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WESTERN AUSTRALIA

Clearing Assessment Report – CPS 818

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Western Australia.*

Forrest Highway (H057) and Wellesley Road
Southbound Acceleration Lane

October 2022

EOS# 2857

Contents

1	PURPOSE	3
2	SCOPE	3
2.1	Project Scope	3
2.2	Alternatives to Native Vegetation Clearing Considered During Proposal Development.....	8
2.3	Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts	8
2.4	Approved Policies and Planning Instruments	10
3	SUMMARY OF SURVEYS	11
3.1	Targeted and Detailed Flora and Vegetation Survey.....	11
3.2	Summary of Targeted and Detailed Flora and Vegetation Survey.....	11
4	VEGETATION DETAILS	13
4.1.1	Project Site Vegetation Description.....	13
4.1.2	Vegetation Complexes and Representation.....	13
5	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES.....	14
6	ADDITIONAL ACTIONS REQUIRED	23
7	STAKEHOLDER CONSULTATION	25
8	VEGETATION MANAGEMENT	26
9	REFERENCES	27

Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Environment Officer	Draft v1	24/10/2022
Reviewer:	Senior Environment Officer	Rev 0	27/10/2022
Author:	Environment Officer	Rev A	01/11/2022

1 PURPOSE

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the project, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

2 SCOPE

2.1 Project Scope

Project Name: Forrest Highway/ Wellesley Road Southbound Acceleration Lane

Project Purpose / Components: There are a number of commercial extractive pits within the Kemerton Industrial Area and its buffer zone, with heavy vehicles often utilising the Wellesley Road / Forrest Highway intersection to transport materials throughout the region. Main Roads is currently extracting sand from its own pit on Runnymede Road (off Wellesley Road) for various regional projects. This is currently resulting in approximately 30 additional road trains and further semi-trailer sized vehicles turning left out of Wellesley Road onto Forrest Highway (Southbound) per hour.

There have been numerous incident reports of near misses with trucks pulling out onto Forrest Highway and southbound vehicles on the highway almost having rear end crashes. Although this particular haulage campaign is only temporary (expected to be finished mid 2024), the area is recognised as a regionally significant basic raw material area and there are several other current and likely future resource locations planning to utilise Wellesley Road for hauling. Hence there is a need for a long term solution for this location to be identified.

The Proposal will involve the construction of a turn pocket on Wellesley Road and 600 metre acceleration lane on Forrest Hwy to facilitate the safer entrance of trucks carting materials from the Kemerton Industrial Area to the wider Bunbury area.

Project Location(s): The Proposal area is located on Forrest Hwy 68.2 – 67.3 SLK and Wellesley Road 12.45 – 12.6 SLK, Shire of Harvey as shown in Figure 1.

Study Area: The assessment area is confined to a local area of a 5 km as shown in Figure 2.

The proposed clearing undertaking using CPS 818 is: 0.06 hectares (ha) as shown in Figure 3a and 3b.

The proposed temporary clearing undertaking using CPS 818 is: None

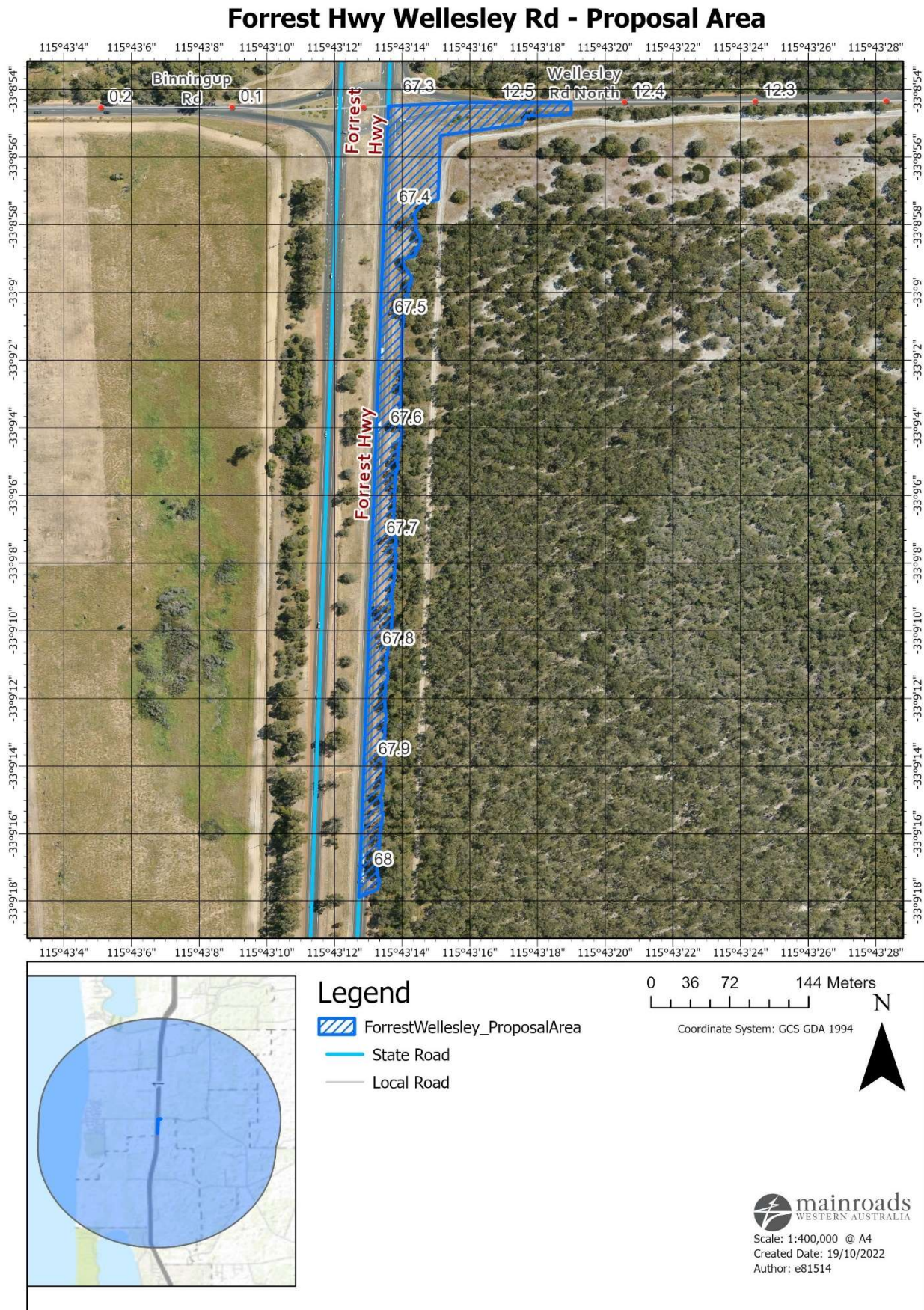


Figure 1. Project Area

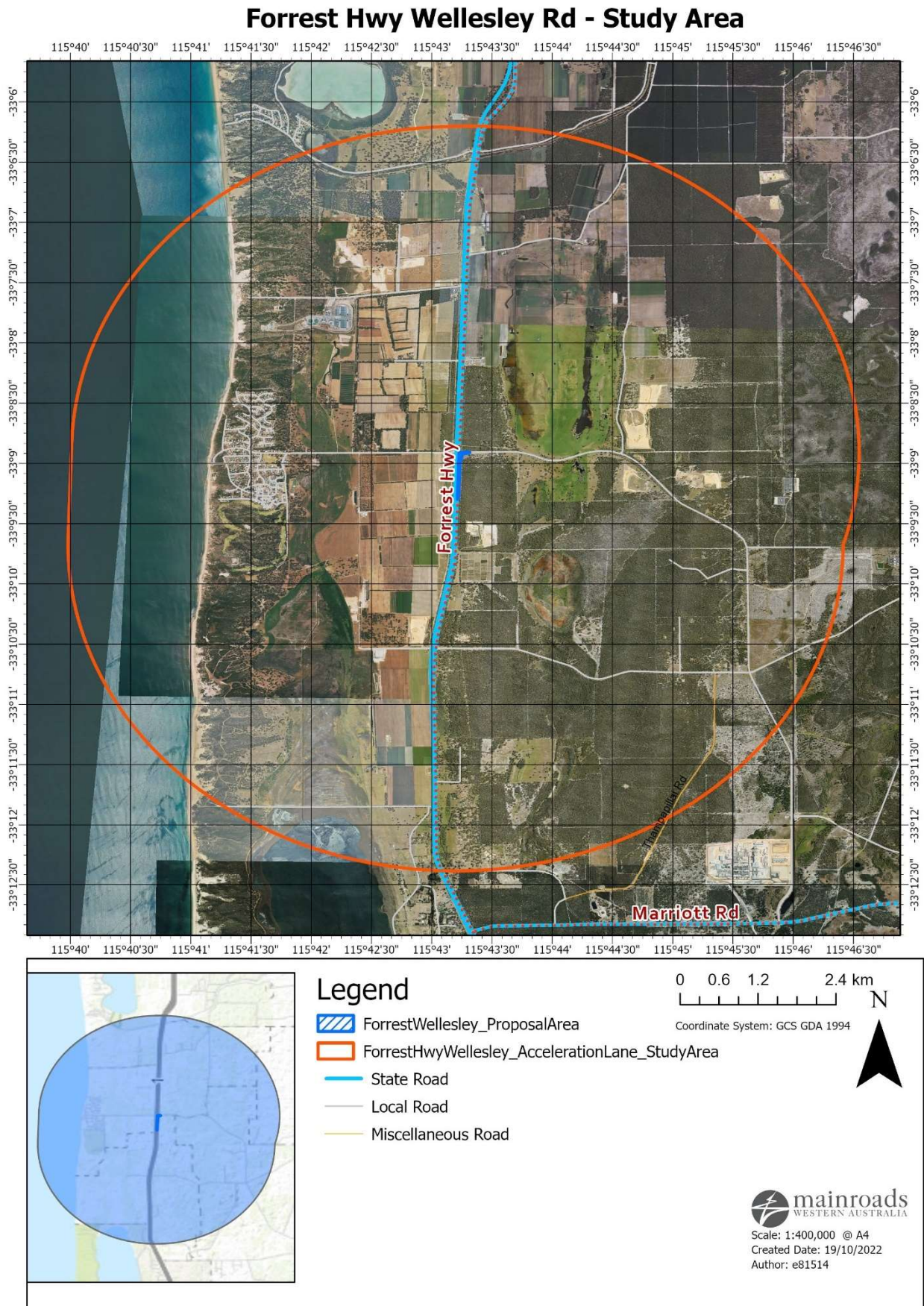


Figure 2. Assessment Area

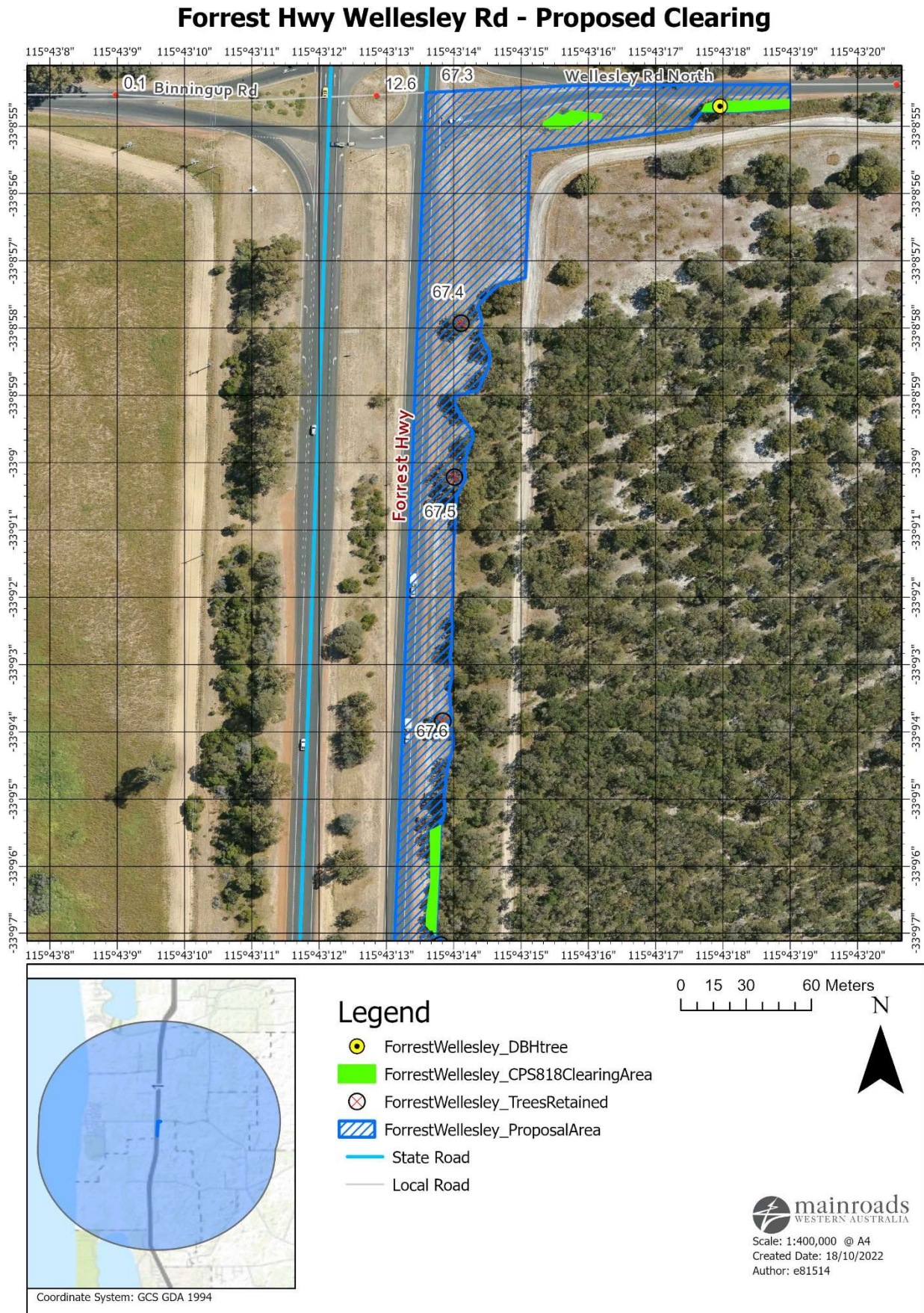


Figure 3a. Proposal Area and Clearing area under CPS818

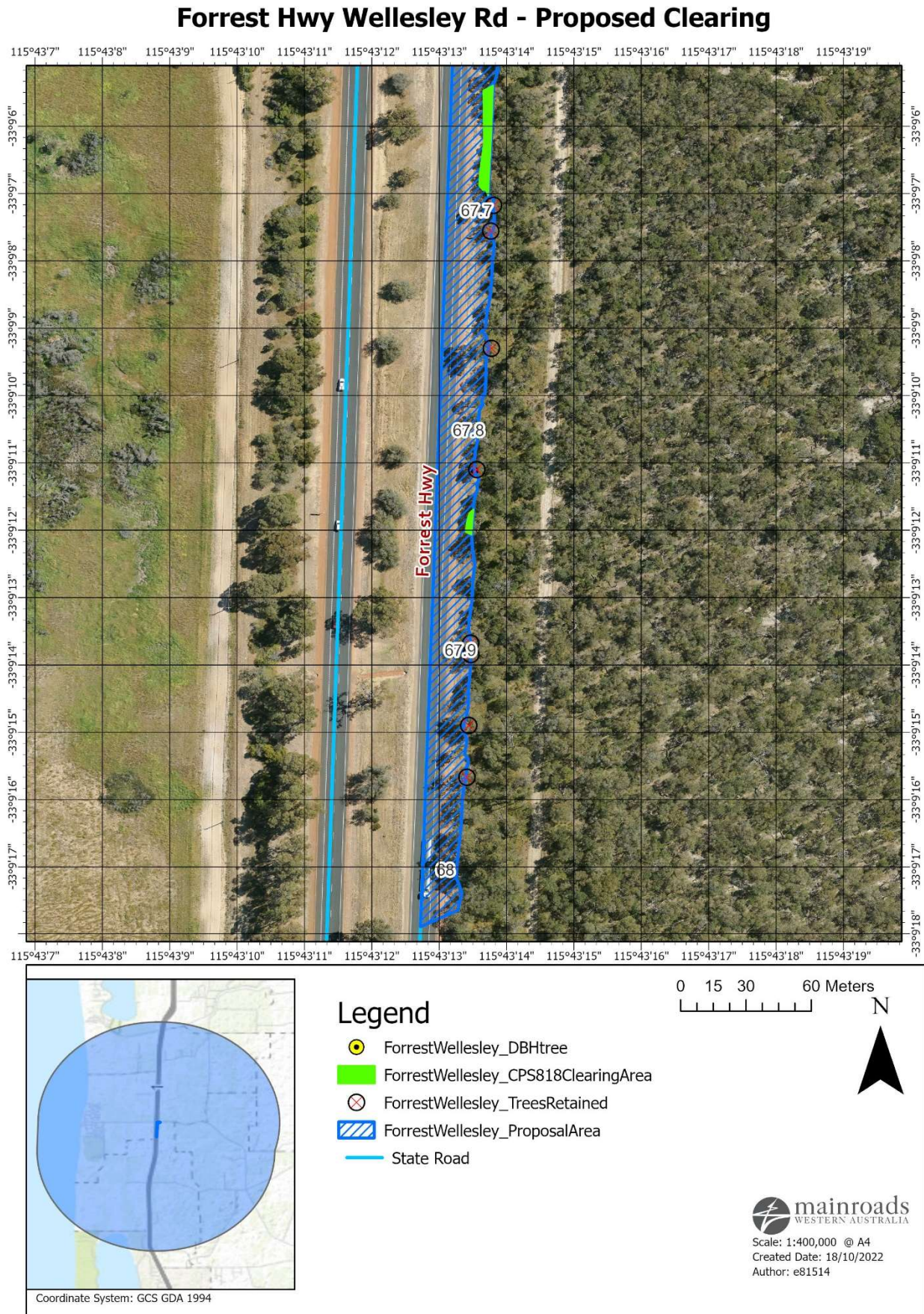


Figure 3b. Proposal Area and Clearing area under CPS818

2.2 Alternatives to Native Vegetation Clearing Considered During Proposal Development

Due to the nature of the safety concerns and location of the Proposal, there were no suitable alternatives to achieve the required safety improvements at the intersection.

2.3 Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts

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

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

Design or Management Measure	Discussion and Justification
Alignment to one side of existing road	Due to the nature of the works, the acceleration lane can only be aligned to the inside turn pocket at the intersection of Forrest Highway and Wellesley Road. No clearing within the median of Forrest Hwy is proposed.
Alternative alignment located within pasture or degraded areas	There is no alternate location within pasture or degraded areas of vegetation adjacent to the proposed alignment. All land to the east of the proposed design alignment is densely vegetated and any shift in this direction would only increase the required clearing.
Simplification of design to reduce number of lanes and/or complexity of intersections	Due to the significant traffic volumes on Forrest Highway, it is not possible to reduce the number of lanes past this location to use an existing lane as an acceleration lane. Furthermore due to the size and configuration of heavy vehicles using Forrest Highway reduction in lane widths to reduce the required pavement construction is also not possible without resulting in significant safety implications.
Steepen batter slopes	The batters on both Forrest Highway and Wellesley Road have been steepened significantly to reduce the required clearing footprint for the works. Batters on Forrest Highway have been designed at 2.5:1 and batters on Wellesley Road at 2:1 in order to bring the toe of batter within the maintenance zone where possible. This has reduced the overall clearing footprint from the original design by more than half.
Installation of barriers	Installation of barrier would allow for construction of 2:1 batters along Forrest Highway (2:1 being the steepest batter than can physically be constructed), however due to the required pavement construction behind the barrier, this would likely increase the clearing footprint a further 400 mm away from the road. Due to the length of the acceleration lane, allowances would also need to be made for a widened shoulder section (emergency stopping location) in front of the barrier, which would again require an increased clearing footprint in that location.
Installation of kerbing	Due to the very flat longitudinal grade on Forrest Highway at this location, installation of kerbing would likely result in pooling water spreading into the acceleration lane in heavy rainfall events (grade too flat for water to flow away to kerb openings quick enough). Kerbing is provided at the corner itself however not longitudinally down Forrest Highway.
Use of existing cleared areas for access tracks, construction storage and stockpiling	All stockpile locations and access tracks into the site are already cleared. No additional clearing is required at all for these purposes.
Drainage modification	The longitudinal drains on Forrest Highway and Wellesley Road have been reduced to 150 mm (from 300 mm) and has been design at a grade of 4:1 (from 8:1). This has allowed for approximately 600 mm less width in the clearing footprint over the length of the project.
Other	Following the Flora and Vegetation survey a surveyor was commissioned to undertake a pick-up of the maintenance zone along Wellesley Road and Forrest Hwy. This was specifically undertaken to ensure data accuracy did not result in a net over, or under-estimate of the impact to sensitive environmental aspects.

2.4 Approved Policies and Planning Instruments

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), Main Roads has also had regard to the below instruments.

Other Legislation of relevance for assessment of clearing and planning/other matters

- Biodiversity Conservation Act 2016 (WA) (BC Act)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Country Areas Water Supply Act 1947 (WA) (CAWS Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Planning and Development Act 2005 (WA) (P&D Act)
- Soil and Land Conservation Act 1945 (WA)
- Rights in Water and Irrigation Act 1914
- Aboriginal Heritage Act 1972 (WA)
- Town Planning and Development Act 1928

Environmental Protection Policies

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

Other Relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, August 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities
- Approved Recovery Plans for threatened species
- EPBC Act Referral guidelines for the three threatened black cockatoo species
- Strategic advice - EPA

3 SUMMARY OF SURVEYS

3.1 Targeted and Detailed Flora and Vegetation Survey

Survey Area: The total surveyed area was approximately 145.8 ha, of which 58.9 ha was native vegetation. The survey was undertaken along sections of Forrest Highway between 40 – 68.85 across four intersection in the Shires of Harvey and Waroona:

- Forrest Highway/ Preston Beach Road
- Forrest Highway/ Forestry Road
- Forrest Highway/ Myalup Beach Road
- Forrest Highway/ Binningup Road/ Wellesley Road

The survey areas are roughly 100 metres wide.

Type: The level of survey specified by Main Roads for each intersection is outlined below.

- Forrest Highway/ Preston Beach Road - detailed and targeted flora survey.
- Forrest Highway/ Forestry Road - reconnaissance and targeted flora survey.
- Forrest Highway/ Myalup Beach Road - reconnaissance and targeted flora survey.
- Forrest Highway/ Binningup Road - detailed and targeted flora survey.

Timing: The flora and vegetation survey was undertaken on 27 September, 8 and 22 October, 5, 6, 16 and 17 November 2021 and 4 May 2022

Shapefile TRIM Ref: D22#662128

Document TRIM Ref: D22#662091 and D22#662101

3.2 Summary of Targeted and Detailed Flora and Vegetation Survey

Ecoedge Environmental Services (Ecoedge) was engaged by Main Roads Western Australia (Main Roads) in July 2021 to undertake a flora and vegetation survey at four intersections along Forrest Highway.

1. Forrest Highway/ Preston Beach Road
2. Forrest Highway/ Forestry Road
3. Forrest Highway/ Myalup Beach Road
4. Forrest Highway/ Binningup Road/ Wellesley

Main Roads is upgrading these intersections to reduce traffic congestion and improve safety and required the survey to inform environmental impact assessment and approvals processes that might be required as part of this project.

The flora and vegetation survey was undertaken on 27 September, 8 and 22 October, 5, 6, 16 and 17 November 2021 and 4 May 2022 in accordance with the Environmental Protection Authority (EPA) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016). The total area surveyed was approximately 145.8 hectares (ha), of which 58.9 ha was native vegetation.

Two hundred and thirty-three vascular flora taxa were found within the survey areas, of which 62 were introduced species. Four significant taxa were found within the survey area:

- *Acacia* sp. Binningup (G. Cockerton et al. WB 37784) – Priority 1.
- *Lasiopetalum membranaceum* - Priority 3.
- *Caladenia speciosa* - Priority 4.
- *Bossiaea ornate* - significant range extension.

The residual post-survey likelihood of occurrence for the other sixty-two significant taxa was rated as “unlikely”.

The Declared Pest plants **Asparagus asparagoides* (Bridal Creeper) and **Solanum linnaeanum* (Apple of Sodom) were found at the Binningup Road / Wellesley Road survey area.

Four vegetation units were identified within the survey area, all representing partially or completely occurrences of the 'Banksia Woodlands of the Swan Coastal Plain' and the 'Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain' Commonwealth-listed TEC and State-listed PECs.

The proportion of the vegetation within various condition classes varied widely between the four sites. At Binningup Road / Wellesley Road, 63% was in Good-or-better condition, and at Preston Beach Road, the proportion was 82%. By contrast, at the Myalup Beach Road and Forestry Road survey areas, virtually all vegetation was Degraded or Completely Degraded.

Two vegetation complexes are mapped to occur across the four survey areas, the Yoongarillup Complex, the Vasse Complex. The survey area vegetation is characteristic of these complexes in terms of dominant species and structure. The Yoongarillup Complex exceeds the state-wide 30% pre-European extent retention target, whereas the Bassendean Complex - Central and South does not meet the retention target.

Two of Beard's vegetation associations, Association 6 and Association 998, are also mapped across the survey areas. The vegetation units described for the survey areas are also a reasonable match for the 'broad described' description of the Associations. Association 998 exceeds the state-wide pre-European extent 30% retention target; however, Association 6 does not meet the retention target. Vegetation within the Preston Beach Road, Myalup Beach Road and Binningup Road / Wellesley Road survey areas forms part of formally mapped regional ecological linkages. The Forestry Road survey area is not recognised as part of a formally mapped ecological linkage.

The entire Preston Beach Road survey area is encompassed by an ESA associated with conservation category wetlands associated with the Yalgorup Wetlands system. There are no ESAs within or in close proximity to the Forestry Road, Myalup Beach Road and Binningup Road / Wellesley Road survey areas.

The Preston Beach Road survey area intersected at two locations by a Ramsar wetland boundary. The first intersection comprises 0.289 ha, which comprises road and cleared maintenance zone. The second intersection is 0.057 ha in size and comprises 0.009 ha of vegetation Unit C in Very Good condition with the balance (0.048 ha) comprising firebreak.

The buffer of a conservation category dampland wetland (Unique Feature Identifier (UFI): 3014) associated with the Yalgorup wetlands system intersects the Preston Beach Road survey area just west of the Forrest Highway for approximately 84 m along Preston Beach Road. There is no vegetation mapped within this intersection area. It comprises only of road and the cleared road shoulders and maintenance zone. This is the only geomorphic wetland of the SCP mapped to intersect the four survey areas.

4 VEGETATION DETAILS

4.1.1 Project Site Vegetation Description

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

For a full description of the existing vegetation, refer to the Site Inspection Report in Appendix A.

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

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 998 described as a Medium woodland; tuart (Government of Western Australia, 2017)	Clearing of up to 0.06 ha for road widening and construction of an acceleration lane at Forrest Hwy/ Wellesley Road intersection	Good to Very Good condition (EPA 2016; Ecoedge 2022)	Vegetation description and condition determined from Flora and Vegetation Survey (Ecoedge, 2022).

Table 3. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 998	Statewide	51,015.33	18,492.63	36.25	48.68
	IBRA Bioregion Swan Coastal Plain	50,867.50	18,492.32	36.35	48.68
	IBRA Sub-region Perth	50,867.50	18,492.32	36.35	48.68
	Local Government Authority Shire of Harvey	11,289.35	3,644.91	32.29	48.18

4.1.2 Vegetation Complexes and Representation

Table 4. Vegetation Complexes (Hedde/Mattiske) within the Project Area

Hedde/Mattiske Veg Complex	Pre-European Extent (ha)	2013 Vegetation Extent	% Remaining
Yoongarillup Complex - 56	27,977.93	10,018.14	35.81

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the project's proposed clearing is likely to have a significant impact on the environment, the project was assessed against the ten Clearing Principles (Environmental Protection Act 1986, Schedule 5).

Each principle has been assessed in accordance with DWER's 'A Guide to the Assessment of Applications to Clear Native Vegetation' and other relevant CPS Decision Reports prepared by DWER.

The proposed clearing is not likely to be at variance with the 10 Clearing Principles.

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

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

Comment

The area proposed to be cleared is up to 0.06 ha of roadside vegetation, mapped as (Ecoedge, 2022):

- Vegetation Unit A - 0.05 ha in Good to Very Good condition: *Eucalyptus marginata* (*E. gomphocephala*) medium open woodland over *Agonis flexuosa*, *Banksia attenuata* low woodland over *Acacia saligna*, *Hibbertia cuneiformis*, *Jacksonia sternbergiana*. Isolated tall shrubs over *Acacia pulchella* var. *glaberrima*, *Bossiaea eriocarpa*, *Gompholobium tomentosum*, *Xanthorrhoea brunonis*. Low open shrubland over *Conostylis aculeata* subsp. *aculeata*, *Corynotheca micrantha*, *Dichopogon capillipes*, *Lomandra micrantha*, *Patersonia occidentalis*, *Sowerbaea laxiflora* forbland, *Austrostipa campylachne*, **Briza maxima*, *Microlaena stipoides*. Very Open Grassland and *Desmocladius flexuosus*, *Lepidosperma squamatum* very open sedgeland on grey-brown sand.
- Vegetation Unit Ad - 0.01 ha in Degraded condition: *Eucalyptus gomphocephala* medium woodland over *Agonis flexuosa* (*Banksia attenuata*). Low open woodland over isolated **Calothamnus quadrifidus*, *Kunzea glabrescens*. Tall shrubs over **Avena fatua*, **Bromus diandrus*, **Cynodon dactylon*, **Ehrharta calycina* grassland.

Ecoedge (2022) determined that the survey area included vegetation representative of the Banksia Woodlands of the SCP Commonwealth-listed Threatened Ecological Community (TEC) and State Priority Ecological Community (PEC) and Tuart (*E. gomphocephala*) Woodlands and Forests of the SCP Commonwealth-listed TEC (Tuart Woodland TEC), State PEC. Out of the 0.06 ha of proposed clearing, 0.05 ha is Banksia Woodlands TEC/PEC, whilst 0.035 ha is Tuart Woodlands TEC/PEC (Figure 4a and 4b). Out of the total mapped Banksia Woodlands TEC/PEC within the surveyed road reserve at the intersection, only 0.83% is proposed for removal. Furthermore of the total mapped Tuart Woodlands TEC/PEC within the surveyed road reserve at the intersection, only 0.08% is proposed for removal (Figure 5a and 5b).

A Targeted Flora Survey was undertaken as part of the Flora and Vegetation Survey (Ecoedge, 2022). Twenty-nine significant species were identified as having known records within the study area. Of these, five were regarded as likely, six were considered possible, and 18 unlikely to occur within the survey area. One species, *Acacia* sp. Binningup (P1) was recorded within the survey area (Ecoedge, 2022). The proposed clearing intersects two of the 224 records of the species identified within the survey area (Figure 6). The two records equate to an abundance of ten individual plants from a total recorded abundance of 3474 individuals. This equals removal of less than 0.3% of the total records from the Ecoedge (2022) survey area. The removal of 0.3% of the known records from the survey area is not likely to have a significant impact on the local population, nor the persistence of the species as a whole. The post-survey likelihood of occurrence classified all remaining significant species as 'unlikely' to occur within the Proposal area.

According to Main Roads ArcGIS shapefiles there are 27 species of Threatened and priority fauna species, with known records within the study area. Of these species, the following six species were conservatively determined to have suitable habitat within the Proposal area and therefore may occur:

- Carnaby's Cockatoo

- Forest Red-tailed Cockatoo
- Quenda
- South-western Brush-tailed Phascogale
- Western Brush Wallaby
- Western Ringtail Possum

The proposal will result in the removal of vegetation containing Black Cockatoo habitat as outlined below:

- Up to 0.06 ha of native vegetation within the Proposal area may be foraging habitat for the species (Figure 7).
- One Jarrah tree with a DBH > 500 mm, that is potential breeding habitat (Figure 7).
- No trees will be removed that are known roosting sites.
- No trees will be removed that contain hollows.
- No vegetation within 1 km of a known or suspected roost site.
- No vegetation within 12 km of a known black cockatoo nesting site (DBCA-054, DBCA-063).

The Proposal area is approximately 10 km north of the SCP Management Zone for the Western Ringtail Possum and according to Main Roads ArcGIS shapefiles, the species is known from 145 records within the study area. There is 0.04 ha of suitable habitat for the species out of the total 0.06 ha proposed for removal.

The remaining three mammal species have up to 0.06 ha of suitable habitat proposed for removal within the Proposal area.

The removal of up to 0.06 ha of Degraded to Very Good condition native vegetation within a 5 km study area that is approximately 40% vegetated, is not likely to impact conservation significant fauna species. Furthermore the removal of 0.06 ha of native vegetation does not sever any local, nor regional ecological linkages.

Although the Proposal area contains vegetation with biodiversity values, the remaining native vegetation within the survey area (20 ha), is of equal or better value to the 0.06 ha proposed for removal. The Proposal will therefore only require the removal of 0.3% of the vegetation mapped within the survey area. Further, the survey area including the clearing area has similar values to native vegetation occurring more broadly on a local scale, with an estimate 40% vegetated study area. Based on this the vegetation proposed to be removed does not comprise a high level of biological diversity in the local scale, particular considering that the clearing is very small in scale and limited to narrow slivers of vegetation adjacent to an existing road.

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

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
 DBCA shapefiles (accessed 25/10/2022)
 EPA (2016, 2020)
 Main Roads GIS Shapefiles

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

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

Comment

The area proposed to be cleared is up to 0.06 ha of roadside vegetation. The fauna habitat types available match the vegetation units mapped as (Ecoedge, 2022):

- Vegetation Unit A - 0.05 ha in Good to Very Good condition: *Eucalyptus marginata* (*E. gomphocephala*) medium open woodland over *Agonis flexuosa*, *Banksia attenuata* low woodland

over *Acacia saligna*, *Hibbertia cuneiformis*, *Jacksonia sternbergiana*. Isolated tall shrubs over *Acacia pulchella* var. *glaberrima*, *Bossiaea eriocarpa*, *Gompholobium tomentosum*, *Xanthorrhoea brunonis*. Low open shrubland over *Conostylis aculeata* subsp. *aculeata*, *Corynotheca micrantha*, *Dichopogon capillipes*, *Lomandra micrantha*, *Patersonia occidentalis*, *Sowerbaea laxiflora* forbland, *Austrostipa campylachne*, **Briza maxima*, *Microlaena stipoides*. Very Open Grassland and *Desmocladius flexuosus*, *Lepidosperma squamatum* very open sedgeland on grey-brown sand.

- Vegetation Unit Ad - 0.01 ha in Degraded condition: *Eucalyptus gomphocephala* medium woodland over *Agonis flexuosa* (*Banksia attenuata*). Low open woodland over isolated **Calothamnus quadrifidus*, *Kunzea glabrescens*. Tall shrubs over **Avena fatua*, **Bromus diandrus*, **Cynodon dactylon*, **Ehrharta calycina* grassland.

According to Main Roads ArcGIS shapefiles there are 27 species of Threatened and priority fauna species, with known records within the study area. Of these species, the following six species were determined to have suitable habitat within the Proposal area:

- Carnaby's Cockatoo
- Forest Red-tailed Cockatoo
- Quenda
- South-western Brush-tailed Phascogale
- Western Brush Wallaby
- Western Ringtail Possum

The Proposal area is within the likely range and predicted breeding range of Baudin's Black Cockatoo, the known range (including breeding range) for Carnaby's Black Cockatoo and the modelled distribution for the Forest Red-tailed Black Cockatoo. The Proposal area contains foraging and potential future breeding habitat for three Black Cockatoo species. Of the overall proposed native vegetation clearing of 0.06 ha, the proposal will result in the removal of vegetation containing Black Cockatoo habitat as outlined below:

- Up to 0.06 ha of native vegetation within the Proposal area may be foraging habitat for the species (Figure 7).
- One Jarrah tree with a DBH > 500 mm, that is potential breeding habitat (Figure 7).
- No trees will be removed that are known roosting sites.
- No trees will be removed that contain hollows.
- No vegetation within 1 km of a known or suspected roost site.
- No vegetation within 12 km of a known black cockatoo nesting site (DBCA-054, DBCA-063).

Within a local and regional context, the removal of up to 0.06 ha of foraging habitat for Black Cockatoos is unlikely to have a significant impact to the persistence of the species. As depicted in Figure 8, there are significant quantities (approximately 25%) of native vegetation within the study area that is contained within DBCA managed land and other large masses of intact vegetation within the study area protected under the Special Control Area No 2 – Kemerton Industrial Zone Buffer area. The removal of up to 0.06 ha of foraging habitat for Black Cockatoo species, over a 600 m linear strip, adjacent to a busy road and in comparably poorer condition than the intact native vegetation in the study area, is not likely to have a significant indirect impact on any populations of Black Cockatoo or more broadly, the persistence of the species. Given there is only 0.06 ha of potential foraging habit, no known roosts and no suitable breeding trees that are proposed for removal within the DE, project activities are also unlikely to have a significant direct impact on any individuals.

The Proposal area is approximately 10 km north of the SCP Management Zone for the Western Ringtail Possum. Populations within the SCP Management Zone are associated with stands of myrtaceous trees (usually peppermint trees (*Agonis flexuosa*)) growing near swamps, water courses or floodplains, and at topographic low points which provide cooler and often more fertile conditions (DBCA, 2017). Habitat critical to survival comprises long unburnt mature remnant peppermint woodlands with high canopy continuity and high nutrient foliage with minimal periods of summer moisture stress, and habitat connecting patches of remnants (DBCA, 2017). According to Main Roads ArcGIS shapefiles, the species is known from 145 records within the study area. The 0.04 ha of the total 0.06 ha of clearing within the Proposal area, is considered suitable habitat for the species. The removal of up to 0.04 ha of suitable habitat for Western Ringtail Possum,

over a 600 m linear strip, adjacent to a busy road and in comparably poorer condition than the intact native vegetation in the study area, is not likely to have a significant direct or indirect impact on any populations of Western Ringtail Possum or more broadly, the persistence of the species.

The Quenda, South-western Brush-tailed Phascogale and Western Brush Wallaby all potentially have suitable habitat within the proposed clearing area. Quenda inhabit scrubby, often swampy, vegetation with dense cover up to 1 m high and often feeds in adjacent forest and woodland that is burnt on a regular basis. The nearest known record of Quenda is a deceased opportunistic sighting in 2019 near the Forrest Hwy/ Binningup Rd intersection (approximately 30 m from the Proposal area). South-western Brush-tailed Phascogale are largely restricted to forests dominated by *Eucalyptus marginata* (Jarrah). The nearest known record of South-western Brush-tailed Phascogale is more than 2.5 km west of the Proposal area. Western Brush Wallaby prefer tall open forests that supply good grazing, with a particular preference to inhabit open, seasonally damp flat areas with low grasses and open scrubby brushes. The nearest known record of Western Brush Wallaby is more than 3 km east of the Proposal area. The removal of up to 0.06 ha of native vegetation, over a 600 m linear strip, adjacent to a busy road and in comparably poorer condition than the intact native vegetation in the study area, is not likely to have a significant direct or indirect impact on any populations of Quenda, South-western Brush-tailed Phascogale and Western Brush Wallaby or more broadly, the persistence of the species.

The removal of up to 0.06 ha of Degraded to Very Good vegetation within a 5 km study area that is approximately 40% vegetated, is not likely to have an impact on native fauna. Native vegetation clearing associated with the Proposal is unlikely to result in the long term decline or significantly reduce, fauna habitat necessary for the maintenance of fauna populations indigenous to Western Australia. Overall, the vegetation proposed to be cleared is not considered significant habitat for any native fauna.

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

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
 DBCA Shapefiles
 DBCA website
 EPA (2016, 2020)

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

Proposal is not likely to be at variance to this Principle

Comment

Three Threatened species were identified as having known records within the study area. Of these three species all were considered unlikely to occur within the survey area based on expected habitat (Ecoedge, 2022).

A Targeted Flora Survey undertaken as part of the Flora and Vegetation Survey (Ecoedge, 2022) found no Threatened flora species within the Proposal area and the post-survey likelihood of occurrence classified all Threatened flora species as unlikely to occur within the Proposal area.

Based on the above, the clearing of native vegetation is not likely to be at variance with this Clearing Principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
 EPA (2016)
 DBCA ArcGIS shapefiles (Accessed 25/10/2022)

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**Proposed clearing is not at variance to this Principle****Comment**

Ecoedge (2022) survey recorded no state listed Threatened Ecological Communities (TECs) in the proposed clearing area and none are considered likely to occur. Therefore the proposed clearing is not at variance to this Clearing Principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)

DBCA shapefiles (access 25/10/2022)

EPA (2016)

Hedde and Mattiske (2022)

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**Proposed clearing is not likely to be at variance to this Principle****Comment**

The area proposed to be cleared is up to 0.06 ha of roadside vegetation, mapped as (Ecoedge, 2022):

- Vegetation Unit A - 0.05 ha in Good to Very Good condition: *Eucalyptus marginata* (*E. gomphocephala*) medium open woodland over *Agonis flexuosa*, *Banksia attenuata* low woodland over *Acacia saligna*, *Hibbertia cuneiformis*, *Jacksonia sternbergiana*. Isolated tall shrubs over *Acacia pulchella* var. *glaberrima*, *Bossiaea eriocarpa*, *Gompholobium tomentosum*, *Xanthorrhoea brunonis*. Low open shrubland over *Conostylis aculeata* subsp. *aculeata*, *Corynotheca micrantha*, *Dichopogon capillipes*, *Lomandra micrantha*, *Patersonia occidentalis*, *Sowerbaea laxiflora* forbland, *Austrostipa campylachne*, **Briza maxima*, *Microlaena stipoides*. Very Open Grassland and *Desmocladius flexuosus*, *Lepidosperma squamatum* very open sedgeland on grey-brown sand.
- Vegetation Unit Ad - 0.01 ha in Degraded condition: *Eucalyptus gomphocephala* medium woodland over *Agonis flexuosa* (*Banksia attenuata*). Low open woodland over isolated **Calothamnus quadrifidus*, *Kunzea glabrescens*. Tall shrubs over **Avena fatua*, **Bromus diandrus*, **Cynodon dactylon*, **Ehrharta calycina* grassland.

The works require the removal of up to 0.06 ha of degraded roadside vegetation within a 1.64 ha Proposal area. The clearing of native vegetation will occur in a previously disturbed environment to facilitate the widening of Wellesley Road and Forrest Hwy for the construction of the acceleration lane. The vegetation mapped within the Proposal area (Ecoedge, 2022) is representative of the Pre-European Vegetation and Vegetation Complex (Mattiske, 2000) mapping within the Proposal area, as below.

Summary of Project Area's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 998 described as a Medium woodland; tuart (Government of Western Australia, 2017)	Clearing of up to 0.06 ha for road widening and construction of an acceleration lane at Forrest Hwy/ Wellesley Road intersection	Good to Very Good condition (EPA 2016; Ecoedge 2022)	Vegetation description and condition determined from Flora and Vegetation Survey (Ecoedge, 2022).

Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 998	Statewide	51,015.33	18,492.63	36.25	48.68
	IBRA Bioregion Swan Coastal Plain	50,867.50	18,492.32	36.35	48.68
	IBRA Sub-region Perth	50,867.50	18,492.32	36.35	48.68
	Local Government Authority Shire of Harvey	11,289.35	3,644.91	32.29	48.18

Vegetation Complexes (Hedde/Mattiske) within the Project Area

Hedde/Mattiske Veg Complex	Pre-European Extent (ha)	2013 Vegetation Extent	% Remaining
Yoongarillup Complex - 56	27,977.93	10,018.14	35.81

According to the Pre-European Vegetation Association and Vegetation Complex mapping, the percentage of vegetation remaining does not fall below the regional threshold of 30%. The minor clearing adjacent to an existing road corridor will not further dissect any local or regional ecological linkage (refer to Figure 2 for further detail).

Based on the above, the vegetation proposed to be cleared is not significant as a remnant of native vegetation in an area that has been extensively cleared. Therefore, the proposed clearing of native vegetation is not likely to be at variance with this Clearing Principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
EPA (2016)
Government of Western Australia (2017)

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

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

Comment

The proposed clearing area does not intersect any wetlands or watercourses and the vegetation units proposed to be cleared are not riparian in nature (Ecoedge, 2022):

- Vegetation Unit A - 0.05 ha in Good to Very Good condition: *Eucalyptus marginata* (*E. gomphocephala*) medium open woodland over *Agonis flexuosa*, *Banksia attenuata* low woodland over *Acacia saligna*, *Hibbertia cuneiformis*, *Jacksonia sternbergiana*. Isolated tall shrubs over *Acacia pulchella* var. *glaberrima*, *Bossiaea eriocarpa*, *Gompholobium tomentosum*, *Xanthorrhoea brunonis*. Low open shrubland over *Conostylis aculeata* subsp. *aculeata*, *Corynotheca micrantha*, *Dichopogon capillipes*, *Lomandra micrantha*, *Patersonia occidentalis*, *Sowerbaea laxiflora* forbland, *Austrostipa campylachne*, **Briza maxima*, *Microlaena stipoides*. Very Open Grassland and *Desmocladius flexuosus*, *Lepidosperma squamatum* very open sedgeland on grey-brown sand.
- Vegetation Unit Ad - 0.01 ha in Degraded condition: *Eucalyptus gomphocephala* medium woodland over *Agonis flexuosa* (*Banksia attenuata*). Low open woodland over isolated **Calothamnus quadrifidus*, *Kunzea glabrescens*. Tall shrubs over **Avena fatua*, **Bromus diandrus*, **Cynodon dactylon*, **Ehrharta calycina* grassland.

Given works will not require the removal of vegetation growing in, or in association with, an environment associated with a watercourse or wetland, the proposed clearing of native vegetation is not at variance with this Clearing Principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
DWER and DBCA shapefiles

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

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

Comment

The soil within the proposal area are mapped as Spearwood S2c phase "Lower slopes (1-5%) of dune ridge with bleached or pale sands with a yellow-brown or pale brown subsoil. Usually occurs on the eastern edge of the Spearwood Dunes" (Ecoedge, 2022). Construction of the Proposal require the removal of up to 0.06 ha of roadside vegetation within a 1.64 ha Proposal area.

The sandy soils known to the Proposal area are not at risk of flooding due to their well-draining nature. The removal of the vegetation is therefore unlikely to cause waterlogging or water erosion. Whilst the proposed clearing will temporarily increase the risk of wind erosion, the scale of this is very small and due to the sealing of the acceleration lane, the overall unvegetated areas present within the road reserve will decrease following implementation of the Proposal, therefore reducing the risk of wind erosion in the long term.

According to Australian Soil Resource Information Systems (ASRIS) mapping, the Proposal area is within an area of extremely low risk of acid sulfate soil occurrence. Works do not require any dewatering, nor excavations below the water table. The removal of 0.06 ha of native vegetation will not result in acidification of the Proposal area or surrounding local environment.

The clearing will occur in a previously disturbed, roadside environment and includes the reinstatement of roadside drainage. The proposed clearing is very minor in scale and located in a highly modified environment and is therefore not likely to cause appreciable land degradation. Given this the proposed clearing of native vegetation is not at variance with this clearing principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)
ASRIS (Accessed 25/10/2022)

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

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

Comment

A search of ArcGIS shapefiles indicates no nature reserves, conservation areas or Bush Forever Sites located within 100 metres of the proposal area. The nearest DBCA Managed Land is approximately 1 km south east of the Proposal area. The road reserve does immediately abut the 'Special Control Area No 2 – Kemerton Industrial Zone Buffer', however works will not enter this zone.

It is not anticipated that the removal of vegetation within the Proposal area will result in direct or indirect impact on Nature Reserves / Conservation Areas / Bush Forever Sites as;

- only 0.06 ha of native vegetation is proposed for removal;

- the nearest parcel of DBCA Managed Land is 1 km away and is therefore unlikely to be impacted in any way;
- standard hygiene measures and construction timing will manage the potential introduction and spread of weeds and dieback;
- the Proposal will tie into existing roadside drainage; and
- no ecological linkages, either locally or regionally will be impacted by the Proposed works.

With the above assessment and management, it is not likely that works will have any direct nor indirect impacts to any conservation area. Therefore, the proposed clearing of native vegetation is not likely to be at variance with this Clearing Principle.

Methodology

DBCA shapefiles
EPA (2016)

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

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

Comment

The works require the removal of up to 0.06 ha of roadside vegetation within the 1.64 ha Proposal area. The clearing will occur in a previously disturbed environment and include reinstatement of existing roadside drainage. The Proposal area is not within Proclaimed Surface Water Area. None of the vegetation proposed for removal is growing in association with a watercourse. Surface water quality is unlikely to be negatively impacted by the removal of up to 0.06 ha of vegetation growing in the road verge.

Furthermore, the removal of up to 0.06 ha of native vegetation is unlikely to impact groundwater levels or quality. Works are within a Proclaimed Groundwater Area, however are not within a Public Drinking Water Source Area. As no abstraction of water is required for the proposal and vegetation clearing is so minor, impact to groundwater levels is not anticipated. Furthermore, the works will not intercept groundwater.

The proposed clearing of native vegetation is not likely to be at variance with this clearing principle.

Methodology

DWER and DBCA shapefiles
EPA (2016)

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

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

Comment

The works require the removal of up to 0.06 ha of roadside vegetation within the 1.64 ha Proposal area. The clearing will occur in a previously disturbed environment to facilitate the widening of Wellesley Road and Forrest Hwy for the construction of the acceleration lane. The additional area of sealed road is unlikely to make a notable difference to the quantity of runoff entering the road drainage system. Roadside drainage will be reinstated adjacent to the newly constructed acceleration lane, tying into the existing roadside drainage.

The soil within the proposal area are mapped as "Lower slopes (1-5%) of dune ridge with bleached or pale sands with a yellow-brown or pale brown subsoil. Usually occurs on the eastern edge of the Spearwood Dunes" (Ecoedge, 2022). The sandy soils known to the Proposal area are not at risk of flooding due to their

well-draining nature. The removal of the vegetation is therefore unlikely to exacerbate the incidence or intensity of flooding.

The clearing of native vegetation is not likely to be at variance with this clearing principle.

Methodology

Flora and Vegetation Survey (Ecoedge, 2022)

6 ADDITIONAL ACTIONS REQUIRED

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

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

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles. Where the clearing is at variance or may be at variance to Clearing Principle (f) and no other Clearing Principle, and the area of the proposed clearing is less than 0.5 hectares in size and the Clearing Principle (f) impacts only relate to: (i) a minor non-perennial watercourse(s); (ii) a wetland(s) classed as a multiple use management category wetland(s); and/or (iii) a wetland that is not a defined wetland; the preparation of an Assessment Report, as required by condition 6(e), is not required.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. The project involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
4 a. Project is within Region that: - Has rainfall greater than 400mm and - Is South of the 26th parallel and - Works are in 'Other than dry conditions' and - Works have potential for uninfested areas to be impacted	No	Proceed with standard Vehicle and Plant management actions from PEMR's and Vehicle and Plant Hygiene Checklists

Impact of Clearing	Yes/No or NA	<i>Further Action Required</i>
4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?	No	No further action required.
5. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback	No	No further action required.
6. The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and weeds likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition	No	No further action required.

7 STAKEHOLDER CONSULTATION

Main Roads has determined that no further stakeholder consultation is required, in accordance with CPS 818/15 Condition 8.

8 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum. Vegetation Management will be incorporated into the CEMP.

9 REFERENCES

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