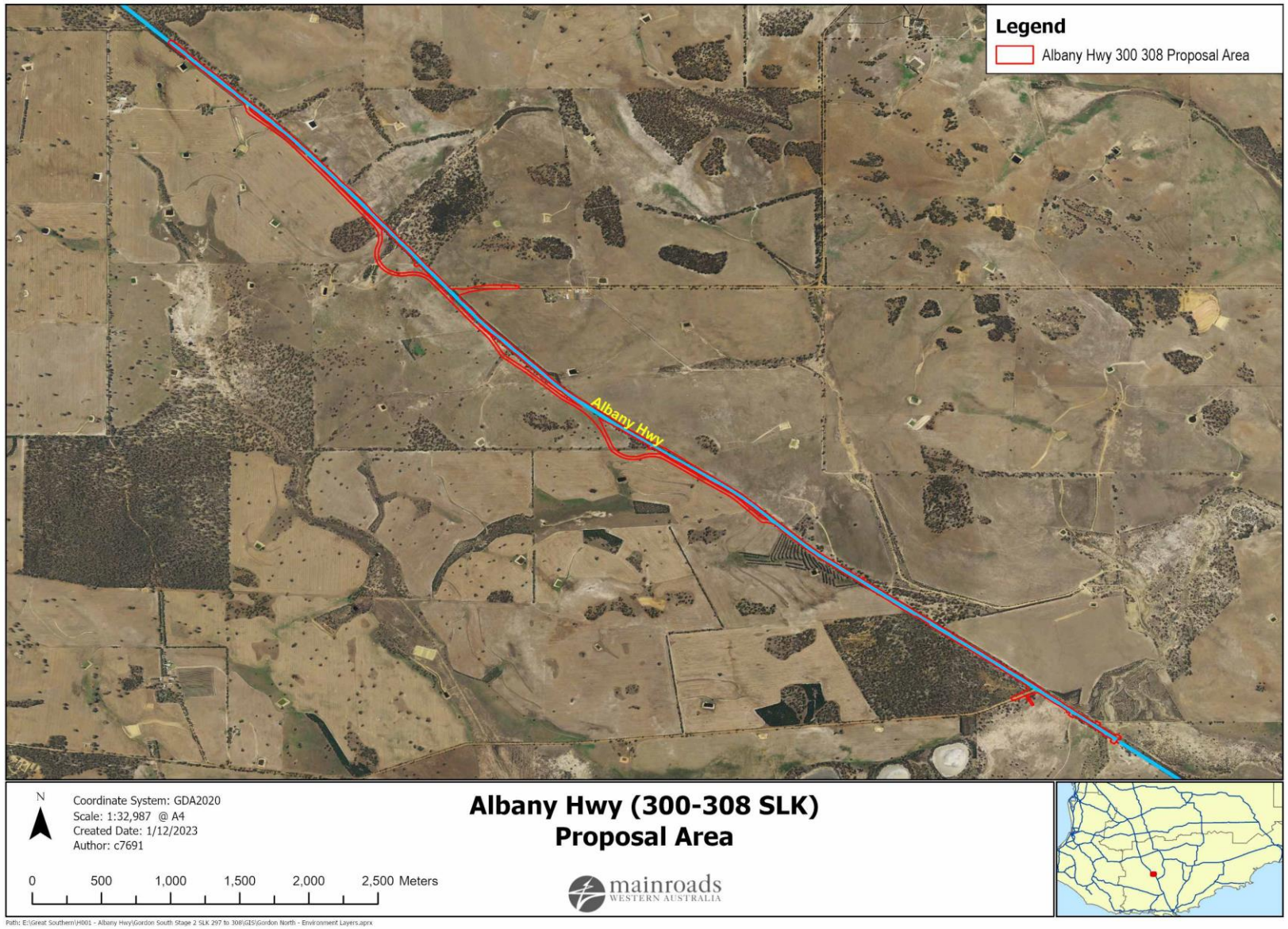


**Figure 1. Proposal area**

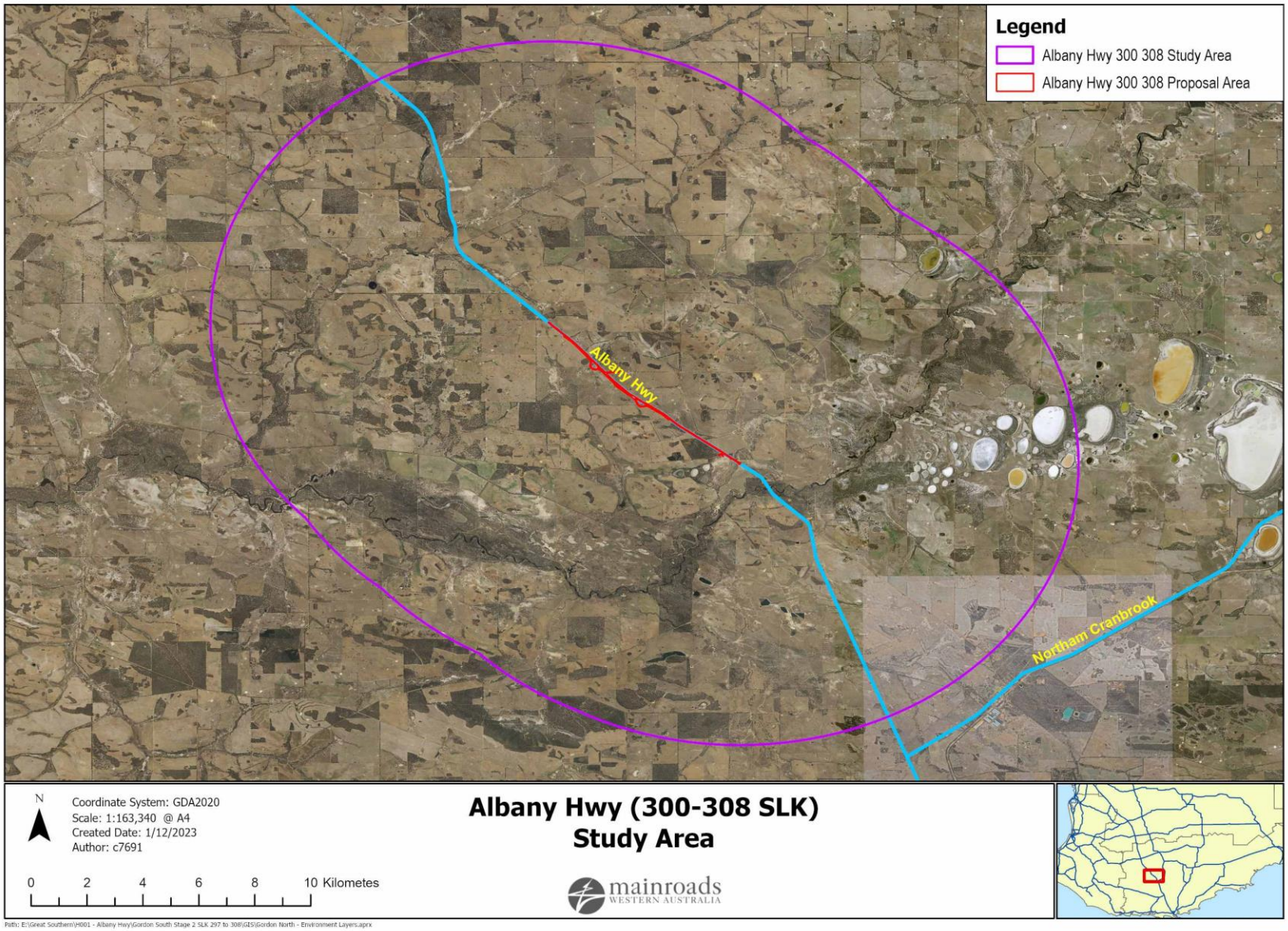


**Figure 2. Study area**

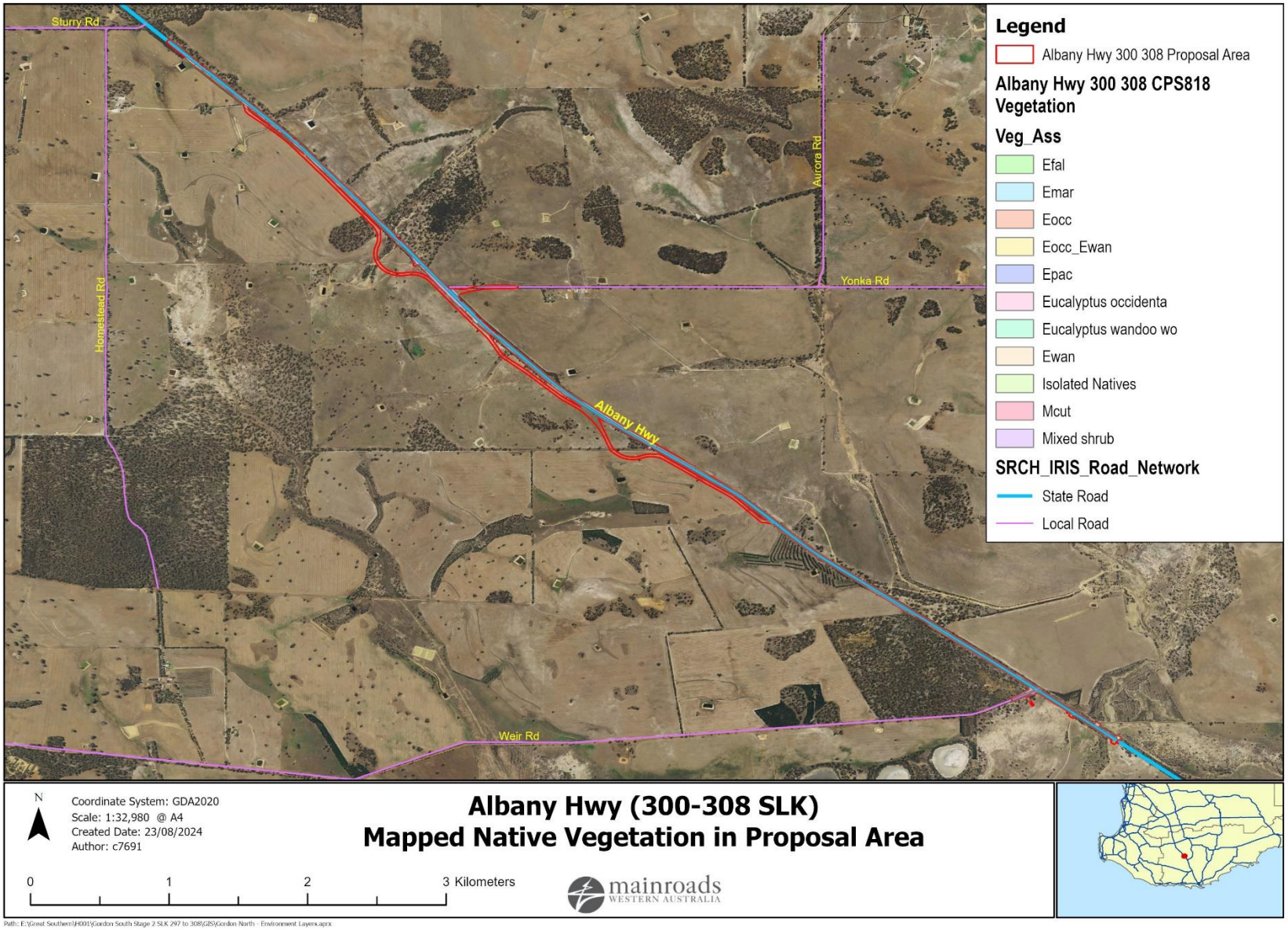


**Figure 3. Vegetation mapping within Clearing area (Refer to Appendix 2 and 3 for more detailed mapping)**

## 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. 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 upgrade and widening of the Albany Highway have been aligned to avoid areas of higher environmental values, such as threatened flora and Threatened Ecological Communities. This has led to the road generally being widened on each side of the road, however in some areas, the alignment has been shifted to the right or left, depending on the environmental constraint. |
| **Alternative alignment located within pasture or degraded areas** | The scope of works is to upgrade the Albany Highway along its existing alignment. Realignment would likely result in a greater amount of clearing. |
| **Simplification of design to reduce number of lanes and/or complexity of intersections** | The upgrade of this section of the Albany Highway will utilise the existing cleared zone as far as practical, with only minor clearing required to widen the Albany Highway to the full design extent. |
| **Steepen batter slopes** | Due to the traffic volumes, vehicle types and posted speeds these batters cannot be changed significantly. Further, the existing terrain correlates to the potential batter slope without changing the shape of the batter. |
| **Installation of barriers** | The installation of safety barriers would not reduce the clearing required due to the requirements of roadside drainage. |
| **Installation of kerbing** | Kerbing does not apply for this section of road, as it becomes a hazard to road users due to existing level differences. |
| **Use of existing cleared areas for access tracks, construction storage and stockpiling** | An access track is proposed to be installed to the western side of the road through cleared farmland. Construction storage and stockpiling will be restricted to existing cleared or highly disturbed areas. |
| **Drainage modification** | Drainage has been considered and will be upgraded to meet current standards, although will not affect the hydraulic load to nearby vegetated areas. |

## 1.7 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments where relevant.

**Other Legislation potentially relevant for assessment of clearing and planning/other matters:**

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

**Environmental Protection Policies:**

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

**Other relevant policies and guidance documents:**

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DER, 2014)
- Procedure: Native vegetation clearing permits (Government of WA, 2021)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

# 2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

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

To comply with CPS 818, Main Roads must prepare a Clearing Assessment Report (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 *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

## 2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Proposal Area** – The total footprint of the Proposal including both cleared and uncleared areas. This is based on the current design and usually includes a buffer to allow for constructability and the movement of machinery during construction. The Proposal Area for this Proposal is 34.84 ha.
- **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. The Native Vegetation Clearing Area (hereafter referred to as the Clearing Area) for this Proposal is 9.765 ha.

- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 10 km radius.
- **Survey Area** – Area covered by the Biological Surveys, which is typically larger than the Proposal area.

## 2.2 Desktop Assessment

A desktop assessment of the Proposal 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 ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 10.

## 2.3 Surveys and Assessments

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

- Great Southern Bio Logic (2019) Albany Highway Gordon South Stage 2, 297 – 308 SLK, Flora Vegetation and Fauna Surveys
- Ecologia (2020a) Narrikup to Mount Barker and Gordon South Stage 1 and 2, Targeted Flora and Fauna Survey
- Ecologia (2020b) Gordon South Stage 1 and Stage 2 TEC Survey and Assessment
- Ecologia (2020c) Gordon South Stage 1 and Stage 2 Consolidated Vegetation Condition Mapping Review
- Kirkby (2021) Survey of Possible Black Cockatoo Breeding Trees and Hollows, Albany Hwy 297-308 SLK, Gordon North
- Kirkby (2024) Detailed Inspection of Possible Black Cockatoo Breeding Hollows, Gordon South Stage 2, Albany Highway, Cranbrook
- Southern Ecology (2022) Albany Highway Gordon South Stage 1, 300 – 308 SLK, Targeted *Banksia lepidorhiza* Flora Survey
- Main Roads (2022) Targeted *Banksia lepidorhiza* (Threatened) Flora Survey
- Main Roads (2023) Reconnaissance Flora, Vegetation and Black Cockatoo Survey and Targeted Flora Survey

Biological and targeted surveys conducted for the Proposal are outlined in Table 2 and a summary of the findings in these reports are presented in Sections 3.1 to 3.2.

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

| Consultant & Survey Name | Survey Details |
|---|---|
| **Great Southern Bio Logic (2019)** *Albany Highway Gordon South Stage 2, 297 – 308 SLK, Flora Vegetation and Fauna Surveys* | **Survey Area:** Comprised of 83.2 ha along Albany Hwy SLK 297 – 308.<br>**Type:** Desktop assessment, flora and vegetation survey (including TEC), and fauna survey (including black cockatoo and red-tailed phascogale habitat).<br>**Timing:** Fieldwork conducted from 15-16 October 2018 followed by a targeted survey on 21-22 November 2018.<br>**Survey Results Shapefile TRIM Ref:** D23#1302881<br>**Document TRIM Reference:** D19#549009 |

| Consultant & Survey Name | Survey Details |
|---|---|
| **Ecologia (2020a)** *Narrikup to Mount Barker and Gordon South Stage 1 and 2, Targeted Flora and Fauna Survey* | **Survey Area:** Comprised of 83.2 ha along Albany Hwy SLK 297 – 308.<br>**Type:** Desktop assessment, targeted flora survey, targeted fauna and habitat assessment.<br>**Timing:** 7 – 11 October 2019<br>**Survey Results Shapefile TRIM Ref:** D20#343361<br>**Document TRIM Ref:** D20#297712 |
| **Ecologia (2020b)** *Gordon South Stage 1 and Stage 2 TEC Survey and Assessment* | **Survey Area:** Comprised of 83.2 ha along Albany Hwy SLK 297 – 308.<br>**Type:** TEC.<br>**Timing:** 7 – 11 October 2019.<br>**Survey Results Shapefile TRIM Ref:** D20#343361<br>**Document TRIM Ref:** D20#328320 |
| **Ecologia (2020c)** *Gordon South Stage 1 and Stage 2 Consolidated Vegetation Condition Mapping Review* | **Survey Area:** Comprised of 83.2 ha along Albany Hwy SLK 297 – 308.<br>**Type:** Desktop vegetation condition mapping based on previous biological reports.<br>**Timing:** Desktop.<br>**Survey Results Shapefile TRIM Ref:** D20#463692<br>**Document TRIM Ref:** D20#463677 |
| **Kirkby (2021)** *Survey of Possible Black Cockatoo Breeding Trees and Hollows, Albany Hwy 297-308SLK, Gordon North* | **Survey Area:** Survey Area comprises selected trees along Albany Hwy between SLK 297 to 308.<br>**Type:** Black cockatoo hollow assessment and habitat assessment.<br>**Timing:** Fieldwork was conducted 22-23 November 2021.<br>**Survey Results Tree data Ref:** D21#1275396<br>**Document TRIM Ref:** D21#1275377 |
| **Southern Ecology (2022)** *Albany Highway Gordon South Stage 1, 300 – 308 SLK, Targeted Banksia lepidorhiza Flora Survey* | **Survey Area:** Comprised of 55 ha on Lot 1 Weir Road, Cranbrook and the western side of Albany Highway between SLK 306.4 and 307.3.<br>**Type:** Targeted flora survey.<br>**Timing:** Fieldwork was conducted 24 February 2022.<br>**Survey Results Shapefile TRIM Ref:** D22#279638<br>**Document TRIM Ref:** D22#310456 |
| **Main Roads (2022)** *Targeted Banksia lepidorhiza (Threatened) Flora Survey* | **Survey Area:** Comprised of 3.8 ha on Albany Hwy between SLK 305.85 – 307.0.<br>**Type:** Targeted flora survey.<br>**Timing:** Fieldwork was conducted 19 October 2022 and 6 December 2022.<br>**Survey Results Shapefile TRIM Ref:** D22#1169118<br>**Document TRIM Ref:** D22#1204783 |

| Consultant & Survey Name | Survey Details |
|---|---|
| **Main Roads (2023)** *Reconnaissance Flora, Vegetation and Black Cockatoo Survey and Targeted Flora Survey* | **Survey Area:** Comprised of 32.7 ha adjacent to Albany Hwy between SLK 300 - 308.<br>**Type:** Flora and vegetation survey, TEC and black cockatoo assessment.<br>**Timing:** Fieldwork was conducted 18-19 October 2022.<br>**Survey Results Shapefile TRIM Ref:** D23#473671<br>**Document TRIM Ref:** D23#264257 |
| **Kirkby (2024)** *Detailed Inspection of Possible Black Cockatoo Breeding Hollows, Gordon South Stage 2, Albany Highway, Cranbrook* | **Survey Area:** Comprised of selected trees along Albany Hwy between SLK 300 to 308.<br>**Type:** Black cockatoo hollow assessment and habitat assessment.<br>**Timing:** Fieldwork was conducted 20 February 2024.<br>**Document TRIM Ref:** D24#608425 |

# 3 SURVEY RESULTS

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 and/or field assessments are provided in Appendix 1.

## 3.1 Summary of Flora and Vegetation Surveys

GSBL (2019) and Main Roads (2023) mapped nine native vegetation types within the Clearing area as shown in Table 3.

**Table 3. Vegetation Types within the Clearing area**

| Vegetation Type | Area (ha) | % of Clearing area | Condition |
|---|---|---|---|
| *Eucalyptus falcata* mallee shrubland | 0.383 | 3.9 | Completely Degraded to Very Good |
| *Eucalyptus marginata* open woodland | 0.313 | 3.2 | Degraded - Good |
| *Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland | 1.147 | 11.7 | Cleared to Very Good - Excellent |
| *Eucalyptus occidentalis* low open woodland | 1.182 | 12.1 | Completely Degraded to Very Good |
| *Eucalyptus pachyloma* mallee shrubland | 0.272 | 2.8 | Excellent to Very Good |
| *Eucalyptus wandoo* subsp. wandoo low open woodland | 3.722 | 38.1 | Completely Degraded to Very Good |
| Isolated Natives | 0.030 | 0.3 | Completely Degraded to Very Good - Excellent |
| *Melaleuca cuticularis* tall open shrubland | 0.346 | 3.5 | Completely Degraded to Good – Very Good |
| Mixed shrub | 2.369 | 24.3 | Completely Degraded to Good - Very Good |
| **Total** | **9.765** | **100** | |

Ecological communities

Ecologia (2020b) recorded seven patches of vegetation in its survey area (five within the Clearing area) that were considered to meet the criteria to be Eucalypt Woodlands of the Western Australian Wheatbelt TEC/PEC. Of the five patches (0.616 ha), three (0.534 ha) were mapped as Category A and two (0.082 ha) were mapped as Category D.

Significant flora

GSBL (2019) recorded two conservation significant flora species in its 83.2 ha survey area, namely:

- *Banksia porrecta* (P4)
- *Xanthorrhoea brevistyla* (P4)

In its post-survey likelihood of occurrence assessment, GSBL concluded that *Banksia porrecta* and *Xanthorrhoea brevistyla* are known to occur, no other species are likely to occur and three species, *Acacia microneura* (P1), *Melaleuca micromera* (P3) and *Melaleuca ordinifolia* (P2) may possibly occur.

Ecologia (2020a) recorded four conservation significant flora in its 83.2 ha survey area, namely:

- *Banksia lepidorhiza* (T) – (P1 at the time of recording) - 100 individuals
- *Banksia acuminata* (P4) - one individual
- *Banksia porrecta* (P4) - 127 individuals
- *Xanthorrhoea brevistyla* (P4) - 79 individuals
- *Xanthorrhoea ?brevistyla* – 241 individuals

In its post-survey likelihood of occurrence assessment, Ecologia considered other flora species were unlikely to occur.

Southern Ecology (2022) recorded *Banksia lepidorhiza* (T) – 136 individuals, opportunistically observed *Banksia acuminata* (P4) – 3 individuals and *Banksia porrecta* (P4) – 43 individuals in its survey area. The survey area targeted a small section of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of conservation significant flora had been recorded, as well as a 'bush block' (part of Lot 1 Weir Road) to the west of previous *Banksia lepidorhiza* (T) recordings to quantify the number of this taxa.

Main Roads (2022) recorded *Banksia lepidorhiza* (T) – 33 (additional) individuals, *Banksia acuminata* (P4) – 244 individuals*, Banksia porrecta* (P4) – 90 individuals *and Xanthorrhoea brevistyla* (P4) – 18 individuals and *Xanthorrhoea ?brevistyla* – 5 individuals in its survey area. The survey area targeted sections of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of conservation significant flora had been recorded.

Listed below is a summary of conservation significant flora recorded per survey (in brackets) and the number that are mapped to occur within the Proposal area.

| **Species** | Ecologia (2020a) | Southern Ecology (2022) | Main Roads (2022) |
|---|---|---|---|
| *Banksia lepidorhiza* (T) | 0 (100) | 4 (136) | 13 (33) |
| *Banksia acuminata* (P4) | 0 (1) | 0 (3) | 27 (244) |
| *Banksia porrecta* (P4) | 18 (127) | 1 (43) | 14 (90) |
| *Xanthorrhoea brevistyla* (P4) | 30 (79) | Not recorded | 7 (18) |
| *Xanthorrhoea ?brevistyla* | 166 (241) | Not recorded | 2 (5) |

Comparing the three surveys, some locations where individuals were recorded are common between surveys:

- *Banksia lepidorhiza* (T) – an estimated 45 records are common between Ecologia (2020a) and Southern Ecology (2022),
- *Banksia porrecta* (P4) – an estimated one record is common between Ecologia (2020a) and Southern Ecology (2022), and

- *Xanthorrhoea brevistyla* (P4) – an estimated five records are common between Ecologia (2020a) and Main Roads (2022),

Based on the above, the following conservation significant flora may be taken:

| **Species** | Number mapped in Proposal area | Number recorded in survey areas | Percentage of mapped population in Proposal area |
|---|---|---|---|
| *Banksia lepidorhiza* (T) | 17 (7 dead) | 224 | 7.6% |
| *Banksia acuminata* (P4) | 27 | 248 | 10.9% |
| *Banksia porrecta* (P4) | 33 | 259 | 12.7% |
| *Xanthorrhoea brevistyla* (P4) | 37 | 92 | 40.2% |
| *Xanthorrhoea ?brevistyla* | 168 | 246 | 68.3% |

Two Declared Pests (Bridal Creeper and One-leaf Cape tulip) and one Weed of National Significance (Bridal Creeper) were recorded in the survey area (and within the Proposal area).

## 3.2 Summary of Fauna Surveys

Fauna habitats

Ecologia (2020a) mapped four fauna habitat types within its 83.2 ha survey area, with two of these fauna habitat types occurring within the Clearing area, including:

- Open woodland (*Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland)
- Open shrubland (*Melaleuca cuticularis* tall open shrubland)

Significant fauna

A search of ArcGIS DBCA Threatened Fauna layer identified the presence/potential presence of four conservation significant fauna taxa within the study area, namely:

- Carnaby's cockatoo (*Zanda latirostris*) (EN)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (VU)
- Hooded plover (*Thinornis rubricollis*) (P4)
- South-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) (CD)

GSBL (2019) recorded one conservation significant fauna species (Carnaby's cockatoo (EN)) in its 83.2 ha survey area, with another two fauna species (Baudin's cockatoo (EN) and Forest red-tailed black cockatoo (VU) considered likely to occur. Three other species (Red-tailed phascogale (VU/CD), South-western Brush-tailed phascogale (CD) and Western brush wallaby (P4) were considered to Possibly occur.

Twenty vertebrate fauna species of conservation significance were returned from Threatened and Priority fauna database searches (Ecologia, 2020a). No conservation significant species or secondary signs of conservation significant species were recorded during the field survey. In its post-survey likelihood of occurrence assessment, Ecologia considered Carnaby's cockatoo to be 'Recorded' (based on the GSBL observation) and the following species to Possibly occur:

- Peregrine falcon (OS)
- Forest red tailed black cockatoo (VU)
- Quenda (P4)
- Red-tailed phascogale (CD/VU)
- South-western Brush-tailed phascogale (VU)
- Western brush wallaby (P4)

GSBL (2019) advised that the potentially suitable habitat for Red-tailed phascogale occurred as small patches along the road reserve; however, these patches alone are unlikely to support sustainable populations of Red-tailed phascogales. The fauna habitat value of the road reserve within the survey area lies in its continuity, linking these small patches together.

Ecologia (2020a) report that the roadside corridor connects some small patches of remnant vegetation and should be considered as medium conservation value. Suitable breeding and foraging habitat for the Carnaby's cockatoo was identified by GSBL (2019) within the Open Shrubland, Open Woodland and Planted Woodland habitat type. This equates to approximately 9.01 ha of the Clearing area, comprising the following vegetation types and area:

| Vegetation Type | Area (ha) |
|---|---|
| *Eucalyptus marginata* open woodland | 0.313 |
| *Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland | 1.147 |
| *Eucalyptus occidentalis* low open woodland | 1.182 |
| *Eucalyptus pachyloma* mallee shrubland | 0.272 |
| *Eucalyptus wandoo* subsp. wandoo low open woodland | 3.722 |
| Mixed Shrub | 2.369 |
| **Total** | **9.01** |

Kirkby (2021) advised that foraging species noted in the survey area were:

- *Hakea prostrata* – seeds taken by Carnaby's and Baudin's Cockatoo,
- Sheoak (*Allocasuarina fraseriana*) – seeds taken by FRTBC,
- Jarrah – seeds taken by FRTBC, Carnaby's Cockatoo and very rarely Baudin's Cockatoo. Nectar taken by Carnaby's and Baudin's Cockatoo, and
- Wandoo – nectar taken by Carnaby's and Baudin's Cockatoo.

No feeding residues were located in the survey area, although long grass made searching difficult. A total of 44 trees were inspected which had hollows of a suitable entrance size, with the understorey around these degraded and containing few foraging species. However, the overstorey could provide seeds from Jarrah, and nectar from both Jarrah and Wandoo.

Black Cockatoo Habitat Assessment

GSBL (2019) recorded 580 suitable DBH trees within its survey area, whilst a supplemental survey by Main Roads (2023) recorded an additional 10 suitable DBH trees within its survey area. Of the 590 mapped DBH trees, 271 DBH trees are proposed to be removed for the Proposal.

Of the 271 trees, there are 246 Wandoo, 14 dead, 10 Jarrah and one Marri. Eleven trees within the Clearing area were reported as having suitable hollows – six Wandoo, four dead and one Jarrah. Kirkby (2021) undertook a follow-up survey of DBH trees that were reported to contain hollows within, or close to the Proposal area. Eight trees located in, or on the edge of the Proposal area were inspected that were reported to contain hollows with an entrance of a suitable size to be used by black cockatoos. Hollows in a further 36 trees outside the Proposal area were also inspected from ground level for signs of use. None of the eight trees inspected in detail had hollows suitable for black cockatoos. A total of 27 of the 36 ground assessed trees contained a total of 35 hollows with an entrance size suitable for black cockatoos, none of which showed signs externally of past or present use by black cockatoos. Kirkby (2024) undertook another follow-up survey of three additional DBH trees located in, or on the edge the Proposal area that had not had a detailed survey. No hollows were observed that were suitable for black cockatoos.

The Bamford system provides a method of calculating black cockatoo habitat value based on the type, density and condition of trees and shrubs in an area and can be influenced by the context such as the availability of foraging habitat nearby. As each of the back cockatoo species have different preferred forage species, the Bamford system assigns different values for each of the species. Analysis of each of the six vegetation types within the Clearing area that have foraging value to relevant species of black cockatoo is presented in Table 4.

In summary, within the 34.84 ha Proposal area, it was determined that 9.01 ha (25.9%) had 'low to moderate foraging value' of which 0.31 (0.9%) had 'moderate foraging value' for the three species of black cockatoos.

Within the Clearing area, the following proportion of Black Cockatoo foraging habitat values were recorded:

- 8.70 ha (96.6%) as 3/10, and
- 0.31 ha (3.4%) as 4/10.

**Table 4: An assessment of proposed CPS 818 clearing against Bamford Consulting Ecologists (2020) *scoring system for the assessment of foraging value of vegetation for Black Cockatoos***

| Aspect | Description of proposed clearing | |
|---|---|---|
| **A. Site condition (out of 6)** | | |
| **Description of clearing**<br>Six black cockatoo foraging vegetation types will be impacted by project implementation:<br>• *Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland (1.147 ha)<br>• *Eucalyptus occidentalis* low open woodland (1.182 ha)<br>• *Eucalyptus pachyloma* mallee shrubland (0.272 ha)<br>• *Eucalyptus wandoo* subsp. wandoo low open woodland (3.722 ha)<br>• Mixed Shrub (2.369 ha)<br>• *Eucalyptus marginata* open woodland - *Eucalyptus marginata* open woodland with +/- *Corymbia calophylla* (0.313 ha)<br><br>The other three vegetation types listed in Table 3 are not considered to offer any foraging value. | **Analysis**<br>The first five vegetation types provide low to moderate foraging values as combined they have:<br>• Shrubland in which species of foraging value, such as shrubby banksias, have 10-20% projected foliage cover,<br>• Woodland with tree banksias 5-20% projected foliage cover,<br>• Eucalypt Woodland/Mallee of small-fruited species,<br>• Eucalypt Woodland with Marri <10% projected foliage cover.<br><br>Kirkby (2021) advised that foraging species noted in the survey area were:<br>• *Hakea prostrata* – seeds taken by Carnaby's and Baudin's Cockatoo,<br>• Sheoak (*Allocasuarina fraseriana*) – seeds taken by FRTBC,<br>• Jarrah – seeds taken by FRTBC, Carnaby's Cockatoo and very rarely Baudin's Cockatoo. Nectar taken by Carnaby's and Baudin's Cockatoo, and<br>• Wandoo – nectar taken by Carnaby's and Baudin's Cockatoo. | Score: **3** |
| | The last vegetation type (*Eucalyptus marginata* open woodland) provides moderate foraging values as it has Eucalypt Woodland/Forest with Marri 20-40% projected foliage cover in a degraded to good condition. | Score: **4** |
| **B. Site context (out of 3)** | | |
| **Description of clearing**<br>Within the local area (15 km radius of the Clearing Area), there is 20,245 ha of vegetation which may be available foraging habitat for Black Cockatoo species. Total clearing of vegetation that represents | **Analysis**<br>Vegetation proposed to be cleared represents 0.04 % of existing native vegetation within the local area, where breeding is likely to occur. | |
| | Score: **0** | |

| | |
|---|---|
| suitable foraging habitat for Black Cockatoo species is 9.01 ha. The closest known breeding site is approximately 4 km to the north east of the proposed clearing, and thus the Proposal area is within an area where breeding is known/likely. | |
| **C. Species stocking rate (out of 1)** | |
| **Description of clearing**<br>No recent observations of Black Cockatoo and no secondary evidence of foraging have been made. | **Analysis**<br>Black Cockatoo recorded or reported very infrequently and there is little or no foraging evidence. |
| | Score: **0** |
| **Total Score (out of 10)** | **3** |
| **Vegetation (8.70 ha)** | **3** |
| **Vegetation (0.31 ha)** | **4** |

# 4 VEGETATION DETAILS

## 4.1 Proposal Site Vegetation Description

Table 5 and 6 provide details of the vegetation types and their condition within the Clearing area and the remaining extents of these associations.

For a full description of the existing vegetation, refer to the Biological Reports referenced in Table 2.

**Table 5. Summary of Mapped Pre-European Vegetation Associations within the Clearing area**

| Pre-European Vegetation Association | Clearing Description | Vegetation Condition | Comments |
|---|---|---|---|
| Vegetation Association 967 described as Medium woodland; wandoo and yate | Clearing of up to 8.72 ha of native vegetation for the purposes of upgrade of Albany Hwy | Completely Degraded to Very Good - Excellent | Vegetation description and condition determined from biological survey (GSBL, 2019 and Main Roads, 2023) |
| Vegetation Association 1967 described as Medium woodland; wandoo, yate and river gum | Clearing of up to 1.05 ha of native vegetation for the purposes of upgrade of Albany Hwy | | |

Based on the above Table, this equates to 9.765 ha of native vegetation within a 34.84 ha Proposal area. 9.765 is the same as 9.77 when rounded to 2 decimal places.

**Table 6. Pre-European Vegetation Representation**

| Pre-European Vegetation Association | Scale: | Pre–European (ha) | Current Extent (ha) | % Remaining | % Remaining in DBCA reserves |
|---|---|---|---|---|---|
| Veg Assoc No 967 | **Statewide** | 216,684 | 36,536 | 16.86 | 0.49 |
| | **IBRA Bioregion**<br>Avon Wheatbelt | 174,907 | 26,637 | 15.23 | 0.22 |
| | **IBRA Sub-region**<br>Katanning | 174,907 | 26,637 | 15.23 | 0.22 |
| | **Local Government Authority**<br>Shire of Cranbrook | 77,064 | 15,137 | 19.64 | 2.47 |

| | | | | | |
|---|---|---|---|---|---|
| Veg Assoc No 1967 | **Statewide** | 25,501 | 7,356 | 28.85 | 1.24 |
| | **IBRA Bioregion** Avon Wheatbelt | 24,928 | 7,203 | 28.90 | 1.10 |
| | **IBRA Sub-region** Katanning | 24,928 | 7,203 | 28.90 | 1.10 |
| | **Local Government Authority** Shire of Cranbrook | 18,725 | 6,288 | 33.58 | 5.37 |

# 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 assessment has determined that the proposed clearing is at variance to principles (a), (b), (c), (d), (e) and (f). The proposed clearing is not/not likely to be at variance to principles (g), (h), (i) and (j).

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

**Proposed clearing is at variance to this Principle.**

A number of biological surveys have been undertaken within and adjacent to the Proposal area (see Section 3) to describe its vegetation, flora and fauna biodiversity values. Below is a summary of the biodiversity values of the Clearing area.

The proposed clearing will result in the removal of up to 9.765 ha of native vegetation along a 7.7 km stretch of Albany Highway. The condition of the vegetation ranges from Very Good - Excellent to Completely Degraded, with GSBL (2019) noting the 83.2 ha survey area (proposal area and surrounds) had been significantly impacted by weed invasion. A total of 46 weed species were identified within GSBL's survey area, including Bridal Creeper (**Asparagus asparagoides*) and One-leaf Cape Tulip (**Moraea flaccida*) which are both Declared Pests under the *Biodiversity and Agriculture Management Act 2007*. Bridal Creeper, which is also a Weed of National Significance, was scattered throughout the survey area in low densities whilst One-leaf Tulip was recorded at two locations within the survey area. Both Bridal creeper and One-leaf Cape tulip are a Declared Pest - s22(2) (Exempt) meaning control is not required. Notwithstanding this, Main Roads will implement control measures for these species as part of its Regional Weed Management programme. Standard hygiene controls will be implemented during clearing activities to minimise weed introduction and spread to non-infested areas.

GSBL (2022) undertook Dieback Occurrence Surveys in the Proposal area in March and December 2022. Results of these surveys indicate that all areas were uninterpretable. GSBL advised that there was no evidence of disease or known disease occurrence within the area, however appropriate hygiene will be required. Standard hygiene controls will be implemented during clearing activities to manage dieback risks.

The Clearing area comprises the following nine vegetation types, which are considered typical of the local area:

1. *Eucalyptus falcata* mallee shrubland
2. *Eucalyptus marginata* open woodland
3. *Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland
4. *Eucalyptus occidentalis* low open woodland
5. *Eucalyptus pachyloma* mallee shrubland
6. *Eucalyptus wandoo* subsp. wandoo low open woodland
7. *Melaleuca cuticularis* tall open shrubland

8. Mixed shrubland
9. Isolated natives

Ecological communities

A search of the GIS shapefiles identified the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community (TEC) listed as Critically Endangered under the *Environment Biodiversity Conservation Act 1999* (EPBC Act) and Priority 3 by Department of Biodiversity, Conservation and Attractions (DBCA), within the study area.

GSBL (2019) mapped 33.1 ha as the *EPBC Act*- listed Eucalypt Woodland of the Western Australian Wheatbelt (EWWAW) TEC and 35.6 ha as the DBCA- listed EWWAW Priority Ecological Community (PEC) - Priority 3 (iii) in the 83.2 ha survey area. GSBL (2019) noted that the PEC differs from the TEC in that it includes a wider range of Eucalyptus species in the tree canopy and has no minimum condition and patch size thresholds (GSBL, 2019). Contrary to GSBL (2019), DBCA (2023) note the description, area and condition thresholds that apply to the EPBC-listed TEC also apply to the PEC.

To provide more clarity on this issue, and to reflect additional DBCA guidance, Main Roads engaged Ecologia to undertake an additional biological survey in 2020, which included a reassessment of the presence of TEC. Ecologia (2020b) mapped seven patches of the Eucalypt Woodland of the Western Australian Wheatbelt TEC (with a total area of 5.02 ha) in its 83.2 ha survey area.

This data was reviewed by a Main Roads botanist using more accurate survey data (from Main Roads Network Lidar Project) to amend the edge of the mapped TEC to correspond to the edge of the road maintenance zone. As the maintenance zone is routinely cleared, it does not contain the key diagnostic characteristics and condition thresholds specified in section 3.2 and 3.3 of the Approved Conservation Advice for the TEC (Department of the Environment, 2015).

0.616 ha of TEC has been mapped to occur within the Clearing area over five patches (refer to mapping in Appendix 3).

Further assessment of the impact to the TEC is provided in clearing principle (d).

Conservation significant flora

A search of ArcGIS DBCA Herbarium and Threatened/Priority layers identified the presence/potential presence of 16 conservation significant flora taxa within the study area, namely:

- *Acacia prismifolia* (T)
- *Banksia lepidorhiza* (T) previously P1
- *Gastrolobium lehmannii* (T)
- *Acacia microneura* (P1)
- *Melaleuca ordinifolia* (P2)
- *Stylidium lepidum* (P3)
- *Stylidium pseudohirsutum* (P3)
- *Stylidium rhipidium* (P3)
- *Stylidium roseonanum* (P3)
- *Thysanotus gageoides* (P3)
- *Verticordia coronata* (P3)
- *Banksia acuminata* (P4)
- *Banksia porrecta* (P4)
- *Caladenia integra* (P4)
- *Caladenia x triangularis* (P4)
- *Xanthorrhoea brevistyla* (P4)

GSBL (2019) recorded two conservation significant flora species in its 83.2 ha survey area, namely:

- *Banksia porrecta* (P4) – 15 individuals
- *Xanthorrhoea brevistyla* (P4) – over 150 individuals

In its post-survey likelihood of occurrence assessment, GSBL concluded that *Banksia porrecta* and *Xanthorrhoea brevistyla* are known to occur, no other species are likely to occur and three species, *Acacia microneura* (P1), *Melaleuca micromera* (P3) and *Melaleuca ordinifolia* (P2) may possibly occur.

Ecologia (2020a) recorded four conservation significant flora in its 83.2 ha survey area, namely:

- *Banksia lepidorhiza* (T) – (P1 at the time of recording) – 100 individuals
- *Banksia acuminata* (P4) – one individual
- *Banksia porrecta* (P4) -127 individuals
- *Xanthorrhoea brevistyla* (P4) – 320 individuals

In its post-survey likelihood of occurrence assessment, Ecologia considered other conservation significant flora species were unlikely to occur.

Southern Ecology (2022) recorded *Banksia lepidorhiza* (T), *Banksia acuminata* (P4)*, Banksia porrecta* (P4) and *Xanthorrhoea brevistyla* (P4) in its survey area. The survey area targeted a small section of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of conservation significant flora had been recorded, as well as a 'bush block' (part of Lot 1 Weir Road) to the west of previous *Banksia lepidorhiza* (T) recordings to quantify the number of this taxa. A total of 136 individuals of *Banksia lepidorhiza* were recorded.

Main Roads (2022) recorded *Banksia lepidorhiza* (T), *Banksia acuminata* (P4)*, Banksia porrecta* (P4) *and Xanthorrhoea brevistyla* (P4) in its survey area. The survey area targeted sections of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of conservation significant flora had been recorded. An additional 33 individuals of *Banksia lepidorhiza* were recorded from the Main Roads survey, as well as an additional 244 *Banksia acuminata* (P4), 90 *Banksia porrecta* (P4) and 24 *Xanthorrhoea brevistyla* (P4).

Using Southern Ecology (2022) and Main Roads (2022) data, it is estimated that 17 *Banksia lepidorhiza* (T), 27 *Banksia acuminata* (P4)*,* 33 *Banksia porrecta* (P4) *and* 37 *Xanthorrhoea brevistyla* (P4)*/* 168 *Xanthorrhoea ?brevistyla* individuals occur within the Proposal area.

Flora data (GIS and Threatened Flora GIS datasets) indicates that there are:

- 18 *Banksia lepidorhiza* (T) statewide records, with more than 1,000 plants recorded. Two of these records appear to refer to the Albany Hwy population,
- 37 *Banksia acuminata* (P4) statewide records, with more than 1,000 plants recorded. None of these records appear to refer to the Albany Hwy population,
- 51 *Banksia porrecta* (P4) statewide records, with more than 500 plants recorded. One of these records appears to refer to the Albany Hwy population,
- 21 *Xanthorrhoea brevistyla* (P4) statewide records, with more than 100 plants recorded. None of these records appear to refer to the Albany Hwy population.

Main Roads will apply for a Section 40 Authorisation from DBCA for a 'Permit to Take' *Banksia lepidorhiza*, as individuals, as well as habitat for this species within 10 m of the plants, will be removed for the Proposal. Further assessment of impacts to *Banksia lepidorhiza* is considered in clearing principle (c).

*Banksia acuminata* is a prostrate, lignotuberous shrub, up to 0.2 metres high to 1 metre wide with yellow-orange flowers in October. It is a relatively widely distributed species that occurs in gravelly soils in the Avon Wheatbelt and Jarrah Forest IBRA bioregions (Western Australian Herbarium, 1998 -). Given its widespread distribution and habitat preferences, it is unlikely to be significantly impacted in a local or regional context by the proposed clearing of 27 individuals from a surveyed population of 248.

*Banksia porrecta* is a prostrate, sprawling, mat-forming, lignotuberous shrub, up to 0.2 – 0.035 metres high, 0.6 – 4 metres wide with white-cream flowers from July to August. It is a widely distributed species that occurs in white/grey sand and sandy loam in the Avon Wheatbelt, Esperance Plains, Jarrah Forest and Mallee IBRA bioregions (Western Australian Herbarium, – 1998). Given its widespread distribution and habitat preferences, it is unlikely to be significantly impacted in a local or regional context by the proposed clearing of 33 individuals from a surveyed population of 259.

*Xanthorrhoea brevistyla* is a perennial tree-like monocot, to 3.5 metre high, usually no trunk, scape length 0.8-1.25 metres high, spike length 0.24-0.96 metres with white flowers from October to December. It has a restricted distribution within the Avon Wheatbelt and Jarrah forest IBRA bioregions and has been recorded in sand, clay and laterite soils (Western Australian Herbarium, 1998 -). It is unlikely to be significantly

impacted in a local or regional context by the proposed clearing of 37 individuals from a surveyed population of 92.

In addition, 168 *Xanthorrhoea ?brevistyla,* individuals may be cleared from a mapped population of 259. This impact may be locally significant as it would remove 68% of the surveyed population, however, the impacts are unlikely to impact the conservation status of the species.

Fauna diversity

The Clearing area provides suitable habitat for a range of fauna species, including conservation significant Black cockatoos and potentially mammal species such as the Red-tailed phascogale, South-western Brush-tailed phascogale, Western brush wallaby and Quenda. Despite being linear, narrow and degraded by weeds, the Clearing area includes remnant vegetation in an extensively cleared landscape and provides linkage value to other patches of native vegetation. The significance of fauna habitat is assessed in Clearing Principle (b).

Summary

In summary, the Clearing area includes 0.616 ha of Eucalypt Woodlands TEC, Threatened flora species *Banksia lepidorhiza* and Priority 4 flora species *Banksia acuminata*, *Banksia porrecta* and *Xanthorrhoea brevistyla*. Despite being linear, narrow and degraded by weeds, the Proposal area has some linkage value for native fauna and provides low to moderate quality foraging habitat for black cockatoo species.

Based on the above, the proposed clearing is at variance to this principle.

**Methodology**

- DBCA (2023)
- Department of the Environment (2015)
- Ecologia (2020a)
- Ecologia (2020b)
- GSBL (2019)
- GSBL (2022)
- Kirkby (2021)
- Kirkby (2024)
- Main Roads (2022)
- Main Roads (2023)
- Southern Ecology (2022)
- Western Australian Herbarium (1998-)
- Government GIS Shapefiles:
  - DBCA Threatened Fauna database search (Accessed 22-Aug-2024)
  - DBCA Threatened and Priority flora database search (Accessed 22-Aug-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.

**Proposed clearing is at variance to this Principle.**

Fauna habitats

Ecologia (2020a) mapped four fauna habitat types within its 83.2 ha survey area, with two of these fauna habitat types occurring within the Clearing area, including:

- Open woodland (*Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland)
- Open shrubland (*Melaleuca cuticularis* tall open shrubland)

Conservation significant fauna

A search of ArcGIS DBCA Threatened Fauna layer identified the presence/potential presence of four conservation significant fauna taxa within the study area, namely:

- Carnaby's cockatoo (*Zanda latirostris*) (EN)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (VU)
- Hooded plover (*Thinornis rubricollis*) (P4)

- South-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) (CD)

Based on the various biological surveys undertaken within and surrounding the proposal area, several conservation significant fauna species have either been recorded in the Clearing area or considered 'likely' or 'possible' to occur. An assessment of the significance of habitat in the Clearing area for these fauna species is provided below:

**Carnaby's cockatoo**

The Proposal area is located approximately 10 km north-west of Cranbrook and 50 km south-west of Kojonup. This area is on the edge of the approximate breeding zones of the Eastern Subpopulation of Carnaby's cockatoo, according to EPA (2019).

Over the past 50 years, the distribution of Carnaby's cockatoo has shifted considerably westwards and southwards, and there are now numerous breeding records from the Jarrah-Marri forests of the Darling Scarp and the Tuart forests of the Swan Coastal Plain, and indications that the species is expanding its breeding range into the far south-east, in areas such as Lake Cronin, Lake King and the Ravensthorpe region (Department of the Environment, 2025a). Valentine & Stock (2008) report that Carnaby's have been predominantly observed foraging on the seeds of 52 native species, including *Eucalyptus marginata* (Jarrah) and Marri and the flowers of Marri and *Eucalyptus wandoo* (Wandoo). DEC (2011) report that Carnaby's feed on Marri and Jarrah, but not on *Eucalyptus occidentalis* (Flat topped Yate). The species nests in hollows in live or dead trees of *E. salmonophloia* (Salmon Gum), *E. wandoo* (Wandoo), *E. gomphocephala* (Tuart), *E. marginata* (Jarrah), *E. rudis* (Flooded Gum), *E. loxophleba* subsp. *loxophleba* (York Gum), *E. accedens* (Powderbark), *E. diversicolor* (Karri) and *Corymbia calophylla* (Marri) (DAWE, 2022).

GSBL (2019) recorded Carnaby's cockatoo flying over a paddock adjacent to the road reserve and heard calls of the species in the distance during their October and November 2018 field survey. GSBL (2019) also reported evidence of past feeding on Marri nuts within a small section of the survey area. The species was not recorded by primary or secondary evidence in more recent surveys undertaken by Ecologia (2020a), Kirkby (2021) or Kirkby (2024).

A search of the GIS shapefiles (BC Roost and BC WTBC Breed) recorded a White-tailed black cockatoo breeding tree 60 m west of the Proposal area at 301.9 SLK. A review of the Landgate aerial photography shows that the location of this tree is on farmland and the tree is no longer there (was cleared between 2001 and 2006). The next closest are 3.9 km northeast (2) and 4.5 km west of the Proposal area. Twenty-four White tailed black cockatoo breeding trees (excluding the one already discussed) are mapped to occur within the 10 km study area. Kirkby (2021) advises that Carnaby's Cockatoos are known to breed approximately 13 km to the south of the Proposal area near Cranbrook. The closest mapped black cockatoo roost site is over 40 km south of the Proposal area.

A Black Cockatoo habitat assessment by GSBL (2019) and Main Roads (2023) recorded 590 (580 and 10 respectively) suitable DBH trees within the survey area, with 271 (264 and 7 respectively) proposed to be removed for the Proposal. With a total of 590 DBH trees recorded in the 83.2 ha survey area and over 10,000 ha of remnant vegetation mapped to occur with the 10km study area, the removal of 271 trees along a 7.7 km section of road would be unlikely to have a significant impact on the availability of trees that may provide future breeding opportunities for black cockatoos.

Of the 271 trees, there are 246 Wandoo, 14 dead, 10 Jarrah, and one Marri. Eleven trees within the Clearing area were reported as having potentially suitable hollows – six wandoo, four dead and one Jarrah. Kirkby (2021) undertook a follow-up survey of DBH trees that were reported to contain potentially suitable hollows within, or close to the Proposal area. Eight trees located within, or on the edge of the Proposal area were inspected that were reported to contain hollows with an entrance of a suitable size to be used by black cockatoos. None of the eight trees inspected in detail had hollows suitable for black cockatoos, as they were either blocked (5) or were too shallow/small (3). Kirkby (2024) undertook another follow-up survey of three additional DBH trees located within, or on the edge the Proposal area that had not had a detailed survey. No hollows were observed that were suitable for black cockatoos, as they were either blocked, too shallow or had a large hole in the base. All the trees assessed had limited prospect of ever being utilised.

GSBL (2019) and Main Roads (2023) conservatively mapped up to 9.01 ha of potential foraging habitat for black cockatoos within the Clearing area. Based on the vegetation composition, this would provide low to moderate quality (and seasonal) foraging habitat for Carnaby's cockatoo. The vegetation types within this 9.01 ha include the following vegetation types and area:

| Vegetation Type | Area (ha) |
|---|---|
| *Eucalyptus marginata* open woodland | 0.313 |
| *Eucalyptus occidentalis* and *Eucalyptus wandoo* low open woodland | 1.147 |
| *Eucalyptus occidentalis* low open woodland | 1.182 |
| *Eucalyptus pachyloma* mallee shrubland | 0.272 |
| *Eucalyptus wandoo* subsp. wandoo low open woodland | 3.722 |
| Mixed Shrub | 2.369 |
| **Total** | **9.01** |

Kirkby (2021) advised that foraging species noted in the survey area for Carnaby's Cockatoo were:

- *Hakea prostrata* – seeds
- Jarrah – seeds and nectar
- Wandoo – nectar

Kirkby (2021) reported no feeding residues were located in the survey area, though long grass made searching difficult. The understorey area around the trees inspected was degraded and contained few foraging species, although the overstorey could provide seeds from Jarrah, and nectar from both Jarrah and Wandoo.

In summary, the proposed clearing will result in the loss of up to 9.01 ha of low-moderate quality foraging habitat for Carnaby's cockatoo across a narrow, linear road corridor spanning 7.7 km. In terms of nesting and roosting habitat, the Proposal area does not contain any confirmed suitable nesting hollows or roosting sites. Up to 271 DBH trees will be cleared, none of which contain hollows currently suitable for use by Black Cockatoos.

**Forest red tailed black cockatoo**

Forest Red-tailed Black Cockatoo is endemic to south-west Western Australia from Gingin to Green Range (east of Albany), being most common in the Jarrah forest region of the northern Darling Range. The Proposal area is situated on the eastern edge of its modelled distribution. Forest Red-tailed Black Cockatoo commonly occur in Jarrah, Karri and Marri forests and also in a range of other forest and woodland types, including Blackbutt, Wandoo, Tuart, Albany Blackbutt, Yate and Flooded Gum (Department of the Environment, 2025b).

According to the DBCA GIS layer, only one 2015 record (a secondary sign) of FRTBC exists within the 10 km study area (within the Proposal area at 302.2 SLK). The closest mapped Black cockatoo roost site is over 40 km south of the Proposal area. The closest mapped Forest Red tailed Black Cockatoo breeding site is 65 km south west of the Proposal area.

Kirkby (2021) advised that the Forest Red-tailed Black Cockatoo occurs in the general area as a breeding bird and GSBL (2019) and Ecologia (2020a) considered it as 'likely' and 'possible' to occur, respectively. Impacts from the proposed clearing to the Forest red tailed black cockatoo are as per those outlined above for Carnaby's cockatoo (9.01 ha of low-moderate quality foraging habitat, no confirmed roosting or nesting sites and 271 DBH trees, none of which are known to contain suitable nesting hollows).

**Baudin's cockatoo (*Zanda baudinii*) (EN)**

The Proposal area is situated on the eastern edge of the modelled distribution for Baudin's cockatoo. GSBL (2019), Ecologia (2020a) and Kirkby (2021) did not record any evidence of breeding, roosting or foraging by Baudin's cockatoos during their field surveys. Ecologia (2020a) did not consider Baudin's cockatoo likely to occur. Kirkby (2021) advised Baudin's cockatoo is a non-breeding visitor to the area. The nearest breeding

record of Baudin's Cockatoo is approximately 85 km to the south-east at North Walpole National Park. Breeding is also suspected at Porongurup Range.

Whilst the Clearing area provides some low-moderate quality foraging habitat for Baudin's cockatoo, the species is not known to breed in the local area and therefore habitat within the Clearing area is not deemed critical for its survival.

**Red-tailed phascogale (*Phascogale calura*) (VU)**

According to the Threatened Species Scientific Committee (2016) Conservation Advice for the species, Red-tailed Phascogale is a small, arboreal, carnivorous marsupial restricted to remnants of native vegetation throughout the southern wheatbelt of Western Australia, less than one percent of its former range, where annual mean rainfall is 400−500 mm. Most of the records are concentrated in an area about 150 km long in a north-south direction from Brookton to Katanning, and about 80 km wide from Williams to Dumbleyung. Sparse records extend to the west to the margin of the Jarrah Forest and to the east to Hyden and Newdegate and to the south to Bremer Bay. There are outlying records along the east of the species range, at Marvel Loch (south of Southern Cross) and Jerdacuttup, and at Dwellingup in the Jarrah Forest region. There has been no robust estimate of population size. Numbers fluctuate greatly with rainfall. Based on information available, the species area of occupancy is somewhere between 244 km2 and 2000 km2. The species has been recorded from 142 locations post-1990. Home ranges vary from 1.5 ha to 8 ha, depending upon the breeding season. Predation by feral cats, habitat loss and fragmentation (from land clearing) and climate change are the key threats to the species.

The species inhabits Wandoo (*E. wandoo*) and Sheoak (*Allocasuarina huegeliana*) woodland types, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which they line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead Sheoaks, skirts of live (or stumps of dead) grass trees (Xanthorrhoea spp.)

GSBL (2019) advised that the potentially suitable habitat for Red-tailed phascogale occurred as small patches along the road reserve; however, these patches alone are unlikely to support sustainable populations of Red-tailed phascogales. The value of the road reserve within the survey area lies in its continuity, linking these small patches together.

Sections of vegetation units 'EoccEwan', 'Mixed shrub' as described by GSBL (2019) provide small portions of suitable habitat for Red-tailed phascogale. The most suitable habitat occurs within the Open Woodland habitat type containing *Eucalyptus wandoo* (wandoo) and *Allocasuarina huegeliana* (rock sheoak) in which the wandoo was mature enough to provide potentially suitable hollows and the rock sheoak occurred as a moderately dense to dense upper or mid-layer providing a continuous canopy. Approximately 1.04 ha of this habitat type occurs within the Clearing area.

Spotlighting within the survey area near the Gordon River (1 km south east of the Proposal area) identified one small mammal, which may have been a Red-tailed Phascogale. It was not seen in any other part of the survey area (Ecologia, 2020a). According to the DBCA Threatened Fauna layer, there are no records for Red-tailed Phascogale within the 10 km study area. The closest confirmed record is at a property approximately 20 km northeast of the Proposal area (in 2001).

Taking into account the relatively small and dispersed areas of suitable vegetation in the Clearing area, it is unlikely that the removal of 1.04 ha of habitat for this Proposal will significantly impact the Red-tailed Phascogale.

**South-western Brush-tailed phascogale**

This species occurs from Perth to Albany (west of Albany Highway) at low densities in the northern jarrah forest. Highest densities occur in the Perup/Kingston area, Collie River valley and near Margaret River and Busselton. The species occurs in dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC, 2012). Whilst not recorded in any of the biological surveys, Ecologia (2020a) considered the South-western brush tailed phascogale as 'possible' to occur, noting that woodlands and open forests containing marri and jarrah and possibly Wandoo are potential habitats within the survey area.

According to the DBCA Threatened Fauna layer, there is only one record for South-western Brush-tailed phascogale within the 10 km study area, recorded in 1992 (dead) in a paddock, 30 m south of the Proposal area. The next closest record was 16 km south west (in 1968). Based on this data, it is unlikely that South-western Brush-tailed phascogale would be present in the Clearing area.

**Western brush wallaby (*Notamacropus irma*) (P4)**

The Western brush wallaby is a medium-sized macropod endemic to south-western Australia. It occurs in a wide range of habitats including open forest and woodland (DBCA, 2021). Whilst not recorded in any of the biological surveys, Ecologia (2020a) noted that potentially suitable habitat for Western brush wallaby occurs within the open forest and woodland vegetation communities that contain a low fairly open shrub/ground layer, with patches of shrub thickets. The most recent record from the study area is from 1970. Given the lack of recent records, the broad habitat requirements of the species and the narrow, linear extent of clearing proposed, the Clearing area is not likely to comprise significant habitat for this species.

According to the DBCA Threatened Fauna layer, there are no records for Western brush wallaby within the 10 km study area. The closest record was 11.5 km south west (in 1954). Based on this data, it is unlikely that Western brush wallaby would be present in the Clearing area.

**Quenda (*Isoodon fusciventer*) (Priority 4)**

Quenda are small ground-dwelling marsupials that are found in the southwest of Western Australia. In their natural habitat they live in dense understorey such as around swamps or in banksia and jarrah woodlands (DBCA, 2017). Whilst not recorded in the Proposal area in any of the biological surveys, Ecologia (2020a) noted that broadly suitable habitat occurred within all vegetation communities for Quenda (Ecologia, 2020a). Quenda was confirmed as present approximately one kilometre to the south outside the Proposal area, around SLK 309 near the Gordon River. Larger tracts of better quality vegetation around Gordon River are likely to provide more preferred habitat than the Clearing area, not only for the Quenda, but also for other mammal species such as the Red-tailed phascogale, South-western Brush-tailed phascogale and Western brush wallaby (if they were present in the Clearing area).

**Peregrine falcon (*Falco peregrinus*) (OS)**

The Peregrine falcon was not recorded during any of the biological surveys, however Ecologia (2020a) considered it could possibly occur as an overfly species, based on the presence of suitable woodland habitat. The most recent record of this species from the study area is from 1979. The species is found in a wide variety of habitats across Australia and would not be reliant on habitat within the Clearing area if it were present.

<u>Ecological linkages</u>

Ecologia (2020a) report that the roadside corridor connects some small patches of remnant vegetation and should be considered as medium conservation value. At a local scale, the vegetation within the Clearing area has some patch connectivity to other areas of habitat but is mostly surrounded by cleared agricultural land.

The existing road footprint is approximately 18 m wide. Clearing for this Proposal will extend this footprint to a nominal width of 30 m. Studies referred to in the SWREL Technical Report (Molloy et al 2009, pp. 38) generally indicate that small mammals may cross widths of up to 100 m while dispersing. Given the relatively small increase in disturbance width and the mostly nocturnal nature of potentially affected fauna, the Proposal is unlikely to detrimentally impact on the movement of fauna through the area. The road reserve is nominally 60 m wide, meaning that 50% of the road reserve will remain as a habitat corridor along either side of the Albany Highway.

While vegetation within the clearing area may provide opportunistic habitat for fauna species, impacts to ecological linkages are considered unlikely, given the minor width of clearing proposed, its linear nature and presence of a significant amount of similar or better quality habitat immediately adjacent.

However, based on the removal of suitable black cockatoo and Red-tailed Phascogale habitat, the proposed clearing is at variance to this principle. Whilst most fauna species are mobile and are expected to disperse from the Clearing area at the onset of clearing, measures are included in the Vegetation Management Plan to reduce the risk of injury or mortality to nesting fauna individuals during clearing. These include:

- Engage an environmental specialist (zoology) to identify the areas to demarcate for all suitable fauna habitat to be avoided within the Clearing area.
- Engage an environmental specialist (fauna) to undertake a pre-clearance check of conservation significant fauna residences.

**Methodology**

- DAWE (2022)
- DBCA (2017)
- DBCA (2021)
- DEC (2011)
- DEC (2012)
- Department of the Environment (2025a)
- Department of the Environment (2025b)
- Ecologia (2020a)
- EPA (2019)
- GSBL (2019)
- Kirkby (2021)
- Kirkby (2024)
- Main Roads (2023)
- Molloy et al. (2009)
- Threatened Species Scientific Committee (2016)
- Valentine & Stock (2008)
- Government GIS Shapefiles:
  - DBCA Threatened and Priority fauna database search (Accessed 22-Aug-2024)
  - BC Roost, BC FRTBC Breed and BC WTBC Breed (Accessed 22-Aug-2024)

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

**Proposed clearing is at variance to this Principle.**

A search of ArcGIS DBCA Herbarium and Threatened/Priority layers identified the presence/potential presence of three Threatened flora taxa within the study area, namely:

- *Acacia prismifolia* (T)
- *Banksia lepidorhiza* (T) previously P1
- *Gastrolobium lehmannii* (T)

GSBL (2019) did not record any Threatened flora in its 83.2 ha survey area.

Ecologia (2020a) recorded one Threatened flora species in its 83.2 ha survey area, namely:

- *Banksia lepidorhiza* (T) – (P1 at the time of recording)

In its post-survey likelihood of occurrence assessment, Ecologia considered other Threatened flora species were unlikely to occur.

*Banksia lepidorhiza* is a prostrate, lignotuberous shrub, 0.2-0.3 metres high. It flowers in October to November (red-pink-cream flower) and occurs on gravelly sand or sandy loam. It occurs in the Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain IBRA bioregions (Western Australian Herbarium – 1998).

Southern Ecology (2022) recorded *Banksia lepidorhiza* (T) in its survey area from habitat described as open Mallee with a mixed mid shrubland. The survey area targeted a small section of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of conservation significant flora had been recorded, as well as a 'bush block' (Lot 1 Weir Road) to the west of previous *Banksia lepidorhiza* (T) recordings to quantify the number of this taxa. 136 individuals of *Banksia lepidorhiza* were recorded.

Main Roads (2022) recorded *Banksia lepidorhiza* (T) in its survey area. The survey area targeted sections of the previously assessed 83.2 ha survey area (by GSBL and Ecologia) where past records of Threatened flora

had been recorded. An additional 33 individuals of *Banksia lepidorhiza* were recorded from the Main Roads survey.

Using Ecologia (2020a), Southern Ecology (2022) and Main Roads (2022) data, it is estimated that 17 *Banksia lepidorhiza* (T) occur within the Proposal area. Of the seventeen, seven were dead, and three were located within the maintenance zone (exempt clearing area), meaning that only seven live *Banksia lepidorhiza* (T) occur within the proposed Clearing area. This equates to 3.1% of the recorded population (224 individuals) of *Banksia lepidorhiza* (T).

*Banksia lepidorhiza* (T) occurs on either side of the road, nominally between 306.4 and 306.6 SLK, primarily on the southern (right hand side) of the road. The Clearing area has been amended to reduce the disturbance footprint to the existing maintenance zone on the southern (right hand side) of the road between 306.44 to 306.54 SLK avoiding the clearing of over 40 *Banksia lepidorhiza* (T) individuals. It is estimated that 0.08 ha of suitable *Banksia lepidorhiza* (T) habitat may be impacted by roadworks between 306.4 and 306.6 SLK. It is estimated that there is at least 3.7 ha of *Banksia lepidorhiza* (T) suitable habitat immediately adjacent to Albany Highway between 306.4 and 306.6 SLK (within Lot 1 Weir Road within which an extant population exists on that site). *Banksia lepidorhiza* (T) has also been recorded by Ecologia (2020) on the outer edge the road reserve near 310.3 SLK, suggesting that additional suitable habitat is likely to occur in this area.

In accordance with section 40 of the *Biodiversity Conservation Act 2016*, a Ministerial Authorisation to take or disturb threatened species will be applied for to remove these individuals. Given that native vegetation proposed to be cleared includes Threatened flora, the proposed clearing is at variance to this Principle.

The Proposal boundary where the *Banksia lepidorhiza* (T) individuals have been recorded will be flagged as a Special Environmental Area, and recorded *Banksia lepidorhiza* (T) individuals in, and within 5m of the Proposal area will not be cleared, whilst the others will be monitored to assess potential construction impacts.

Targeted species management actions are addressed in the Vegetation Management Plan for construction activities.

**Methodology**

- Ecologia (2020a)
- GSBL (2019)
- Southern Ecology (2022)
- Main Roads (2022)
- Government GIS shapefiles:
  - DBCA Threatened flora database search (Accessed 22-Aug-2024)
  - DBCA Herbarium datbase search (Accessed 22-Aug-2024)

## (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 at variance to this Principle.**

A search of the GIS shapefiles identified the *Eucalypt* woodlands of the Western Australian Wheatbelt (Eucalypt Woodlands) Threatened Ecological Community (TEC), listed as Critically Endangered under the EPBC Act 1999, within the study area.

GSBL (2019) mapped 33.1 ha as the *EPBC Act*- listed Eucalypt Woodland of the Western Australian Wheatbelt (EWWAW) TEC in the 83.2 ha survey area.

Main Roads engaged Ecologia to undertake an additional biological survey in 2020, which included a reassessment of the presence of TEC. Ecologia (2020b) mapped seven patches of the Eucalypt Woodland of the Western Australian Wheatbelt TEC in the 83.2 ha survey area, totalling 5.02 ha.

This data was reviewed by a Main Roads botanist using more accurate survey data (from Main Roads Network Lidar Project) to amend the edge of the mapped TEC to correspond to the edge of the road maintenance zone. As the maintenance zone is routinely cleared, it does not contain the key diagnostic

characteristics and condition thresholds specified in section 3.2 and 3.3 of the Approved Conservation Advice for the TEC (Department of the Environment, 2015).

A total of 0.616 ha of TEC has been mapped to occur within the Clearing area over five patches (refer to mapping in Appendix 3) Three patches (0.534 ha) were mapped as Category A and two (0.082 ha) were mapped as Category D. This equates to 12.3% of the TEC mapped in the survey area.

The total extent of remaining Wheatbelt Woodlands TEC has been estimated based on Beard vegetation associations considered representative of the community. Data compiled by DBCA in 2013 estimated approximately 939,000 ha of Wheatbelt Woodlands TEC remains in the WA Wheatbelt, of which approximately 8% was protected in conservation estate (DPAW, 2013).

DBCA mapping of likely occurrences of Wheatbelt Woodlands TEC in the Wheatbelt has been compared with remnant vegetation mapping to determine an approximate extent of the community in the local area. It is estimated that over 11,450 ha of remnant native vegetation corresponding with Wheatbelt Woodlands TEC remains within 10 km of the Proposal area. The 0.616 ha of TEC proposed to be cleared represents approximately 0.007% of the estimated 11,450 ha of TEC remaining in the local area (10 km radius). As 0.616 ha of the *Eucalypt* woodlands of the Western Australian Wheatbelt (Eucalypt Woodlands) Threatened Ecological Community (TEC) was identified in the Clearing area, the proposed clearing is at variance to this Principle.

**Methodology**

- Department of the Environment (2015)
- Ecologia (2020b)
- GSBL (2019)
- DBCA Shapefiles (Accessed 22-Aug-2024)

## (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 at variance to this Principle.**

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia, 2001) except in constrained areas (Perth & Peel) where 10% representation should be maintained.

Two Vegetation Associations (VA) of Beard (1976) have been mapped over the Proposal area, namely:

- VA 967 described as Medium woodland; wandoo and yate
- VA 1967 described as Medium woodland; wandoo, yate and river gum

Vegetation extents and percentage for each Bio Region and Sub Region are provided below:

| Pre-European Vegetation Association | Scale: | Pre–European (ha) | Current Extent (ha) | % Remaining | % Remaining in DBCA reserves |
|---|---|---|---|---|---|
| Veg Assoc No 967 | **Statewide** | 216,684 | 36,536 | 16.86 | 3.02 |
| | **IBRA Bioregion** Avon Wheatbelt | 174,907 | 26,637 | 15.232 | 1.43 |
| | **IBRA Sub-region** Katanning | 174,907 | 26,637 | 15.232 | 1.43 |
| | **Local Government Authority** Shire of Cranbrook | 77,064 | 15,137 | 19.64 | 2.47 |
| Veg Assoc No. 1967 | **Statewide** | 25,501 | 7,356 | 28.85 | 5.34 |
| | **IBRA Bioregion** Avon Wheatbelt | 24,928 | 7,203 | 28.90 | 4.85 |

| | | | | | |
|---|---|---|---|---|---|
| | **IBRA Sub-region** Katanning | 24,928 | 7,203 | 28.90 | 4.85 |
| | **Local Government Authority** Shire of Cranbrook | 18,725 | 6,288 | 33.58 | 5.37 |

Vegetation Associations 967 and 1967 have:

- 26,637 ha and 7,203 ha remaining at the subregion level, respectively
- 15,137 ha and 6,288 ha at an LGA level, respectively
- 6,674 ha and 4,235 ha remaining within 10 km of the Proposal area, respectively. 555 ha of other vegetation associations (1, 3 ,4, 27, 125, 968, 975) are mapped to occur within 10 km of the Proposal area

Main Roads proposes to clear a calculated 8.72 ha of Vegetation Association 967 and 1.05 ha of Vegetation Association 1967, which equates to:

- 0.033% and 0.015% of vegetation at the subregion level, respectively, and
- 0.058% and 0.017% at an LGA level, respectively.

Regional mapping of remnant vegetation (using the Native Vegetation Extent (DPIRD-005) GIS layer) indicates approximately 24.9% of native vegetation remains in the local area (within 10 km of the Proposal).

The clearing for the Proposal is not likely to have a significant impact on the remaining extent of either of these vegetation associations at the subregion, LGA or local (10 km) levels. However, given that both vegetation types and vegetation extent within the local area is less than 30% of the pre-European extent, the proposed clearing is at variance to this Principle.

**Methodology**

- Commonwealth of Australia (2001)
- Government of Western Australia (2019)
- GSBL (2019)
- Government GIS shapefiles:
  - Pre-European vegetation complexes (Accessed 21-Aug-2024)

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

**Proposed clearing is at variance to this Principle.**

GSBL (2019) mapped sections of vegetation types *Eucalyptus marginata* open woodland, *Eucalyptus occidentalis* low open woodland, *Melaleuca cuticularis* tall open shrubland and Samphire as riparian vegetation in its survey area. Only *Eucalyptus marginata* open woodland, *Eucalyptus occidentalis* low open woodland, and *Melaleuca cuticularis* tall open shrubland occur in the Clearing area, with their respective areas shown below:

| Vegetation Type | Area |
|---|---|
| *Eucalyptus occidentalis* low open woodland | 0.42 |
| *Melaleuca cuticularis* tall open shrubland | 0.346 |
| *Eucalyptus marginata* open woodland | 0.31 |

The GIS Surface Hydrolines Regional layer maps two minor non-perennial watercourses (tributaries of the Gordon River) crossing the Proposal area – one at 302.27 SLK and another at 307.88 SLK. These watercourses are associated with mapped vegetation types of *Eucalyptus occidentalis* low open woodland and *Melaleuca cuticularis* tall open shrubland. A review of aerial photography and StreetView imagery indicates that the mapped watercourse at 302.27 SLK is not a defined watercourse but more of a broad drainage gully, which

discharges to a farm dam on the western side of the road. The mapped watercourse at 307.88 SLK is associated with a series of unmapped wetlands containing *Melaleuca*. The mapped 'riparian' *Eucalyptus marginata* open woodland is located on top of a rise, suggesting a mapping error. Further, *Eucalyptus occidentalis* low open woodland and *Eucalyptus marginata* open woodland are typically not associated with riparian areas, with StreetView imagery confirming that the vegetation does not appear to be growing in type with a watercourse or wetland.

Based on this reasoning, 0.346 ha of riparian vegetation (*Melaleuca cuticularis* tall open shrubland) is the only riparian vegetation proposed to be cleared for this Proposal.

The proposed clearing is at variance to this Principle.

**Methodology**

- GSBL (2019)
- Government GIS shapefiles:
  - Directory of Important Wetlands in Australia - Western Australia (DBCA-045) (Accessed 21-Nov-2023)
  - Ramsar Wetlands (Accessed 22-Aug-2024)
  - Surface_HydroLines_Regional (Accessed 22-Aug-2024)
  - Hydrography Linear (Hierarchy) (DWER-031) (Accessed 22-Aug-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.**

Natural Resource Management Soil Systems and CSIRO risk mapping indicates the soils of the Proposal area have a:

- low risk of land instability,
- moderate to high risk of wind erosion,
- low risk of water erosion,
- low to moderate high risk of salinity,
- low risk of flood hazard,
- moderate to high risk of waterlogging and inundation,
- low risk of surface acidity, and
- low to extremely low risk of acid sulphate soils.

Given the linear nature of the clearing and sealing of areas for road construction, the proposed clearing is not likely to cause appreciable land degradation. Standard erosion and dust management control measures will be implemented during construction to reduce the incidence of wind erosion.

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

**Methodology**

- ENVN CSIRO Acid Sulphate Soils layer (Accessed 22-Aug-2024)
- Natural Resource Management SLIP Soil Systems
  - Soil landscape land quality – Water Erosion Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Wind Erosion Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Salinity Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Surface Acidity (Accessed 22-Aug-2024)
  - Soil landscape land quality – Waterlogging Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Flood Risk (DPIRD-007) (Accessed 22-Aug-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 is not at variance to this Principle.**

A search of Main Roads GIS shapefiles layers indicates that no conservation areas are located within the 10 km study area. The closest reserve is the Twongkup Nature Reserve, 10.9 km south of the Proposal area.

The proposed clearing of 9.765 ha of native vegetation along 7.7 km of road will not remove or diminish any ecological linkages or buffers around these reserves. No other impacts to these reserves are expected.

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

**Methodology**

- Government GIS Shapefiles:
  - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 22-Aug-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 likely to be at variance to this Principle.**

The Proposal is not located within a CAWS catchment, Groundwater Area, Public Drinking Water Source Area or Surface Water Proclaimed Area under the *Rights to Water and Irrigation Act 1914*.

The GIS Surface Hydrolines Regional layer maps two minor non-perennial watercourses (tributaries of the Gordon River) crossing the Proposal area – one at 302.27 SLK and another at 307.88 SLK. As works are planned to occur during summer months, when these watercourses are likely to be dry, there is a low risk of clearing impacting on the water quality of these watercourses or any other surface water features.

The proposed clearing of 9.765 ha of native vegetation along 7.7 km of road is not likely to cause deterioration in the quality of underground water.

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

**Methodology**

- Government GIS Shapefiles:
  - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 22-Aug-2024)
  - CAWSA Part 2A Clearing Control Catchments (Accessed 22-Aug-2024)
  - RIWI Act, Groundwater Areas (Accessed 22-Aug-2024)
  - Surface_HydroLines_Regional (Accessed 22-Aug-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 likely to be at variance to this Principle.**

The Proposal area (Cranbrook – 10 km south) averages 499 mm of rainfall per year (BOM, 2024). Natural Resource Management Soil Systems risk mapping indicates the soils of the Proposal area have a:

- low risk of water erosion,
- low risk of flood hazard, and
- moderate to high risk of waterlogging and inundation.

Due to the linear nature of clearing, relatively flat terrain, and relatively low rainfall, clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

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

**Methodology**

- BoM (2024)
- Natural Resource Management SLIP Soil Systems
  - Soil landscape land quality – Water Erosion Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Waterlogging Risk (Accessed 22-Aug-2024)
  - Soil landscape land quality – Flood Risk (Accessed 22-Aug-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 vegetation clearing for the Proposal (refer to Appendix 4).

# 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

In accordance with CPS 818 condition 11(a), to offset the residual impacts from clearing, Main Roads will develop an offset proposal in accordance with the current WA environmental offsets Policy for approval of the CEO prior to clearing.

# 8 STAKEHOLDER CONSULTATION

Main Roads will undertake stakeholder consultation in accordance with CPS 818 Condition 8.

# 9 COMPLIANCE WITH CPS 818

Table 7 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

**Table 7. 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** | 1. Submissions will be sought from relevant parties, including the Local Government Authority, in accordance with Condition 8 of CPS 818/17 and published on the Main Roads website.<br>2. A Vegetation Management Plan (VMP) has been completed in accordance with Condition 7 (j) of CPS 818/17 (refer to Appendix 4).<br>3. An offset proposal for approval by the CEO is required where clearing is 'at variance' with any one of the clearing principles (a), (b), (c), (d), (e), (f) or (h), in accordance with Condition 11 (a) of CPS 818/17. The offset proposal must be approved prior to undertaking clearing of the area to which the offset is related (refer to section 7.2) |
| **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 |

| Impact of Clearing | Yes/No or NA | 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:<br>• has rainfall greater than 400mm; and,<br>• is South of the 26th parallel; and,<br>• works are necessary in 'Other than dry conditions'; and,<br>• works have potential for **uninfested** areas to be impacted. | **No** | Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), Hygiene Checklists *(D17#859669)* and Vehicle, Plant and Machinery Hygiene Register Template *(D23#179551)* will be applied. |
| **5b.** Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions? | **No** | No further action required. |
| **6.** Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback. | **No** | No further action required. GSBL (2022) reported that as a result of the vegetation type and condition, all assessable vegetation within the survey area was classified as uninterpretable. |
| **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** | Two Declared Pests (Bridal Creeper and One-leaf Cape tulip) and one Weed of National Significance (Bridal Creeper) were recorded in the survey area (and within the Proposal area. Both Bridal creeper and One-leaf Cape tulip are a Declared Pest - s22(2) (Exempt) meaning control is not required. Notwithstanding this, Main Roads will implement control measures for these species as part of its Regional Weed Management programme. |
| **8.** Did an environmental specialist conduct the survey or field assessment? | **Yes** | The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience. |
| **9.** Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal? | **Yes** | The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience. |

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# 11 APPENDICES

## Appendix 1: CPS 818/17 condition 8 (e) (iii) Biological Surveys and Field Assessment Executive Summary and Report Conclusions

### Great Southern Bio Logic (2019) – Flora Vegetation and Fauna Surveys

Great Southern Bio Logic undertook a vegetation and fauna survey for the Proposal, covering a slightly larger survey area between SLK 297-308. The flora and vegetation fieldwork was undertaken in October and November 2018 and the fauna survey in September 2018. The key findings are summarised below.

- three vegetation types aligned with the Eucalypt Woodlands of the WA Wheatbelt TEC and the Priority 3 PEC Eucalypt Woodlands of the WA Wheatbelt (Wheatbelt Woodlands).
- two Priority flora species were recorded:
  - *Xanthorrhoea brevistyla* (Priority 4)
  - *Banksia porrecta* (Priority 4).
- one fauna species of conservation significance was recorded during the field survey - Carnaby's Black Cockatoo.
- suitable habitat for the three conservation significant Black Cockatoo species was recorded including more than 500 potential breeding habitat trees, 45 of which contained or possibly contained hollows suitable for Black Cockatoo breeding.
- the survey area contained potentially 55 ha of low-moderate foraging habitat for Carnaby's and limited foraging habitat for Baudin's Cockatoo, and potentially 10 ha of low-moderate foraging habitat for Forest Red-tailed Black Cockatoo.
- the survey area contained potential habitat for:
  - Red-tailed Phascogale, kenngoor (*Phascogale calura*) (Vu, CD);
  - South-western Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) (CD); and
  - Western Brush Wallaby (*Notamacropus irma*) (P4).

### Ecologia (2020a) Targeted Flora and Fauna Survey for Gordon South Stage 2

Ecologia undertook a targeted conservation significant flora and fauna survey for the Proposal between 7th and 11th of October 2019. The likelihood of occurrence assessments included in previous survey reports had identified a number of conservation significant flora species as remaining 'possible' or 'likely' to occur' and therefore further targeted survey work was required. In addition, the Red-tailed Phascogale was considered to 'possibly' occur by Great Southern Bio Logic (2019) and therefore further targeted survey work was required. The key findings are summarised below:

- four Priority flora species were recorded:
  - *Banksia lepidorhiza* (Priority 1) – now (T)
  - *Banksia acuminata* (Priority 4)
  - *Banksia porrecta* (Priority 4)
  - *Xanthorrhoea brevistyla* (Priority 4)
- four fauna habitat types were recorded, which may provide suitable habitat for seven fauna species, including four mammals (south-western brush-tailed phascogale [CD BC Act], western brush wallaby [P4 BC Act], red-tailed phascogale [CD BC Act, VU EPBC Act], quenda [P4 BC Act]) and three birds (peregrine falcon [OS BC Act], forest red-tailed black cockatoo [VU BC Act and EPBC Act]), Carnaby's cockatoo (EN BC Act and EPBC Act).
- the survey area contained patches of potentially suitable foraging and breeding habitat for the red-tailed phascogale within the Open Woodland habitat type. Small patches of suitable

habitat are found within *Eucalyptus wandoo* (wandoo) and *Allocasuarina huegeliana* (rock sheoak) vegetation type.

**Ecologia (2020b) Gordon South Stage 2 TEC Survey and Assessment**

Ecologia undertook targeted Eucalypt Woodlands TEC assessment for the Proposal which included a review available information to assess the current known and anticipated extent of the Wheatbelt Woodlands TEC within the survey area and to delineate/confirm its current extent. The fieldwork was undertaken from 7-11 October 2019 and the survey was undertaken in accordance with the Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt (Department of Environment and Energy 2015); and Technical Guidance Factsheet: Threatened Ecological Community Eucalypt Woodlands of the Western Australian Wheatbelt (Main Roads Western Australia 2019). The key findings are summarised below.

- seven patches of the TEC were recorded in the survey area
- 5.02 ha of Wheatbelt Woodlands TEC was mapped within the survey area.

**Kirkby (2021) - Survey of Possible Black Cockatoo Breeding Trees and Hollows, Albany Hwy 300-308 SLK, Gordon North**

Eight trees containing hollows with an entrance of a suitable size to be used by black cockatoos *Calyptorhynchus spp.* as a breeding hollow were inspected in detail. Hollows in a further 36 trees were also inspected from ground level for signs of use.

None of the eight trees inspected in detail had hollows suitable for black cockatoos.

27 of the 36 ground assessed trees contained a total of 35 hollows with an entrance size suitable for black cockatoos. Six of the 27 trees also contained hollows suitable for small parrots such as Australian Ringneck (*Barnardius zonarious)*. The hollow in tree 16 was seen to be blocked when viewed from the correct angle.

Of the 35 hollows, none showed signs externally of past or present use by black cockatoos.

The remaining nine of the 36 trees contained either no suitable hollows or small parrot hollows.

**Southern Ecology (2022) - *Banksia lepidorhiza* Flora Survey, Albany Hwy 300-308 SLK, Gordon North**

A total of 137 individuals were recorded from one population adjacent to Albany Highway (64 occur within 20m of edge of seal).

The large area of remnant vegetation on the corner of Weir Road and Albany Hwy did not contain any other populations of this taxon. The DBCA records from 1998 within this block are reported to be of low accuracy; it is most likely to represent the population reported adjacent to the highway. The specific habitat of the recorded population is not present in the survey area.

**Main Roads (2022) - Albany Hwy Gordon North Project: Targeted Flora Survey Report**

A targeted flora survey for *Banksia lepidorhiza* (Threatened) was undertaken by Main Roads Botanists and Environmental Officers along Albany Highway for the Gordon North Project, which is between 300 – 308 Straight Line Kilometre (SLK). The Project is located within the Shire of Cranbrook in the Great Southern Region. The targeted flora survey was conducted on the 19 October and 6 December 2022. The survey focused on the area where *Banksia lepidorhiza* (Threatened) had previously being recorded on the western side of Albany Highway, but instead focusing on the eastern side of the highway in similar habitat from SLK 305.85 – 307.0.

The survey found 28 individuals of *Banksia lepidorhiza* (Threatened) within the same population as recorded by Ecologia (2020a) and Southern Ecology (2022) in similar habitat to that previously

recorded. Additional individuals of several Priority 4 species were also recorded - *Banksia acuminata, Banksia porrecta, Xanthorrhoea brevistyla* and *Xanthorrhoea ?brevistyla*. This survey extends the known local habitat area for *Banksia lepidorhiza* (Threatened) to the eastern side of Albany Highway, which is significant given the species was recently listed as Endangered in September 2022.

**Main Roads (2023) Reconnaissance Flora, Vegetation and Black Cockatoo Survey and Targeted Flora Survey**

Main Roads Western Australia is planning road upgrades along Albany Highway around Cranbrook. Several previous flora and vegetation and fauna surveys have been conducted for the Gordon North Project (Gordon South Stage 2), however due to project design changes, additional areas required survey.

This reconnaissance flora, vegetation and Black Cockatoo survey and targeted flora survey was conducted in Spring in October 2022. The majority of the survey area, particularly in the location for the proposed side track, is cleared farmland. Some isolated natives colonising former farmland were recorded as well as planted *Eucalyptus* species along the southern side of Yonka Road. Two intact vegetation communities were identified, *Eucalyptus wandoo* and *Eucalyptus occidentalis* woodlands. Vegetation was in good to very good condition in intact vegetation and either in degraded or completely degraded condition in other areas. Vegetation on the northern side of Wier Road was assessed to be the Eucalypt Woodlands of the Western Australian Wheatbelt TEC. All other areas did not meet the requirements to be considered TEC.

Species diversity was similarly related to vegetation condition and intactness of the vegetation. No significant flora species were recorded and none are considered likely to occur post survey due to a lack of suitable habitat. Several grassy weeds were recorded and Bridal Creeper was noted along the southern side of Weir Road.

Ten suitable DBH trees were record. Five suitable DBH trees were recorded along the north side of Yonka Road, one with a suitable hollow with no signs of use (unconfirmed). All other areas did not contain trees of a sufficient size (and age) to be considered habitat trees.

No significant flora species were recorded in the survey area.

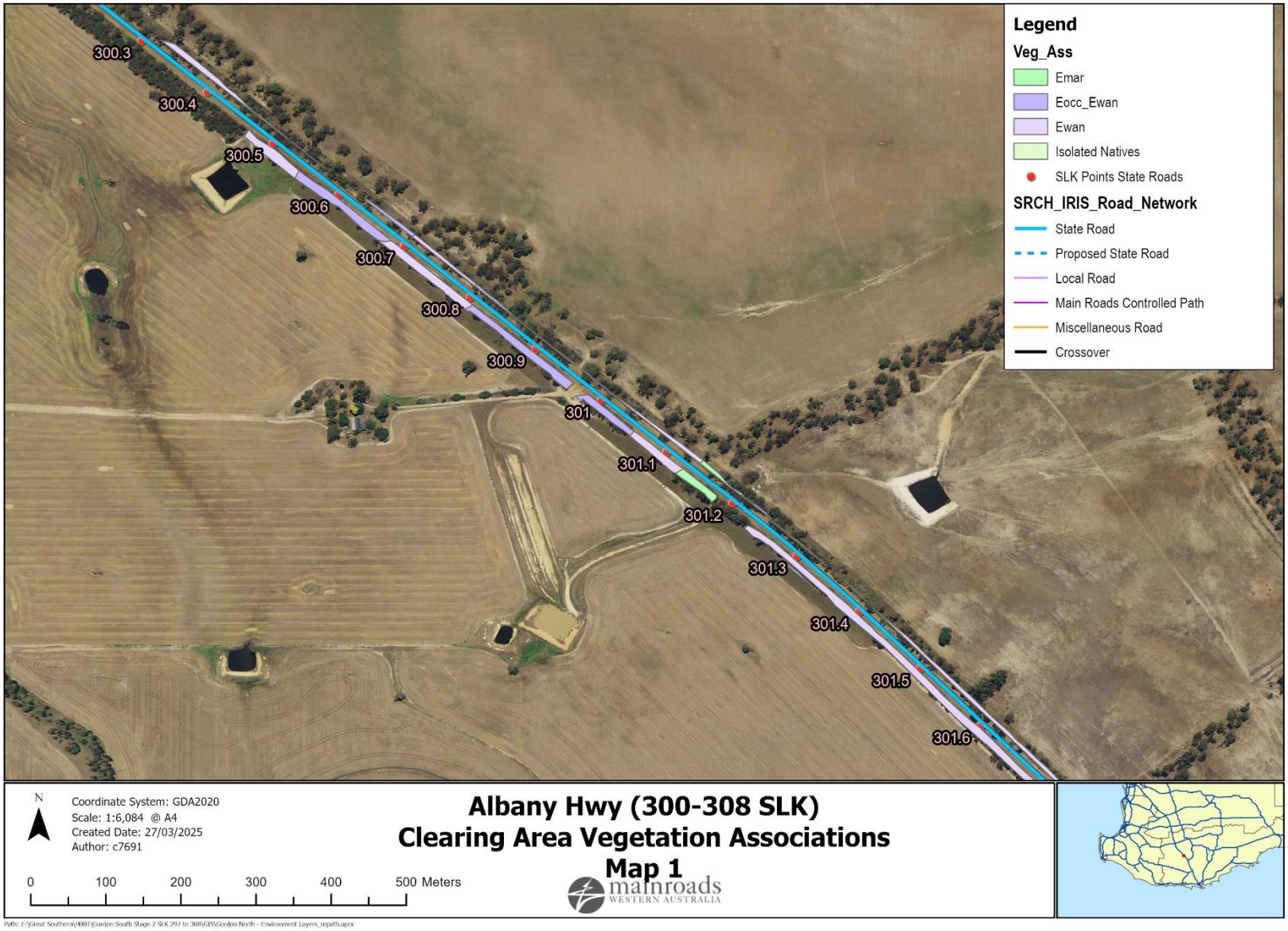
**Kirkby (2024) Detailed inspection of possible black cockatoo breeding hollows, Gordon South Stage 2, Albany Highway, Cranbrook**

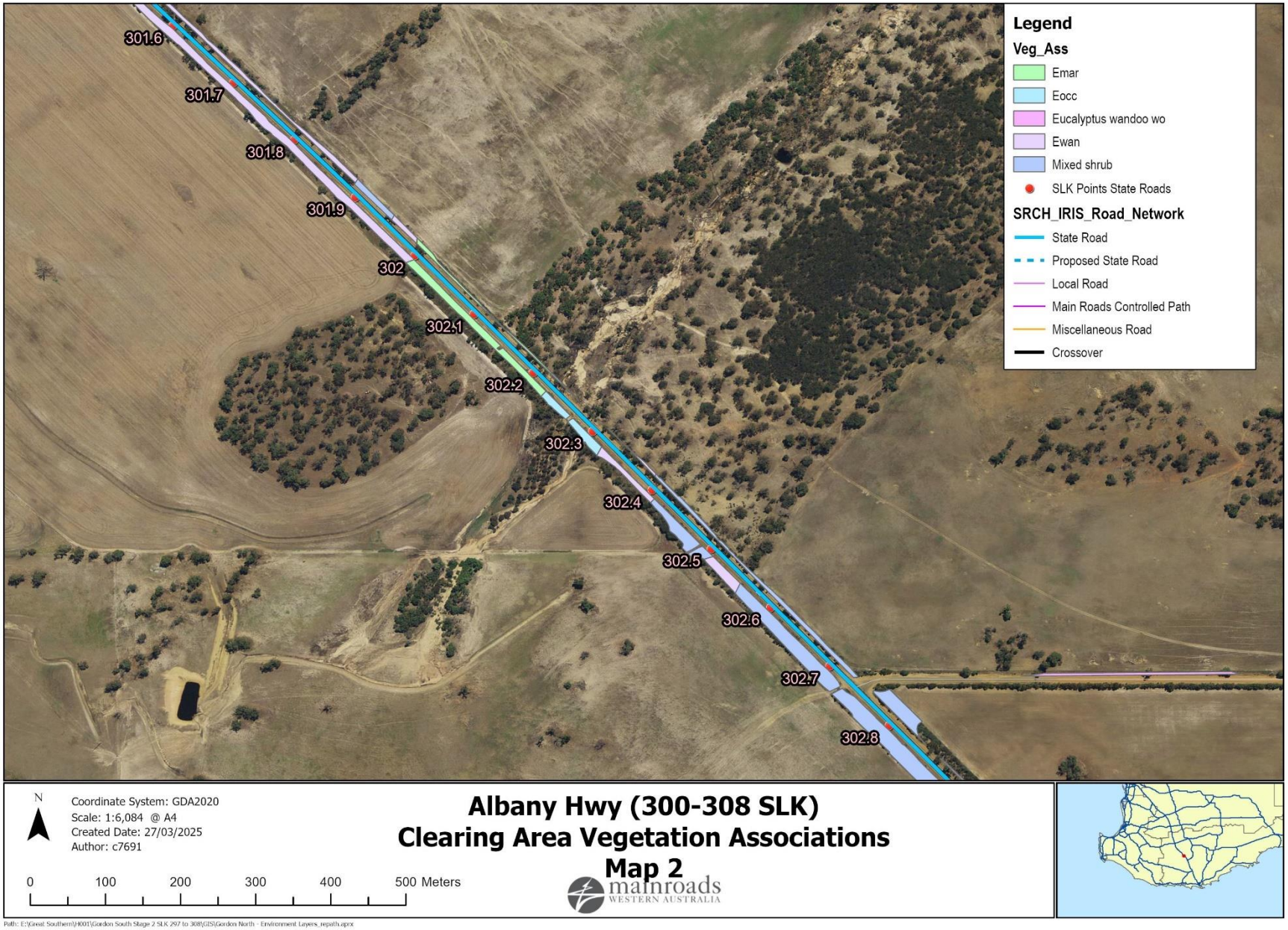
The purpose of the survey was to inspect, in detail, three trees containing hollows with an entrance of a suitable size to be used by black cockatoos *Calyptorhynchus spp*. as a breeding hollow. The hollows were located during a previous survey undertaken by Great Southern Bio Logic **(**2019).

The survey took place on 20th February 2024.

Of the seven hollows inspected, five were totally blocked and not actual hollows. A hollow in tree number 30 contained a single egg (probably duck egg) which had been predated on. The hollow was deep enough to be used by black cockatoos but unsuitable due to a large hole at floor level. The hollow showed no signs of use by black cockatoos and the hollow floor was lacking the woodchips which are characteristic of a black cockatoo breeding hollow. A hollow in tree 36 had a floor space suitable for a black cockatoo but the hollow was too shallow and showed no signs of use.

## Appendix 2: Vegetation within the Clearing area

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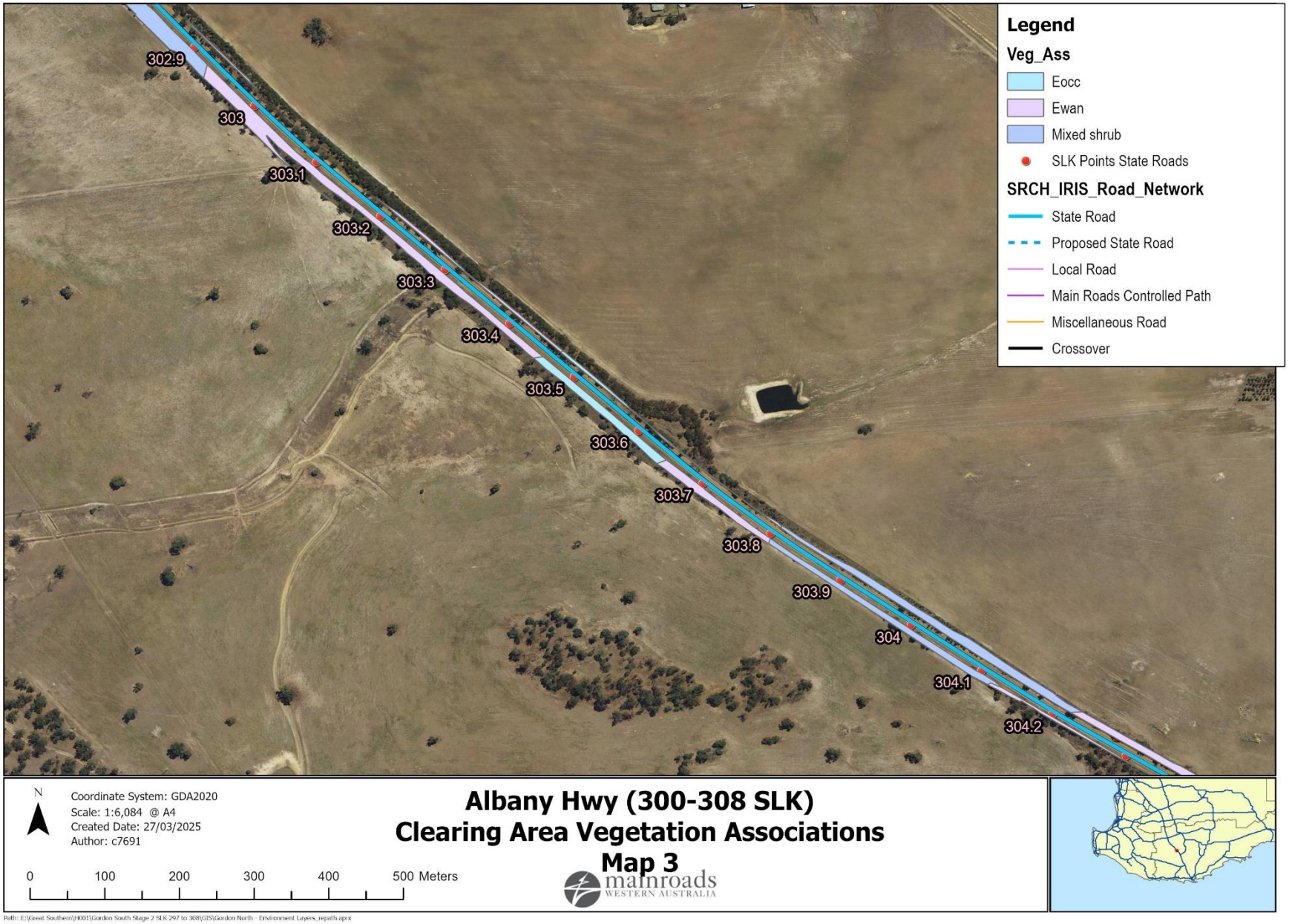
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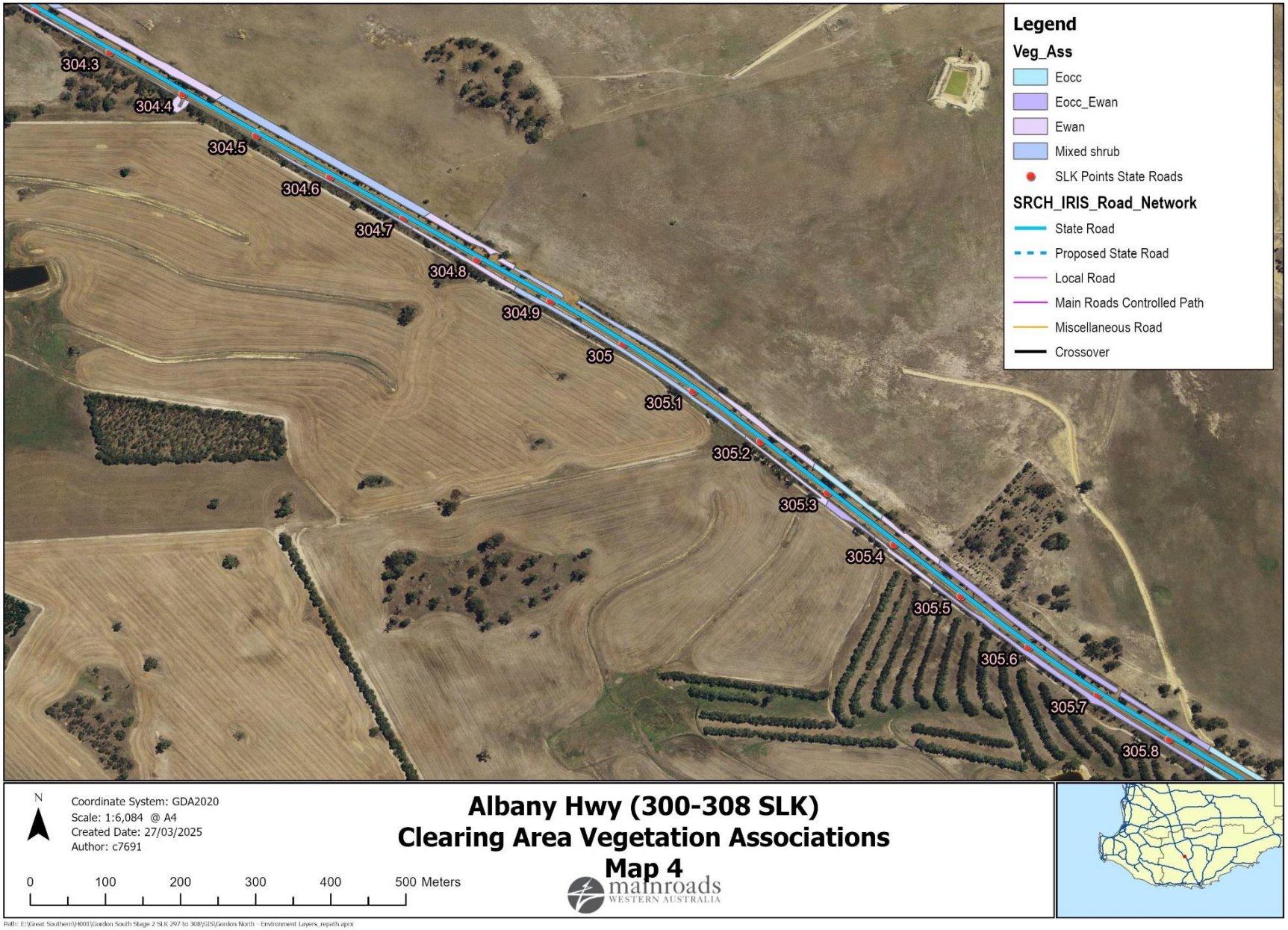
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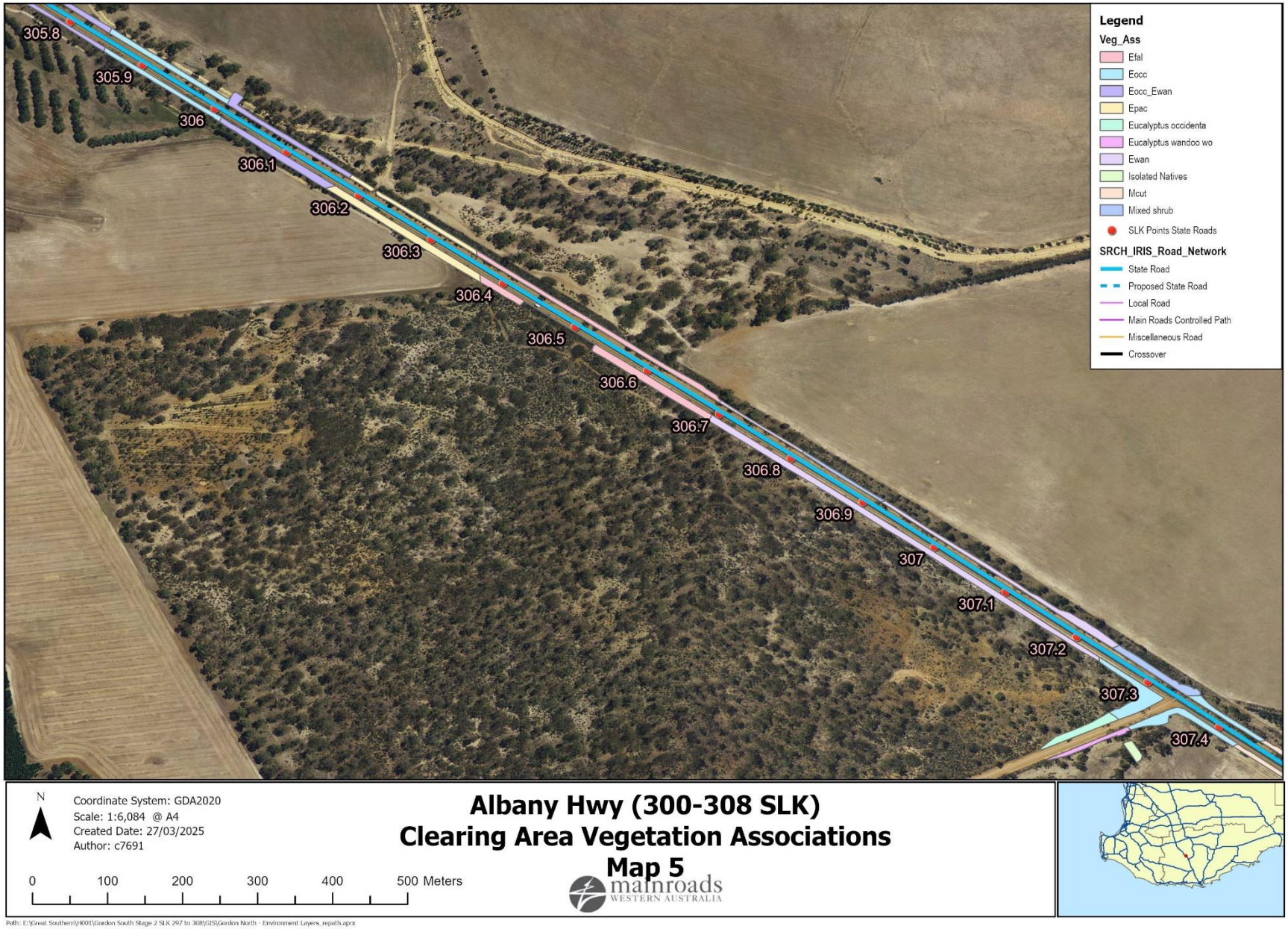
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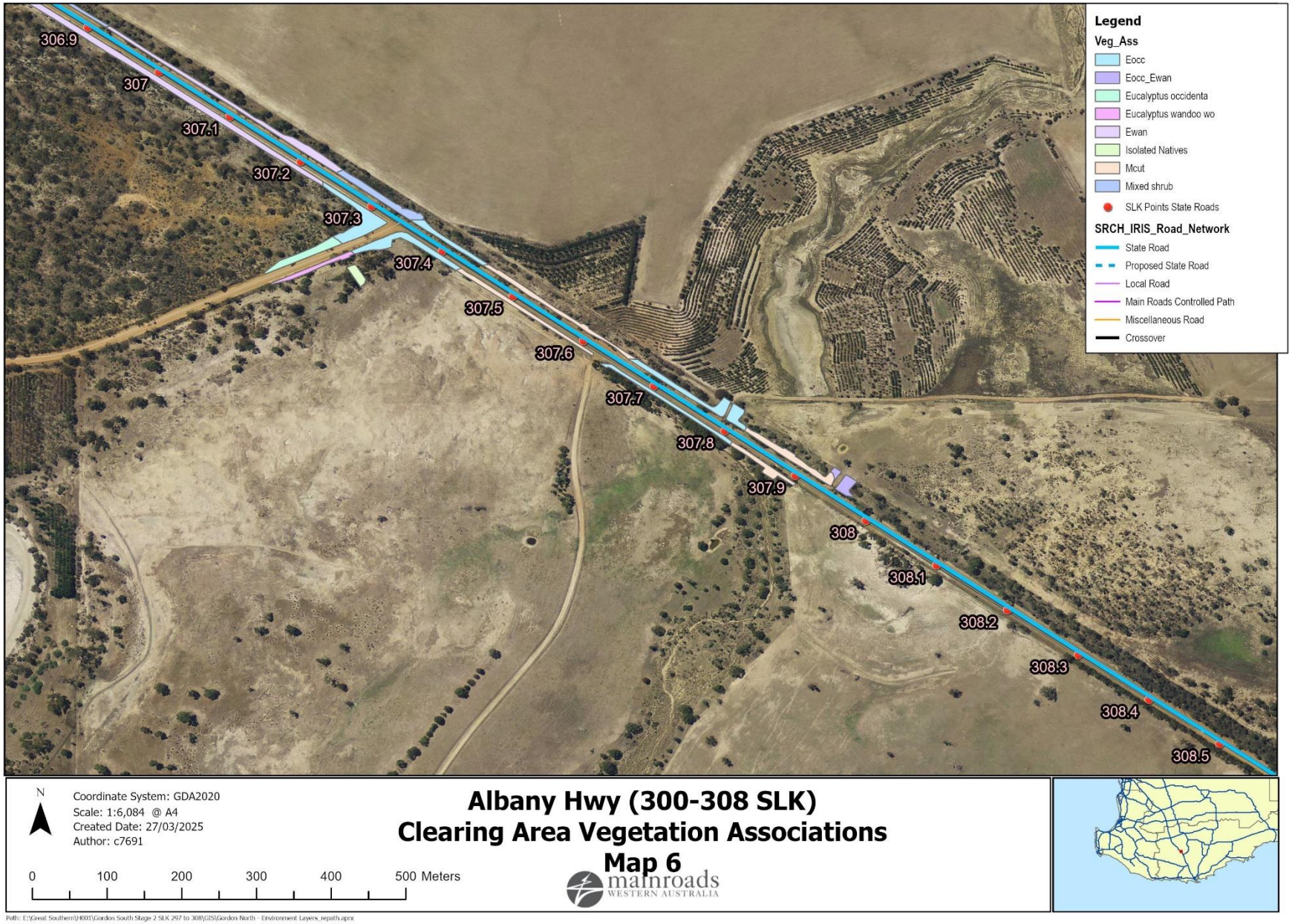
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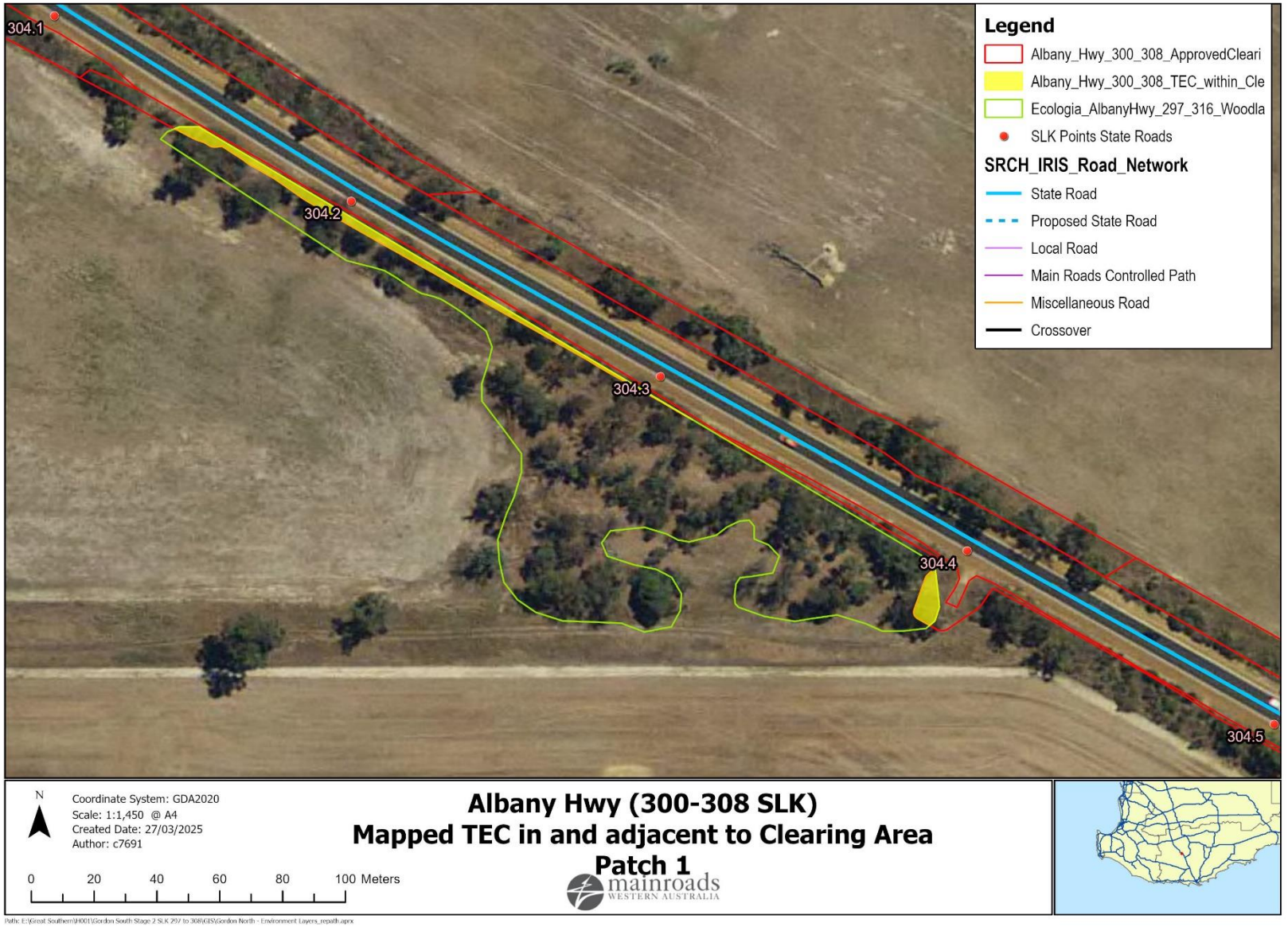
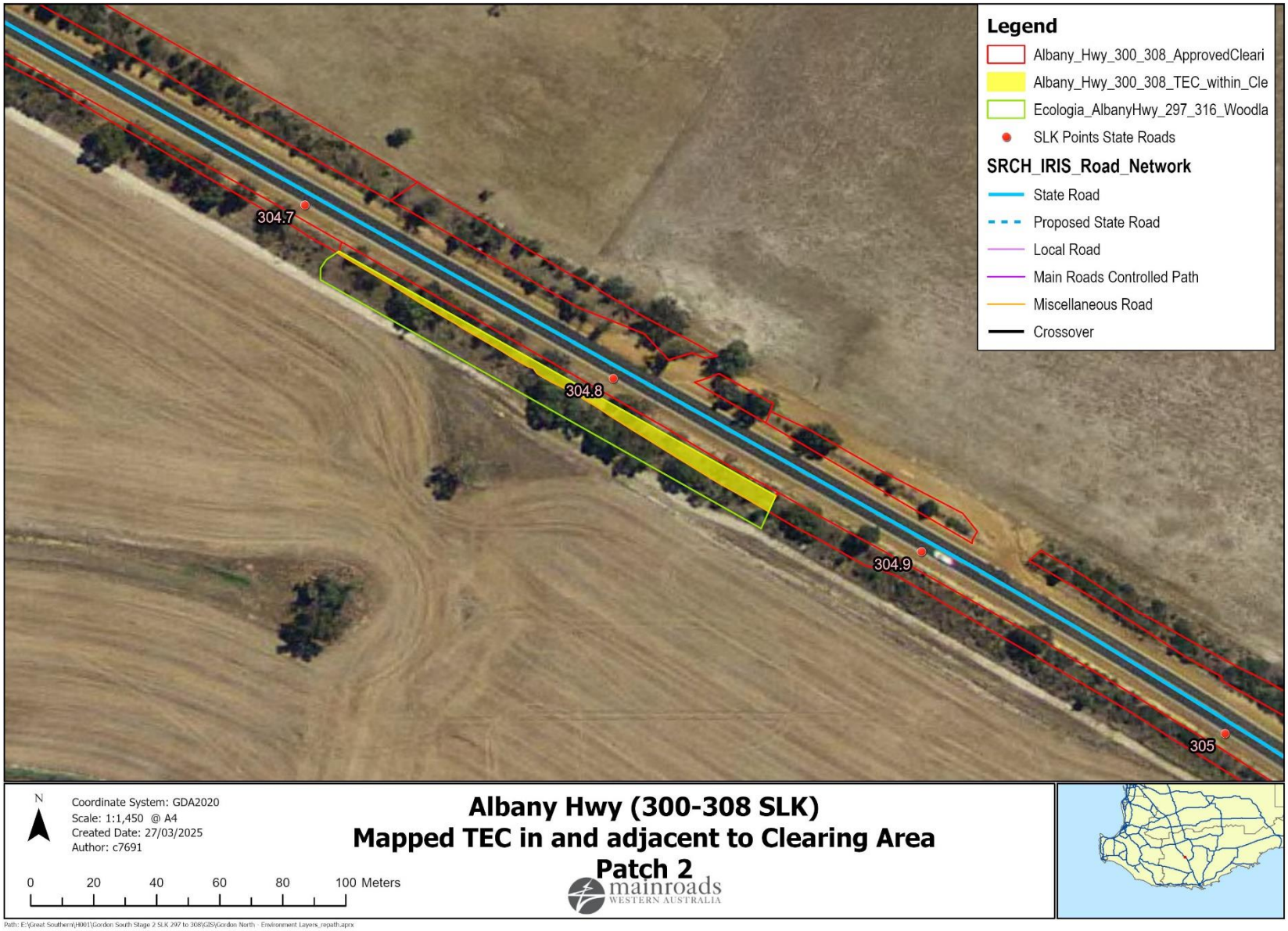
## Appendix 3: Mapped TEC within and adjacent to the Clearing area

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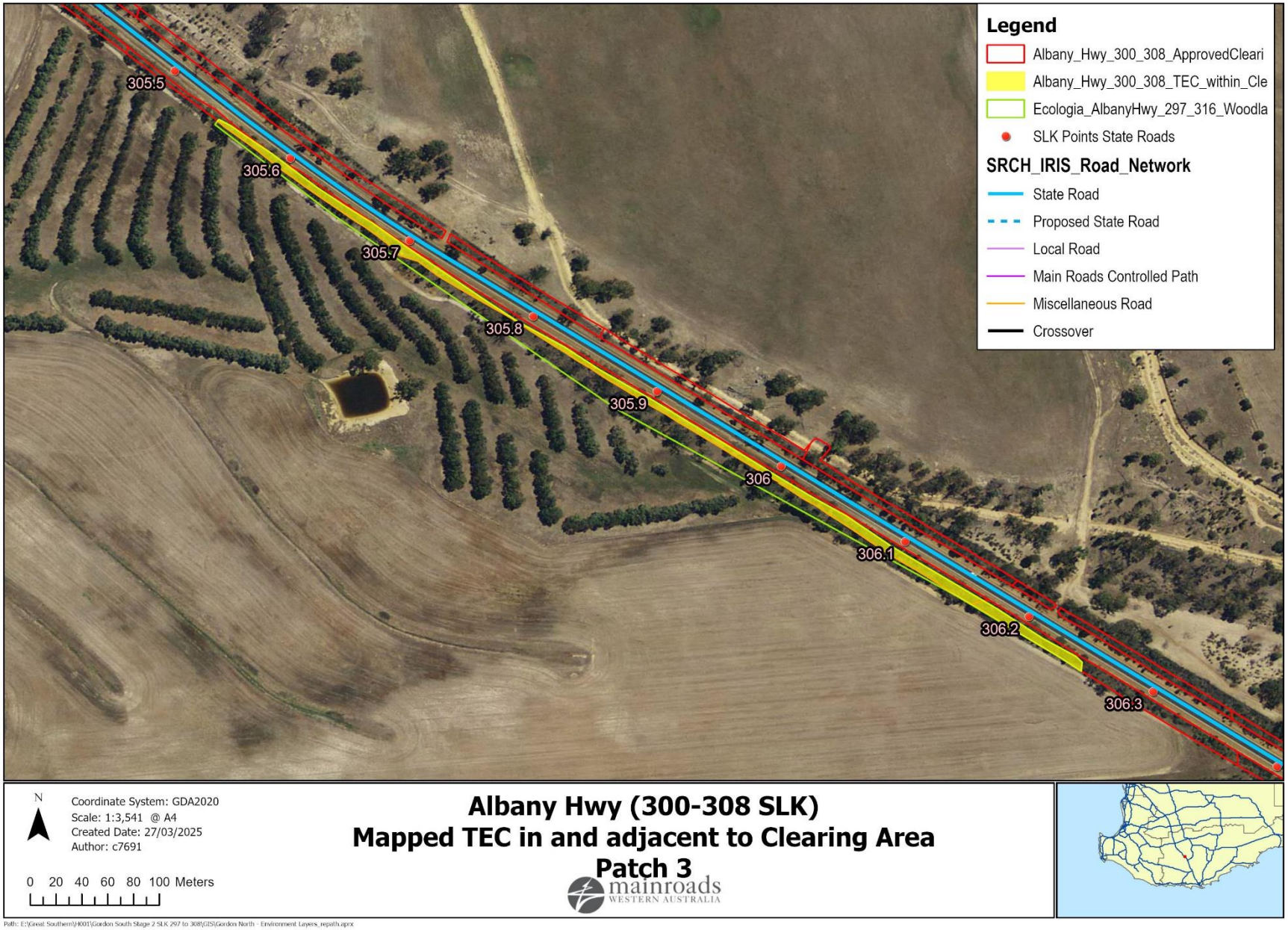
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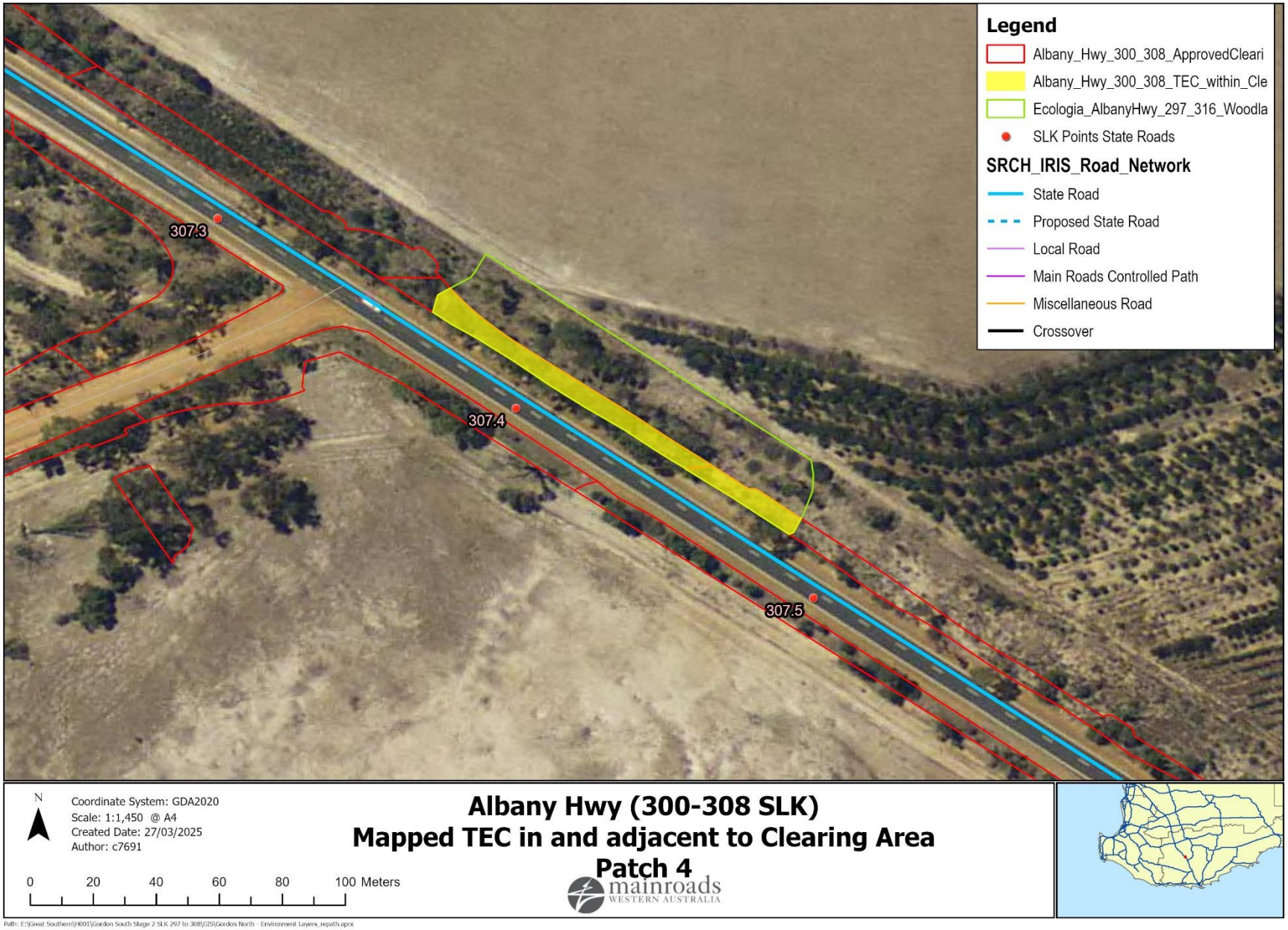
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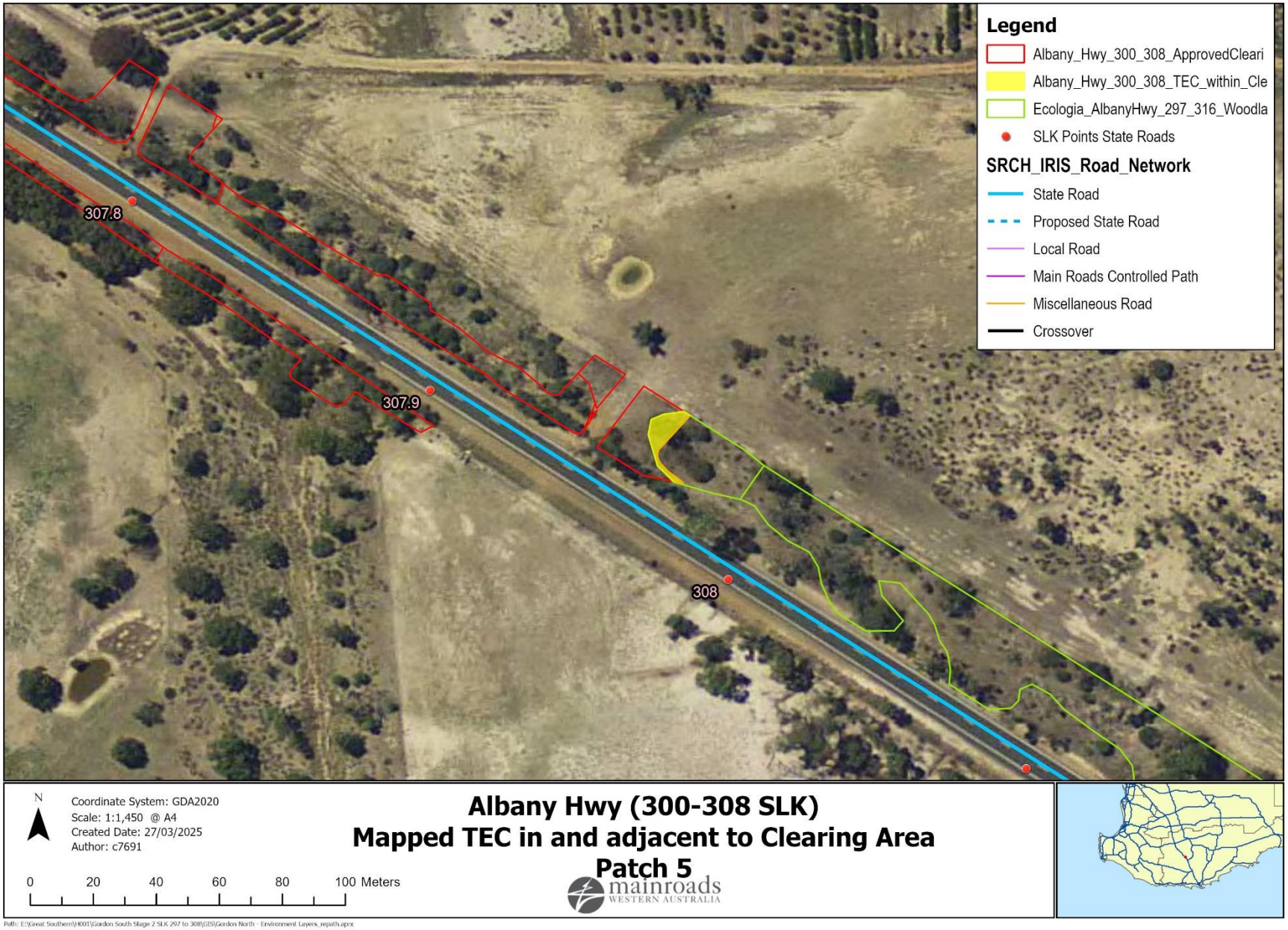
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Author: c7691
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Albany Hwy (300-308 SLK)
Mapped TEC in and adjacent to Clearing Area
Patch 5
mainroads
WESTERN AUSTRALIA

## Appendix 4: Vegetation Management Plan

### Albany Highway 300 – 308 SLK Gordon North Reconstruction and Realignment Proposal

**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 Albany Highway 300 – 308 SLK Gordon North Reconstruction and Realignment Proposal.

Main Roads proposes to upgrade Albany Highway (H001) between 300.3 and 308.0 Straight Line Kilometre (SLK) to improve safety and efficacy of the road in this location, nominally north of the Gordon River, Cranbrook.

Due to the age, poor condition and increased traffic loads, the road requires widening, reconstruction and maintenance to ensure the safety of road users. Reconstruction and realignment have been recommended as the preferred approach to provide a roadway that meets the current design standards including a pavement with an expected 40 years' life. The Proposal will involve widening and overlay works as well as reconstruction of substandard geometry (vertical and horizontal curves). The scope of works includes associated drainage works, side tracks, installation of fencing, and relocation of services.

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.

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 to during the development and design of the Proposal to reduce its impact 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 the following Table: General Vegetation Management Actions for Clearing.

## 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:

- Engage an environmental specialist (flora) to identify the areas to demarcate for all priority and/or threatened flora individuals/populations to be avoided within the Proposal area and to identify threatened flora individuals within the Proposal area to avoid (where possible).
- Engage an environmental specialist (flora) to identify the areas to demarcate for all priority and/or threatened ecological communities to be avoided within the Proposal area (where possible).
- Engage an environmental specialist (zoology) to identify the areas to demarcate for all significant fauna habitat to be avoided within the Proposal area.

- Engage an environmental specialist (fauna) to undertake a preclearance check of conservation significant fauna residences.

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:
   - The pegging of limits of vegetation clearing has been undertaken.
   - The pegged vegetation clearing area does not exceed the Limits of Vegetation Clearing.
   - Mature trees have been conserved as far as practicable.
   - The pegging of special environmental areas has been undertaken.
   - All pre-clearing weed control has been undertaken.
   - All pre-clearing fauna operational controls have been undertaken.
   - All pre-clearing dieback operational controls have been undertaken.
   - Suitable and unsuitable topsoil zones have been identified.
   - Vegetation and topsoil stockpile locations have been identified.
   - 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 with Main Roads incident management system and reviewed by Main Roads Manager Environment.

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