



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9347/1
File Number: DWERVT8212
Duration of Permit: From 23 October 2021 to 23 October 2028

PERMIT HOLDER

Shire of Waroona

LAND ON WHICH CLEARING IS TO BE DONE

Coronation Road reserve (PIN 11601217), Waroona.

AUTHORISED ACTIVITY

The permit holder must not clear more than 15 native trees within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 23 October 2023

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

3. Vegetation management – revegetation

The permit holder must within 24 months of undertaking clearing authorised under this permit:

- (a) undertake deliberate planting of at least thirty (30) native Marri trees (*Corymbia calophylla*) within the area cross-hatched red in Figure 1 of Schedule 2 that will result in a similar species composition, structure and density of native vegetation to pre-clearing in that area;
- (b) ensure only *local provenance* propagating material of *Corymbia calophylla* is used;
- (b) ensure *planting* is undertaken at the *optimal time*;
- (c) ensure *plantings* are of a suitable size of at least one metre in height;
- (d) undertake weed control and watering of plantings for at least three years post *planting*;
- (e) the permit holder must within 24 months of planting the at least thirty (30) native Marri trees in accordance with condition 3(a) of this permit;
 - (i) engage an *environmental specialist* to make a determination that the at least thirty (30) native trees will survive; and
 - (ii) if the determination made by the *environmental specialist* under condition 3(e)(i) that at least thirty (30) native trees will not survive, the permit holder must plant additional native trees that will result in at least thirty (30) native trees persisting within the area crosshatched red in Figure 1 of Schedule 2.
- (e) where additional *planting* of native trees is undertaken in accordance with condition 3(e)(ii), the permit holder must repeat the activities required by condition 3(b), 3(c) and 3(d) of this permit.

4. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

| No. | Relevant matter | Specifications |
|-----|---|--|
| 1. | In relation to the authorised clearing activities generally | <ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the number of native trees cleared; and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2 of this permit. |

| No. | Relevant matter | Specifications |
|-----|---|--|
| 2. | In relation to vegetation management- <i>revegetation</i> | <p>(a) <i>revegetation</i> activities undertaken in accordance with condition 3 of this permit including:</p> <p>(i) the date that <i>revegetation</i> activities commenced;</p> <p>(ii) the number of <i>plantings</i>;</p> <p>(iii) the species planted, including the numbers of each species planted;</p> <p>(iv) weed control and watering activities undertaken;</p> <p>(v) determinations by an <i>environmental specialist</i>;</p> <p>(vi) the date and activities undertaken where additional <i>plantings</i> are required.</p> |

5. Reporting

- (a) The permit holder must provide to the *CEO*, on or before 31 December of each calendar year, a report containing:
- i. The records required to be kept under condition 4; and
 - ii. Records of activities done by the permit holder under this permit between 1 July of the preceding calendar year and 30 June of the current calendar year.
- (b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 31 December of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to expiry date of the permit, a written report of records required under condition 4, where these records have not already been provided under condition 5(a).

DEFINITIONS

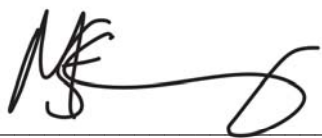
In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

| Term | Definition |
|------------------|--|
| <i>CEO</i> | Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> . |
| <i>clearing</i> | has the meaning given under section 3(1) of the EP Act. |
| <i>condition</i> | a condition to which this clearing permit is subject under section |

| Term | Definition |
|---------------------------------|--|
| | 51H of the EP Act. |
| <i>environmental specialist</i> | means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist. |
| <i>EP Act</i> | <i>Environmental Protection Act 1986 (WA)</i> |
| <i>local provenance</i> | means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared. |
| <i>native vegetation</i> | has the meaning given under section 3(1) and section 51A of the EP Act. |
| <i>optimal time</i> | means the period from May to July for undertaking <i>planting</i> . |
| <i>planting</i> | means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species. |
| <i>revegetate/ed/ion</i> | means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area. |

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

29 September 2021

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (

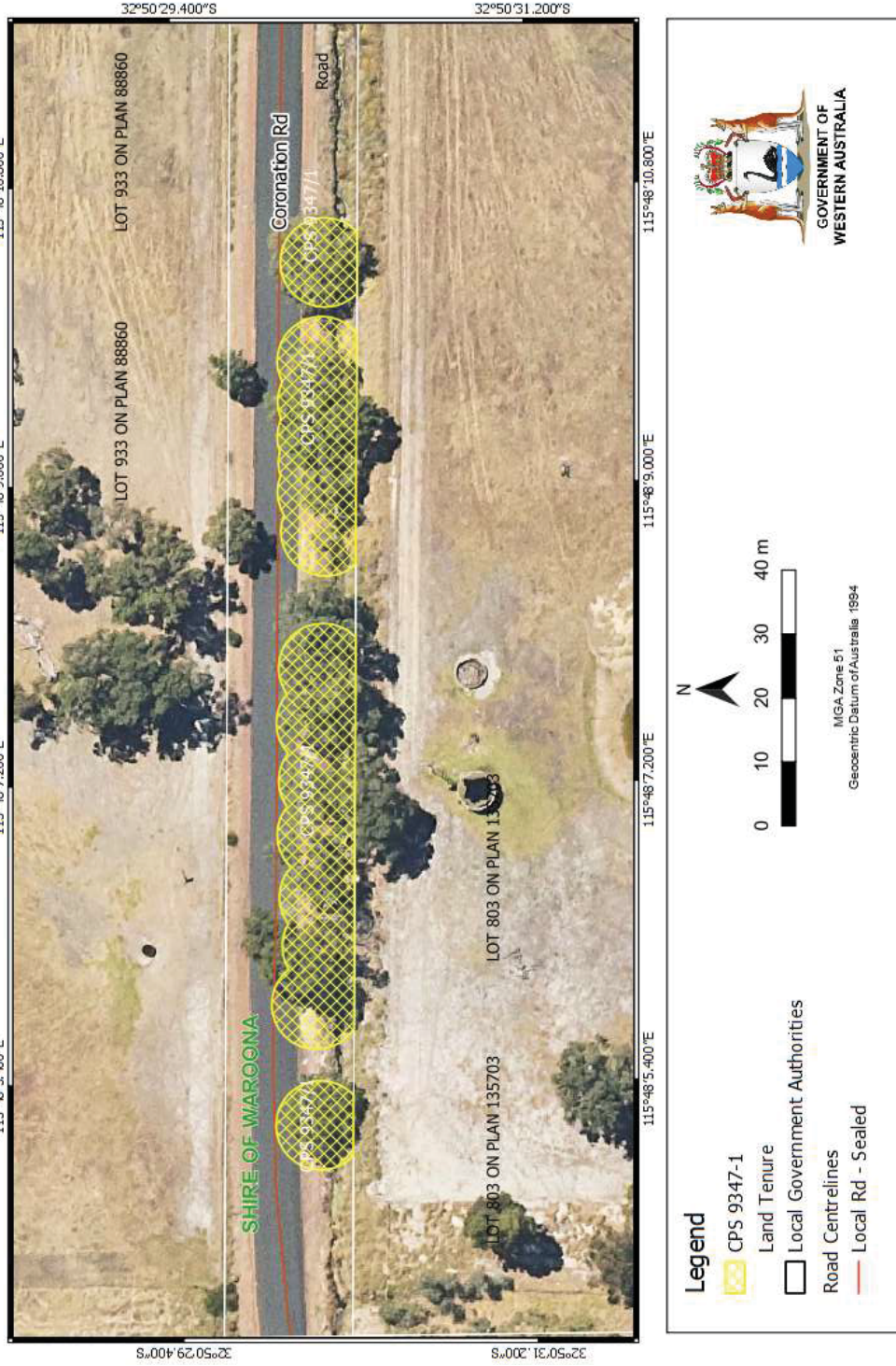


Figure 1).

CPS 9347/1, 29 September 2021

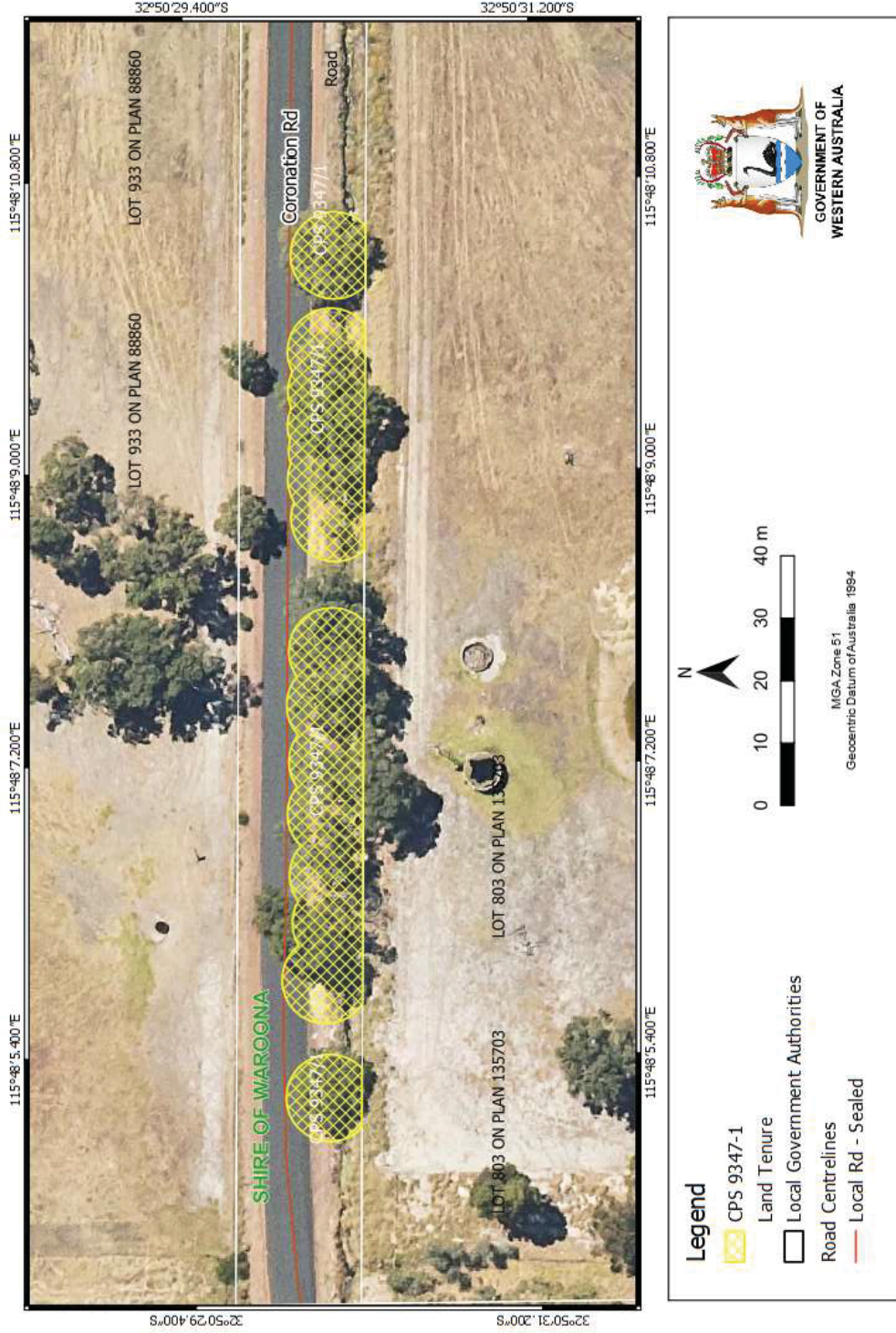


Figure 1: Map of the boundary of the area within which *clearing* may occur

SCHEDULE 2

The boundary of the area where specific conditions apply is shown in the map below (Figure 1)

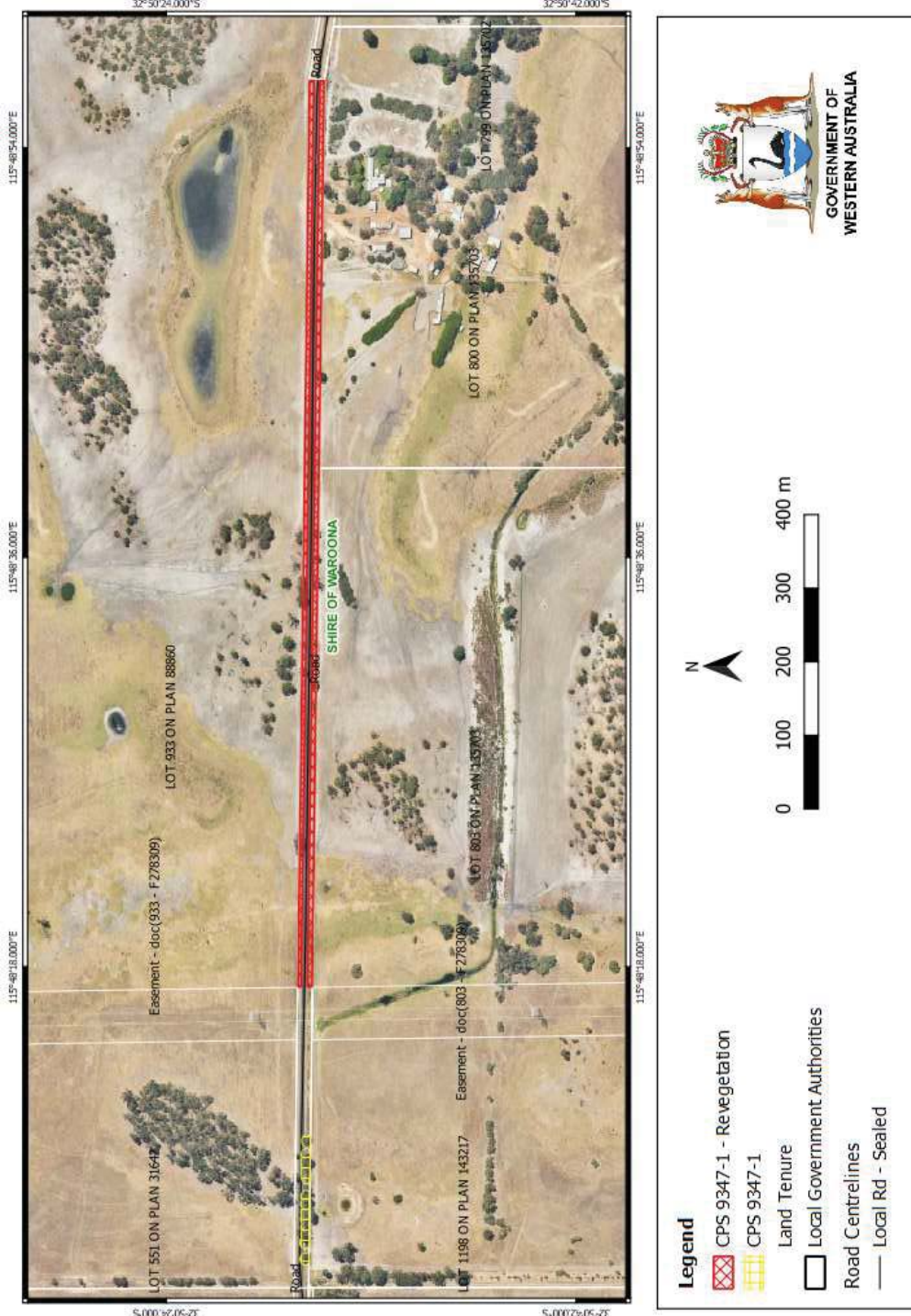


Figure 1: Map of the boundaries of the areas where specific conditions apply – Revegetation



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

| | |
|------------------------------|--|
| Permit number: | CPS 9347/1 |
| Permit type: | Area permit |
| Applicant name: | Shire of Waroona |
| Application received: | 05 July 2021 |
| Application area: | 15 native trees |
| Purpose of clearing: | Road construction and upgrades |
| Method of clearing: | Mechanical clearing and professional tree loppers. |
| Property: | Coronation Road reserve (PIN 11601217), Waroona |
| LGA area: | Shire of Waroona |
| Localities: | Waroona |

1.2. Description of clearing activities

Clearing of 15 trees is required to enable the realignment of Coronation Road. Coronation Road is a commodity route used as a main passage for motorist from Waroona to the Forest Highway. The current road width is seven metres with works comprising the realignment of bends to improve road safety.

1.3. Decision on application and key considerations

| | |
|-----------------------|--|
| Decision: | Granted |
| Decision date: | 29 September 2021 |
| Decision area: | 15 native trees as depicted in Section 1.5 (Figure 1). |

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application and one submissions was received that raised concerns about the amount of native vegetation remaining within the road reserve (Appendix B).

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix C), relevant datasets (Appendix G2), representative photographs of the application area (Appendix F), the clearing principles set out in Schedule 5 of the EP Act (Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (Section 3). The Delegated Officer also took into consideration the purpose of the clearing to improve public safety by upgrading Coronation Road, Waroona.

The assessment identified that the upgrade of Coronation Road will lead to an overall reduction of native vegetation cover in an extensively cleared landscape that also provides foraging habitat to Threatened black cockatoo species.

After consideration of the available information, as well as the applicant's avoidance, minimisation, and mitigation measures (Section 3.1), the Delegated Officer determined the proposed clearing can be managed to be unlikely to lead to an unacceptable risk to environmental values. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise and reduce the impacts and extent of clearing;
- undertake deliberate planting of at least 30 locally-provenanced Marri (*Corymbia calophylla*) trees within the Coronation Road reserve to mitigate the loss of native vegetation within an extensively cleared landscape that also provides foraging habitat to Threatened black cockatoo species.

1.5. Site map



Figure 1. Map of the application area. The areas in yellow indicate the areas authorised to be cleared under the granted clearing permit.

2. Legislative context

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 (Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Biosecurity and Agriculture Management Act 2007* (BAM Act),
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Shire of Waroona (the Shire) has provided avoidance strategies to minimise environmental impact of the proposed road works.

As part of the 2021/2022 Shire of Waroona road works budget, funds have been allocated to carry out road realignment works along Coronation Road between straight line kilometre (SLK) 10.96 to SLK 11.51. The current road width is seven metres and has been flagged for realignment works with the main aim being the realignment of bends to improve road safety. Funds have been sourced through the Federal Government Roads to Recovery Program (Shire of Waroona 2021b).

The road realignment works include the retaining and reuse of the existing road formation materials which is the most efficient use of funds as it allows the reuse of existing longitudinal drainage without major earthworks, as well as using as much as the existing formation as sub-base as possible (Shire of Waroona 2021b).

The vegetation clearing represented in this application is the worst-case scenario. The Shire has committed to remove only the minimum required. A surveyor was engaged to create survey files to pin-point the location of the selected tree species to assist with the clearing permit assessment (Shire of Waroona 2021b).

To reduce the overall impact the road realignment, the proposed works has purposely been positioned towards a southern alignment reducing the number of impacted trees from 30 native trees down to the 15 native trees (Shire of Waroona 2021b) (Appendix F2). Trees located on the northern section of Coronation Road are outside of the application area and maintenance pruning only may be required. The trees to be retained by applying the revised alignment include eight Marri trees (*Corymbia calophylla*) and seven Melaleuca trees (*Melaleuca preissiana*) (Appendix F3).

To mitigate the loss of 15 native trees, the Shire has committed to the re-planting Marri trees within degraded areas of the Coronation Road reserve at a rate greater than two trees planted for each tree removed, that is, at least 30 trees (Shire of Waroona 2021d).

3.2. Assessment of impacts on environmental values

The assessment against the clearing principles (Appendix D) identified that the impacts of the proposed clearing may present a potential risk to fauna habitat, remnant vegetation and wetlands. The consideration of impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment: Vegetation over the application area consists of 15 scattered Marri trees (*Corymbia calophylla*) over a completely degraded understorey consisting predominantly of exotic grass species (Shire of Waroona 2021c) (Appendix F).

The degraded nature of the native vegetation, and in particular the lack of an understorey, combined with the isolation of the application area from areas of native vegetation in good or better condition excludes the likelihood of the majority of terrestrial fauna of conservation significance occurring over the application area (Appendix C).

Of the vertebrate fauna species of conservation significance identified, the species most likely to occur over the application area are the three vagile species of black cockatoo known from the Perth metropolitan area that could utilise the tree canopy present.

The application area is within the modelled distribution of the Endangered Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Endangered Baudin's Cockatoo (*Calyptorhynchus baudinii*), and the Vulnerable Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*). Baudin's Cockatoo is more commonly associated with the forests of the Jarrah Forest Bioregion (JAF) approximately 11 kilometres to the south, with Carnaby's Cockatoo more commonly associated with the Swan Coastal Plain. This is reflected in the records of black cockatoo sightings within the local area, with 253 records for Carnaby's Cockatoo and just four records for Baudin's Cockatoo. The Forest Red-tailed Black Cockatoo has become more commonly sighted on the Swan Coastal Plain in recent decades.

Black cockatoo habitat can be considered in terms of breeding habitat, night-roosting habitat, and foraging habitat (Commonwealth of Australia 2017). Food resources within the range of breeding sites and roost sites are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites particularly within six kilometres of an impact area (DSEWPaC 2012), and up to 12 kilometres (Commonwealth of Australia 2017). Night-roosts are usually located in the tallest trees of an area, and in close

proximity to both a food supply and surface water (DAWE 2021; Le Roux 2017). Black cockatoos show some fidelity to night-roosts, however, not all night-roosts are used in every year (DPaW 2013; Le Roux 2017).

The Marri trees located in the application area do not possess the dimensions to provide breeding opportunities for black cockatoos (Appendix F3). An assessment by the Shire (2021c) as 'No visible signs of nesting or hollows' indicates they are also unlikely to be used as night roost sites due to their relatively small height (Appendix F3).

Five recorded night roosts are located between 8.5 kilometres and 12 kilometres from the application area. Two of these roost sites have been utilised by Carnaby's Cockatoo since 2010, with an additional site utilised by the Forest Red-tailed Black Cockatoo since 2014 (Figure 2).

Forty-three naturally-occurring breeding sites are located between 7.6 kilometres and 12 kilometres from the application area utilised by Carnaby's Cockatoo (Figure 2). Eight artificial hollows have been established in the same area (categorised as potential breeding sites).

No recorded black cockatoo roosting sites or breeding sites occur within six kilometres of the application area.

The quality of black cockatoo foraging habitat to support populations at breeding sites or night roosting sites varies depending upon how black cockatoos utilise the habitat in that particular location. Approximately 7,185 hectares of native vegetation within 12 kilometres of the application area has been mapped as providing potential black cockatoo foraging habitat. This covers approximately 15.75 per cent of the local area (Figure 2), predominantly focussed on large tracts of native vegetation to the west in, and surrounding, Yalgorup National Park, Kooljerrenup Nature Reserve, and the Myalup State Forest. This is also where the active breeding sites and roost sites are located (Figure 2). The one roost site approximately ten kilometres to the north-northeast of the application area has not recorded any roost activity since 2010. The breeding site 11.8 kilometres to the east of the application area is an artificial hollow categorised as a potential breeding site.

Other foraging habitat has been mapped in, and surrounding, Buller Nature Reserve to the south as well as riparian vegetation and floodplains associated with the Harvey River. However, there are no night roosts or breeding sites recorded in, or in close proximity to, these areas.

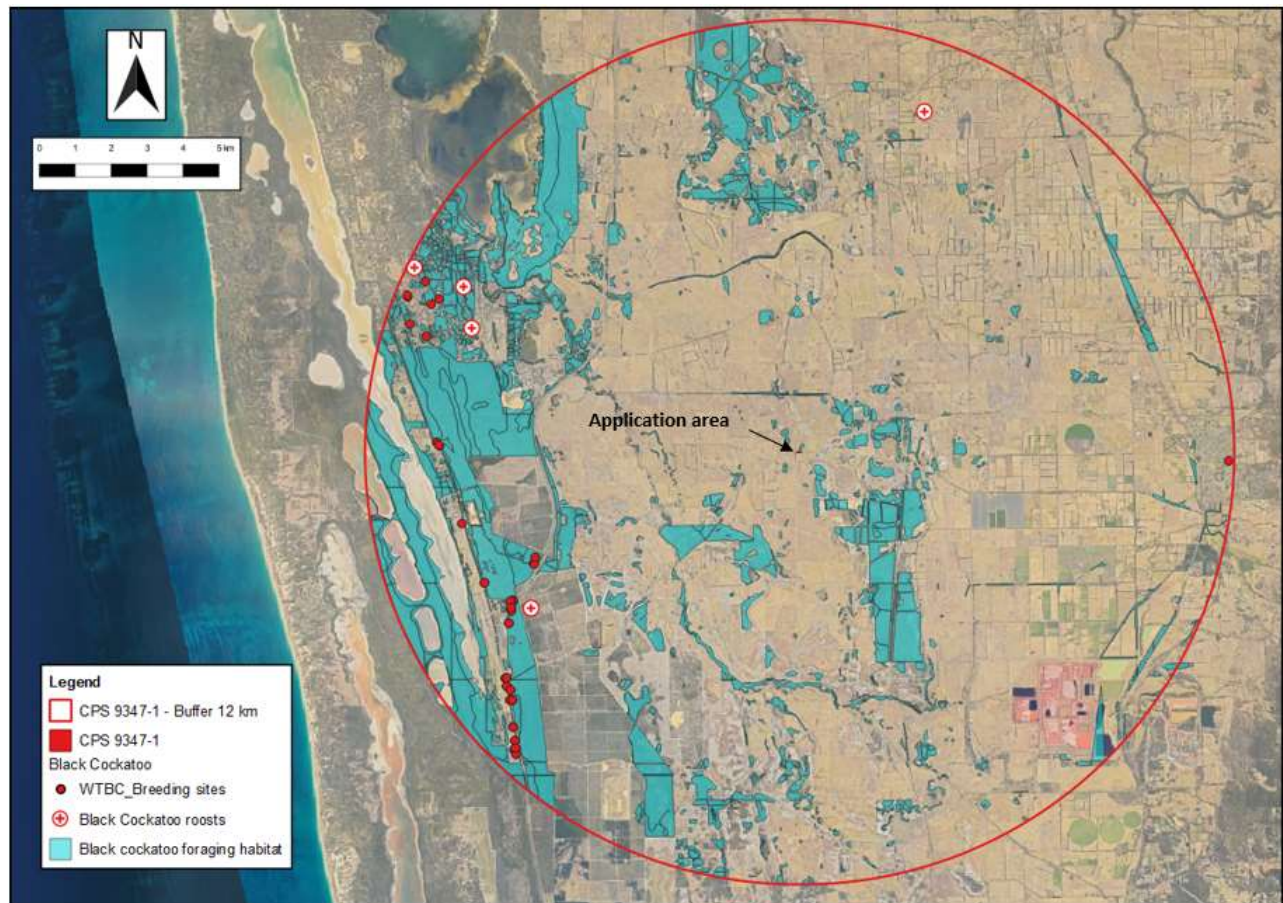


Figure 2. Mapped black cockatoo features within 12 kilometres of the application area

In terms of foraging habitat, the application area is not located within a mapped area requiring investigation as black cockatoo feeding habitat, nor does it qualify as mapped remnant vegetation. Marri fruit are a known food resource for black cockatoos (Bamford 2013; Groom 2011; Valentine and Stock 2008). However due to the location of the trees within the landscape context, it is unlikely that they would provide a significant foraging for roosting and breeding populations over 7.5 kilometres to the west where extensive tracts of native vegetation occurs.

Given the size of the clearing in relation to its position in the landscape, and the location of known roost sites and mapped foraging habitat, it is unlikely that individual marri trees within the application area represent an important foraging resource to support black cockatoo populations utilising known roosts. The Shire has committed to replace native trees removed by planting Marri trees within degraded areas of the Coronation Road reserve at a rate greater than two trees planted for each tree removed (Shire of Waroona 2021d). This will counterbalance the loss of the minor foraging resource impacted by the proposed clearing.

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that potential impacts of the proposed clearing on Threatened species of black cockatoo can be managed by the re-planting of black cockatoo foraging species.

Conditions: To address potential impacts black cockatoo foraging habitat from the proposed road upgrades, the following management measure will be required as a condition on the clearing permit.

- Replant degraded areas of the Coronation Road reserve with locally-provenanced tree species at a ratio of at least 2:1 that include species that provide foraging opportunities for black cockatoos.

3.2.2. Environmental value: significant remnant vegetation – Clearing Principle (e)

Assessment: The national objectives and targets for biodiversity conservation in Australia has a target to prevent the clearance of ecological communities with an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001).

The application area is located within the Swan Coastal Plain IBRA Bioregion, (SWA) as described by Thackway and Cresswell (1995), and the Perth sub-region (SWA02). The Swan Coastal Plain bioregion has approximately 579,814 hectares of native vegetation remaining, equating to approximately 38.6 per cent of its original extent (Government of Western Australia 2019) (Appendix C3).

Regional Swan Coastal Plain vegetation complex descriptions of Heddle *et al.*, (1980) as updated by Webb *et al.* (2016), have been mapped over the application area, with one complex occurring:

- The Cannington Complex (ID 40); described as a mosaic of vegetation from adjacent vegetation complexes of Bassendean, Karrakatta, Southern River, and Vasse.

The main constituents of the Bassendean, Karrakatta, Southern River, and Vasse complexes are Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*), Sheoak (*Allocasuarina fraseriana*) Banksia sp., with Flooded Gum (*Eucalyptus rudis*) and Swamp Paperbark (*Melaleuca raphiophylla*) occurring in more mesic sites (Heddle *et al.* 1980).

The vegetation in the application area consists of Marri trees only, with Swamp Paperbark (*Melaleuca raphiophylla*) occurring in close proximity within the road reserve. The vegetation is in a completely degraded condition (Keighery 1994).

Approximately 11.80 percent of the former extent of the Cannington Complex has been retained (Government of Western Australia 2019) (Appendix C3). That is, below the 30 per cent retention threshold of the Commonwealth of Australia (2001).

Remnant vegetation has been mapped regionally. Within the local area of a 10 kilometre radius of the application area approximately 4,381 hectares of mapped native vegetation remains, or approximately 13.9 per cent of its original extent (Appendix C3; Appendix G – Figure A).

Due to the condition of the vegetation within the application area it not representative of the mapped vegetation complex, and is not considered significant as a remnant of native vegetation.

The 15 Marri trees proposed to be removed will be replaced by the Shire by re-planting Marri trees within degraded areas of the Coronation Road reserve at a rate greater than two trees planted for each tree removed, with the Shire committing to planting 30 native trees (Shire of Waroona 2021d).

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that potential impacts of the proposed clearing on remnant vegetation can be managed by re-planting appropriate species within the Coronation Road reserve.

Conditions: To address potential impacts to remnant vegetation from proposed road upgrades, the following management measure will be required as a condition on the clearing permit.

- Replant degraded areas of the Coronation Road reserve with locally-provenanced Marri trees at a ratio of at least 2:1.

3.2.3. Environmental value: watercourses and wetlands – Clearing Principle (f)

Assessment: No natural drainage lines or watercourses intersect the application area. A man-made drain parallels the southern side of Coronation Road, and the entire application area is located within a mapped geomorphic wetland of the Swan Coastal Plain. That is, a multiple use wetland; Palusplain (UFI 15231) (Appendix C1; Appendix G – Figure C). A palusplain is simply a flat that is seasonally water-logged (Semeniuk and Semeniuk 2004). Multiple use wetlands (UW) are considered wetlands with few remaining important attributes and functions (EPA 2004; EPA 2008; Water and Rivers Commission 2001). The management objective should be to take all reasonable measures to retain the wetland's hydrological function (EPA 2008), but is not incompatible with clearing.

Immediately to the north of the application area on the opposite side of Coronation Road is a mapped geomorphic wetland of the Swan Coastal Plain. That is, a resource enhancement wetland; Dampland (UFI 4398) (Appendix C1; Appendix G – Figure C). A dampland is a basin that is seasonally water-logged (Semeniuk and Semeniuk 2004). Resource enhancement wetlands are those which may have been partially modified but still support substantial attributes and functions. The ultimate objective is to manage, restore and protect them towards improving their conservation value (EPA 2008).

Proposed clearing within the Palusplain of the multiple use wetland is unlikely to contribute to degradation of the mapped wetland. Proposed clearing is minimal, no riparian species are present, and vegetation is in a completely degraded condition. Similarly, proposed clearing is unlikely to negatively impact the adjacent resource enhancement wetland. The cleared area will be replaced with a hard road surface with drainage controls.

Native vegetation of the application area is growing in, or in association with, an environment associated with a mapped wetland. However, the native vegetation of the application area is not considered riparian vegetation and given the location, small scale of clearing, surrounding landscape, and standard methodologies implemented for road construction, it is unlikely that the proposed clearing of the southern side of Coronation Road would negatively impact mapped geomorphic wetlands of the Swan Coastal Plain.

Conclusion: No riparian vegetation is present within the application area and, for the reasons set out above and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that potential impacts of the proposed clearing to mapped wetlands in the vicinity can be managed by implementing standard methodologies for road construction.

Conditions: No riparian vegetation, watercourse or wetland management conditions required.

3.3. Relevant planning instruments and other matters

Clearing Permit application CPS 9347/1 was advertised on the DWER website for a 14 day public comment period on 15 July 2021. One public submission was received in relation to this application (Appendix B).

The Shire is the public authority that manages the Coronation Road reserve (PIN 11601217). The Coronation Road reserve is zoned a major road (Zone No. 809) under the Shire Local Planning Scheme No.7. The proposed clearing purpose is consistent with Local Planning Scheme No.7.

The application area is located within the Murray Groundwater Area (UFI 42) proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). It is not located within any Surface Water Areas or Irrigation Districts proclaimed under the RIWI Act, or any *Country Areas Water Supply Act 1947* (CAWS Act) Clearing Control Catchments, or Public Drinking Water Source Areas. Groundwater will not be intercepted, the beds or banks of any watercourses will not be disturbed, and no additional permitting by DWER is required.

A Registered Native Title Claim encompasses the application area. That is, Gnaala Karla Booja (WAD6274/1998), and the associated Gnaala Karla Booja Indigenous Land Use Agreement (ILUA) (WI2015/005). A Native Title Claim has also been filed that encompasses the application area. That is, the Single Noongar Claim - Area 1 (WAD6006/2003 – WC2003/006).

Spatial data indicates that no Registered Aboriginal Heritage sites listed in accordance with section 5 of the *Aboriginal Heritage Act 1972* (WA) occur within the proposed clearing area, nor any Other Aboriginal Heritage sites. The closest is Harvey River 37:Harvey Br (Place ID 3216) located approximately 3.4 kilometres to the south-west of the application area and the Buller Road Camp (Place ID 3547) located approximately 3.8 south-east of the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Information provided by applicant

| Information | Description |
|---|--|
| Application (Shire of Waroona 2021a) | Information provided within Native Vegetation Clearing Application CPS 9347/1. This information was used to inform the site characteristics of the application area presented in Appendix C of the Decision Report. |
| Supporting Information – Correlating tree IDs and canopy widths (Shire of Waroona 2021b) | Identification of trees to be cleared (and retained) along Coronation Road. This information was used to inform the assessment presented in Appendix D and Section 3 of the Decision Report. |
| Supporting Information - Clearing Permit Coronation Road SLK 10.96 to 11.51 (Shire of Waroona 2021c) | Document providing background, project brief, timing, design elements, tree data (ID, species, DBH, Canopy), aerial photography, photographs of individual trees with comments. This information was used to inform the assessment presented in Appendix D and Section 3 of the Decision Report. |
| Clarification of mitigation strategies proposed by the Shire of Waroona. (Shire of Waroona 2021d) | Information provided was used to clarify the mitigation strategies presented in Section 3.1 of the Decision Report. |

Appendix B – Details of public submissions

| Summary of comments | Consideration of comment |
|---|--|
| There is very little native vegetation left in this area. Many of the large trees appear to be in the drain. | An assessment of the area and percentage of remnant vegetation within the local area of a ten kilometre radius of the application area has been undertaken in consideration of Clearing Principle (e). Results are presented in Section 3.2.3, Appendix C1 and Appendix D. |
| If approval is granted, the applicant should be required to plant as a minimum four times the amount of trees to be removed as an offset. | The applicant has provided detailed avoidance and mitigation actions (Section 3.1). The assessment concluded that with the avoidance and mitigation actions implemented there is no significant residual impact, and no requirement for an offset under the Western Australian Environmental Offsets Guidelines (August 2014). The applicant has committed to re-planting 30 Marri trees within the Coronation Road reserve. That is, at a rate of two trees planted for every one tree removed. The Delegated Officer considered the ratio of 2:1 to be adequate. |

Appendix C – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix D.

C.1 Site characteristics

| Site characteristic | Details | | | | | | | | | | |
|---|---|----------------------|--------------|----------------------------|---------------------|---------|------|----------------------------|---|-----------------------------|---|
| Local context | <p>The application area is located within the Swan Coastal Plain IBRA Bioregion, (SWA) of Thackway and Cresswell (1995) and the Perth sub-region (SWA02).</p> <p>The proposed clearing is of 15 native trees (<i>Corymbia calophylla</i>) within the Coronation Road reserve within the Shire of Waroona, and approximately 110 kilometres south of Perth.</p> | | | | | | | | | | |
| Vegetation description (Regional) | <p>Hedde <i>et al.</i>, (1980) as updated by Webb <i>et al.</i> (2016) produced regional vegetation mapping of complexes over the Swan Coastal Plain. One of these complexes has been mapped over the application area:</p> <ul style="list-style-type: none"> Cannington complex (40), described as a mosaic of vegetation from adjacent vegetation complexes of Bassendean, Karrakatta, Southern River and Vasse. | | | | | | | | | | |
| Vegetation description (application area) | <p>Trees within the application area to be removed.</p> <table border="1"> <thead> <tr> <th>Species</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td><i>Corymbia calophylla</i></td> <td>15</td> </tr> </tbody> </table> <p>Trees within the road reserve in the vicinity that may require pruning .</p> <table border="1"> <thead> <tr> <th>Species</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td><i>Corymbia calophylla</i></td> <td>8</td> </tr> <tr> <td><i>Melaleuca preissiana</i></td> <td>7</td> </tr> </tbody> </table> | Species | No. | <i>Corymbia calophylla</i> | 15 | Species | No. | <i>Corymbia calophylla</i> | 8 | <i>Melaleuca preissiana</i> | 7 |
| Species | No. | | | | | | | | | | |
| <i>Corymbia calophylla</i> | 15 | | | | | | | | | | |
| Species | No. | | | | | | | | | | |
| <i>Corymbia calophylla</i> | 8 | | | | | | | | | | |
| <i>Melaleuca preissiana</i> | 7 | | | | | | | | | | |
| Vegetation condition | <p>The trees within the application area are in completely degraded condition landscape. The full rankings of the Keighery (1994) scale are in Appendix D.</p> <table border="1"> <thead> <tr> <th>Vegetation condition</th> <th>Native trees</th> <th>Per cent</th> </tr> </thead> <tbody> <tr> <td>Completely degraded</td> <td>15</td> <td>100%</td> </tr> </tbody> </table> | Vegetation condition | Native trees | Per cent | Completely degraded | 15 | 100% | | | | |
| Vegetation condition | Native trees | Per cent | | | | | | | | | |
| Completely degraded | 15 | 100% | | | | | | | | | |
| Soil description | <p>Application area - West: Pinjarra, B1 Phase (Soils 213Pj)</p> <ul style="list-style-type: none"> Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m; banksia dominant. <p>Application area - East: Pinjarra, P5 Phase (Soils 213Pj)</p> <ul style="list-style-type: none"> Poorly drained flats, commonly with gilgai microrelief and with deep black-grey to olive-brown cracking clays with subsoils becoming alkaline. | | | | | | | | | | |

| Site characteristic | Details | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---|----------|--------------------|----------|-----|-----------------------|-----------------------------------|------|-------|---------------------|-----------------------------------|------|--------------------|-----------------------------|-----------------------------------|------|--------|------------------------|-----------------------------------|---------------|----|-------|----|-------|---------------|----|-------|----|----------|-------------------|----|----------|----|-------|--------------|----|----------|----|--------|----------|----|-------|----|-------|
| Land degradation risk | <p>Land degradation risk for the Pinjarra, B1 Phase and the Pinjarra, P5 Phase is summarised in the table below (DPIRD 2017), and is expressed as the percentage of the mapped unit having a high to extreme risk.</p> <table border="1" data-bbox="435 363 1127 688"> <thead> <tr> <th rowspan="3">Aspect</th> <th colspan="4">Risk</th> </tr> <tr> <th colspan="2">West:</th> <th colspan="2">East:</th> </tr> <tr> <th>Pinjarra, B1 Phase</th> <th></th> <th>Pinjarra, P5 Phase</th> <th></th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>H2</td> <td>* >70%</td> <td>L2</td> <td>* 3-10%</td> </tr> <tr> <td>Water Erosion</td> <td>L1</td> <td>* <3%</td> <td>L1</td> <td>* <3%</td> </tr> <tr> <td>Salinity risk</td> <td>L1</td> <td>* <3%</td> <td>H1</td> <td>* 50-70%</td> </tr> <tr> <td>Phosphorus export</td> <td>H1</td> <td>* 50-70%</td> <td>L1</td> <td>* <3%</td> </tr> <tr> <td>Waterlogging</td> <td>M1</td> <td>* 10-30%</td> <td>H2</td> <td>* >70%</td> </tr> <tr> <td>Flooding</td> <td>L1</td> <td>* <3%</td> <td>L1</td> <td>* <3%</td> </tr> </tbody> </table> <p>* of mapped unit has a high to extreme risk L = Low M = Medium H = High</p> <p>Acid sulphate soil risk is rated at moderate to low risk over the application area.</p> | Aspect | Risk | | | | West: | | East: | | Pinjarra, B1 Phase | | Pinjarra, P5 Phase | | Wind erosion | H2 | * >70% | L2 | * 3-10% | Water Erosion | L1 | * <3% | L1 | * <3% | Salinity risk | L1 | * <3% | H1 | * 50-70% | Phosphorus export | H1 | * 50-70% | L1 | * <3% | Waterlogging | M1 | * 10-30% | H2 | * >70% | Flooding | L1 | * <3% | L1 | * <3% |
| Aspect | Risk | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | West: | | East: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Pinjarra, B1 Phase | | Pinjarra, P5 Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wind erosion | H2 | * >70% | L2 | * 3-10% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water Erosion | L1 | * <3% | L1 | * <3% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salinity risk | L1 | * <3% | H1 | * 50-70% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phosphorus export | H1 | * 50-70% | L1 | * <3% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Waterlogging | M1 | * 10-30% | H2 | * >70% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flooding | L1 | * <3% | L1 | * <3% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Waterbodies | <p>Proposed clearing is:</p> <ul style="list-style-type: none"> • Within a Geomorphic Wetland of the Swan Coastal Plain (Appendix G - Figure C): <ul style="list-style-type: none"> ○ Multiple use wetland – Palusplain (UFI 15231) • Immediately south of a mapped Geomorphic Wetland of the Swan Coastal Plain: <ul style="list-style-type: none"> ○ Resource enhancement wetland – Dampland (UFI-4398) <p>There are no natural watercourses in the vicinity of the application area. A man-made drain parallels the southern side of Coronation Road for the length of the road.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogeography | <p>The application area is located within the Coastal Plain hydrological zone of Western Australia and:</p> <ul style="list-style-type: none"> • Is located within the Murray Groundwater Area (UFI 42) proclaimed under the RIWI Act; • Is <u>not</u> located within any Surface Water Areas or Irrigation Districts proclaimed under the RIWI Act; • Is <u>not</u> located in the vicinity of any rivers proclaimed under the RIWI Act; • Is <u>not</u> located within any CAWS Act Clearing Control Catchments; and • Is <u>not</u> located within any Public Drinking Water Source Areas. <p>Groundwater has been mapped at 500-1,000 TDS/Mg/L (that is, fresh).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conservation areas | <p>A summary of the DBCA managed lands within ten kilometres of the application area is summarised below.</p> <table border="1" data-bbox="435 1575 1409 1780"> <thead> <tr> <th>Name</th> <th>Vesting</th> <th>Distance</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td>Buller Nature Reserve</td> <td>Conservation and Parks Commission</td> <td>3.61</td> <td>1</td> </tr> <tr> <td>Myalup State Forest</td> <td>Conservation and Parks Commission</td> <td>6.74</td> <td>7</td> </tr> <tr> <td>Kooljerrenup Nature Reserve</td> <td>Conservation and Parks Commission</td> <td>7.80</td> <td>3</td> </tr> <tr> <td>Yalgorup National Park</td> <td>Conservation and Parks Commission</td> <td>9.53</td> <td>3</td> </tr> </tbody> </table> | Name | Vesting | Distance | No. | Buller Nature Reserve | Conservation and Parks Commission | 3.61 | 1 | Myalup State Forest | Conservation and Parks Commission | 6.74 | 7 | Kooljerrenup Nature Reserve | Conservation and Parks Commission | 7.80 | 3 | Yalgorup National Park | Conservation and Parks Commission | 9.53 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Name | Vesting | Distance | No. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Buller Nature Reserve | Conservation and Parks Commission | 3.61 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Myalup State Forest | Conservation and Parks Commission | 6.74 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kooljerrenup Nature Reserve | Conservation and Parks Commission | 7.80 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yalgorup National Park | Conservation and Parks Commission | 9.53 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Site characteristic | Details |
|----------------------|---|
| Climate and Landform | <p>The south west of Western Australia experiences a Mediterranean climate of hot dry summers and cool wet winters, and the proposed clearing area is situated within the 'Temperate – distinctly dry and warm summer' Köppen climate class (Commonwealth of Australia 2005). An average of 680.6 millimetres of rainfall is recorded annually from the Pinjarra South weather station.</p> <p>The site occurs on the Swan Coastal Plain, which is the geomorphic unit that characterises much of the Perth metropolitan area. The site is not known to contain any restricted landforms or unique geological features.</p> |

C.2 Ecosystem, flora and fauna analysis

With consideration for the site characteristics set out above, relevant datasets (Appendix H2), the following conservation significant ecological communities, flora and fauna species may be impacted by the clearing.

Seven ecological communities of conservation significance have been mapped within ten kilometres of the application area (Table below). A mapped area of Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region is located approximately 465 metres to the south east of the application area.

| ID | Ecological Community (Common Name) | WA Status | Comm. Status |
|-------------------------------|--|-----------|--------------|
| SCP26a | <i>Melaleuca huegelii</i> - <i>Melaleuca systema</i> shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) | EN | |
| SCP10a | Shrublands on dry clay flats (floristic community type 10a as originally described in Gibson et al. (1994)) | EN | CR |
| SCP08 | Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994)) | VU | CR |
| Elongate Fluvial Delta System | Elongate Fluvial Delta System - Peel-Harvey inlet | P1 | |
| Coastal Saltmarsh | Subtropical and Temperate Coastal Saltmarsh | P3 | VU |
| Banksia WL SCP | Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region | P3 | EN |
| Tuart woodlands | Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain | P3 | CR |

Three Threatened flora taxa have been identified from within ten kilometres of the application area (Table below).

| Taxon | Status (WA) | No. of Records | Closest Distance (km) |
|-----------------------------|-------------|----------------|-----------------------|
| <i>Caladenia huegelii</i> | CR | 3 | 4.67 |
| <i>Diuris purdiei</i> | EN | 2 | 9.69 |
| <i>Eleocharis keigheryi</i> | VU | 1 | 9.98 |

Thirteen Priority flora taxa have been identified from within ten kilometres of the application area (Table below).

| Taxon | Status (WA) | No. of Records | Closest Distance (km) |
|--|-------------|----------------|-----------------------|
| <i>Grevillea bipinnatifida</i> subsp. <i>pagna</i> | 1 | 1 | 9.13 |
| <i>Synaphea odocoileops</i> | 1 | 2 | 3.79 |
| <i>Diuris brevis</i> | 2 | 1 | 3.05 |
| <i>Pterostylis frenchii</i> | 2 | 1 | 9.46 |
| <i>Angianthus drummondii</i> | 3 | 2 | 6.95 |
| <i>Boronia capitata</i> subsp. <i>gracilis</i> | 3 | 3 | 4.87 |
| <i>Carex tereticaulis</i> | 3 | 4 | 5.35 |
| <i>Hemigenia microphylla</i> | 3 | 3 | 4.27 |
| <i>Schoenus</i> sp. Waroona (G.J. Keighery 12235) | 3 | 1 | 3.51 |
| <i>Acacia semitrullata</i> | 4 | 1 | 9.07 |
| <i>Aponogeton hexatepalus</i> | 4 | 1 | 9.98 |
| <i>Caladenia speciosa</i> | 4 | 10 | 1.33 |
| <i>Schoenus natans</i> | 4 | 3 | 4.23 |

Eleven birds, seven mammals, and one reptiles of conservation significance have been recorded from within ten kilometres of the application area (Table below).

| Common Name | Taxon | Status (WA) | No. of Records | Closest Distance (km) |
|-------------------------------------|---------------------------------------|-------------|----------------|-----------------------|
| Baudin's Cockatoo | <i>Calyptorhynchus baudinii</i> | EN | 4 | 6.4 |
| Carnaby's Cockatoo | <i>Calyptorhynchus latirostris</i> | EN | 253 | 1.2 |
| White-tailed Black Cockatoo | <i>Calyptorhynchus sp.</i> | EN | 7 | 6.8 |
| Forest Red-tailed Black Cockatoo | <i>Calyptorhynchus banksii naso</i> | VU | 63 | 0.0 |
| Hooded Plover | <i>Thinornis rubricollis</i> | P4 | 18 | 7.9 |
| Common Greenshank | <i>Tringa nebularia</i> | MI | 4 | 3.9 |
| Common Sandpiper | <i>Actitis hypoleucos</i> | MI | 5 | 3.9 |
| Red-necked Stint | <i>Calidris ruficollis</i> | MI | 1 | 8.1 |
| Caspian Tern | <i>Hydroprogne caspia</i> | MI | 1 | 3.9 |
| Blue-Billed Duck | <i>Oxyura australis</i> | P4 | 20 | 3.2 |
| Glossy Ibis | <i>Plegadis falcinellus</i> | MI | 4 | 7.7 |
| Osprey | <i>Pandion cristatus</i> | MI | 2 | 3.5 |
| | | | | |
| Western Ringtail Possum | <i>Pseudocheirus occidentalis</i> | CR | 3 | 6.5 |
| Chuditch | <i>Dasyurus geoffroi</i> | VU | 2 | 3.0 |
| Brush-tailed Phascogale | <i>Phascogale tapoatafa wambenger</i> | CD | 3 | 3.0 |
| Quenda | <i>Isodon fusciventer</i> | P4 | 29 | 3.2 |
| Western Brush Wallaby | <i>Notamacropus irma</i> | P4 | 2 | 4.0 |
| Water Rat | <i>Hydromys chrysogaster</i> | P4 | 2 | 3.0 |
| Western False Pipistrelle | <i>Falsistrellus mackenziei</i> | P4 | 2 | 5.8 |
| | | | | |
| Coastal Plains Skink | <i>Ctenotus ora</i> | P3 | 3 | 4.9 |
| | | | | |
| Shield-Backed Trapdoor Spider (SCP) | <i>Idiosoma sigillatum</i> | P3 | 1 | 6.9 |

Mapped black cockatoo elements within twelve kilometres of the application area (Table below).

| | |
|--|----------|
| Night roosts | 5 |
| Confirmed nesting sites | 43 |
| Potential nesting sites (artificial hollows) | 8 |
| Mapped foraging area | 7,185 ha |

C.3 Vegetation extent

| Factor | Pre-European extent (ha) | Current extent (ha) | Extent remaining (%) | Current extent in all DBCA managed land (ha) | Current percentage remaining within all DBCA managed land (%) |
|----------------------------|--------------------------|---------------------|----------------------|--|---|
| IBRA Bioregion | | | | | |
| Swan Coastal Plain | 1,501,222 | 579,814 | 38.6% | 153,955 | 10.3 |
| Vegetation complex | | | | | |
| Cannington Complex (ID 40) | 16,661 | 1,966 | 11.80% | 981.34 | 5.89 |
| Local area (10 km) | | | | | |
| Remnant vegetation | 31,509 | 4,381 | 13.90% | | |

Appendix D – Assessment against the Clearing Principles

| Assessment against the Clearing Principles | Variance level | Is further consideration required? |
|---|------------------------------|------------------------------------|
| Environmental value: biological values | | |
| <p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u> Native vegetation over the application area consists of 15 native trees over an understorey of exotic pasture grasses (Appendix F). Native vegetation is in a completely degraded condition applying the condition scale of Keighery (1994) (Appendix E) and described as parkland cleared, and with no native species represented in the understorey (Appendix F). The native vegetation of the application area does not represent any conservation significant ecological communities, does not support Threatened or Priority flora taxa, and does not comprise a high level of biodiversity.</p> | Not at variance | No |
| <p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The application area consists of 15 Marri trees (<i>Corymbia calophylla</i>), which is the only native eucalypt occurring. The application area is located within the modelled distribution of three Threatened black cockatoo species. The trees identified (Appendix F) are unlikely to provide roosting or breeding habitat for black cockatoos due to their size. Over 40 breeding sites and eight roosting sites have been recorded within 12 kilometres of the application area. Marri is a recognised foraging species for black cockatoos. Due to size of the trees and their location the trees of the application area are unlikely to provide significant foraging habitat to breeding or roosting black cockatoos.</p> | Not likely to be at variance | Yes Section 3.2.1 |
| <p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> Native vegetation over the application area consists of 15 native trees over an understorey of exotic pasture grasses (Appendix F). Native vegetation is in a completely degraded condition applying the condition scale of Keighery (1994) (Appendix E) and described as parkland cleared (Appendix F). No native flora species are represented in the understorey and the native vegetation within the application area is unlikely to include, or be necessary for, the continued existence of Threatened flora.</p> | Not at variance | No |
| <p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> Three Threatened Ecological Communities endorsed by the Western Australian Minister for Environment have been mapped within 10 kilometres of the application area (ID: SCP26a, SCP10a, and SCP08) (Section C2). The vegetation of the application area is completely degraded and does not contain the attributes of, nor is it representative of, any Threatened Ecological Communities endorsed by the Western Australian Minister for Environment. Native vegetation proposed to be cleared does not comprise the whole or a part of, nor is it necessary for, the maintenance of a Threatened Ecological Community.</p> | Not at variance | No |

| Assessment against the Clearing Principles | Variance level | Is further consideration required? |
|---|------------------------------|------------------------------------|
| Environmental values: significant remnant vegetation and conservation areas | | |
| <p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> One vegetation complex as described by Heddle <i>et al.</i>, (1980) and updated by Webb <i>et al.</i> (2016) has been mapped over the application area (Appendix C1): the Cannington Complex (ID 40) that is described as a mosaic of vegetation from the adjacent vegetation complexes of Bassendean, Karrakatta, Southern River and Vasse. Approximately 11.8 per cent of the original extent of the Cannington Complex has been retained which is under national objectives and targets for native vegetation retention. Approximately 13.9 per cent of native vegetation is retained within a ten kilometres radius of the application area.</p> | May be at variance | Yes Section 3.2.2 |
| <p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The application area does not intersect any DBCA managed lands. The closest DBCA managed lands are located in excess of 3.6 kilometres from the application area. No DBCA managed lands of interest occur within ten kilometres of the application area. Proposed clearing is unlikely to have an impact on the environmental values of any adjacent or nearby conservation area.</p> | Not at variance | No |
| Environmental values: land and water resources | | |
| <p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Proposed clearing is located within a Geomorphic Wetland of the Swan Coastal Plain. That is, a multiple use wetland; Palusplain (UFI 15231). Proposed clearing is also located adjacent to a resource enhancement wetland; Dampland (UFI-4398) which occurs on the opposite (northern) side of Coronation road to where clearing is proposed to occur. Vegetation proposed to be cleared does not include flora species considered as riparian vegetation.</p> | Not likely to be at variance | Yes Section 3.2.3 |
| <p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> Land degradation risks for the mapped soil types are high for wind erosion, salinity risk and Phosphorus export. Acid sulphate soil risk is rated at moderate to low. Standard and staged road construction methodologies will be employed, including strategies for drainage controls. Eutrophication (Phosphorus export) is not likely to be a risk in consideration of the final land use as a public road. Soils will not be excavated at depth, and groundwater will not be intersected, reducing the risk of exposing any acid sulphate soils. Given the scale and location of the application area, proposed clearing is unlikely to contribute to rising salinity. Any impacts to surrounding landscapes, soils and drainage can be managed through appropriate design. Vegetation is currently in a completely degraded condition and the cleared area will be replaced with a hard road surface negating any potential for wind erosion.</p> | Not likely to be at variance | No |

| Assessment against the Clearing Principles | Variance level | Is further consideration required? |
|--|------------------------------|------------------------------------|
| <p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> No natural water courses intersect the application area. A man-made drain parallels the southern side of Coronation Road. Soils will not be excavated at depth and risks to groundwater are low. The proposed clearing of the Coronation Road roadside may cause some short-term surface water sedimentation during works, however, surface water flow will be controlled by incorporating drainage management design and by implementing standard road construction methodologies for drainage control and water erosion. Proposed clearing is not likely to cause deterioration in the quality of surface or underground water.</p> | Not likely to be at variance | No |
| <p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped land degradation risk for flooding potential over the application area is rated at low. The application area is not located within any annual exceedance probability (AEP) floodplains with the closest seven kilometres distant. Standard and staged road construction methodologies will be employed, including strategies for drainage controls and water erosion. Noting the location and extent of the proposed clearing and standard management prescriptions employed, the proposed clearing of native vegetation is not likely to cause, or exacerbate, the incidence or intensity of flooding.</p> | Not likely to be at variance | No |

Appendix E – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

| Condition | Description |
|---------------------|--|
| Pristine | Pristine or nearly so, no obvious signs of disturbance. |
| Excellent | Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species. |
| Very Good | Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. |
| Good | Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing. |
| Degraded | Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing. |
| Completely Degraded | The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs. |

Appendix F –Survey excerpts

F.1 Tree locations (Shire of Waroona 2020a)

CPS 9347-1 - Supporting Information – Correlating tree IDs and canopy widths

| Tree ID | Canopy in meters | Map Section (as below) | |
|----------------------------------|---|------------------------|---|
| 304 | <i>Note: These trees will not be cleared – only pruned – these trees do not make up the clearing permit application</i> | 3 | |
| 305 | | 3 | |
| 522 | | 3 | |
| 523 | | 3 | |
| 525 | | 3 | |
| 529 | | 3 | |
| 657 | | 2 | |
| 660 | | 2 | |
| 661 | | 2 | |
| 662 | | 2 | |
| 663 | | 2 | |
| 666 | | 2 | |
| 667 | | 2 | |
| 712 | | 1 | |
| 717 | | 1 | |
| <i>Trees below to be cleared</i> | | | |
| 743 | | 7 | 1 |
| 744 | 7 | 1 | |
| 745 | 7 | 1 | |
| 746 | 7 | 1 | |
| 747 | 7 | 1 | |
| 748 | 7 | 1 | |
| 749 | 7 | 1 | |
| 751 | 7 | 1 | |
| 752 | 7 | 1 | |
| 753 | 7 | 1 | |
| 754 | 7 | 1 | |
| 755 | 7 | 1 | |
| 756 | 7 | 1 | |
| 757 | 7 | 1 | |
| 759 | 7 | 1 | |

Section One



Section Two



Section Three



F.2 Tree descriptions (Shire of Waroona 2021b)

| South Side of Road Reserve | | | |
|----------------------------|----------------------------|-----------|------------|
| Tree ID | Description | Trunk (m) | Canopy (m) |
| 743 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 744 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 745 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 746 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 747 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 748 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 749 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 751 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 752 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 753 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 754 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 755 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 756 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 757 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 759 | <i>Corymbia Calophylla</i> | 0.3 | 7 |
| 522 | <i>Corymbia Calophylla</i> | 0.6 | 12 |
| 523 | <i>Corymbia Calophylla</i> | 0.6 | 12 |
| 525 | <i>Corymbia Calophylla</i> | 0.4 | 8 |
| 529 | <i>Corymbia Calophylla</i> | 0.4 | 8 |

| North Side of Road Reserve | | | |
|----------------------------|--------------------------------|-----------|------------|
| Tree ID | Description | Trunk (m) | Canopy (m) |
| 717 | <i>Corymbia Calophylla</i> | 0.4 | 8 |
| 712 | <i>Corymbia Calophylla</i> | 0.4 | 8 |
| 667 | <i>Melaleuca Rhapsiophylla</i> | 0.5 | 10 |
| 666 | <i>Melaleuca Rhapsiophylla</i> | .05 | 10 |
| 663 | <i>Melaleuca Rhapsiophylla</i> | 0.5 | 10 |
| 662 | <i>Melaleuca Rhapsiophylla</i> | 0.5 | 10 |
| 661 | <i>Melaleuca Rhapsiophylla</i> | 0.4 | 8 |
| 660 | <i>Melaleuca Rhapsiophylla</i> | 0.4 | 8 |
| 657 | <i>Melaleuca Rhapsiophylla</i> | 0.4 | 8 |
| 304 | <i>Corymbia Calophylla</i> | 0.4 | 8 |
| 305 | <i>Corymbia Calophylla</i> | 0.4 | 8 |

Trees located on the northern section of Coronation Road should be outside of the impact zone and therefore it is likely that only maintenance pruning will be required.

F.3 Trees proposed to be removed - Photographs and attributes (Shire of Waroona 2021b)



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|----------------------------|-----------|------------|------------------|---|
| 743 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|----------------------------|-----------|------------|------------------|---|
| 744 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 745 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 746 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 747 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 748 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|----------------------------|-----------|------------|------------------|---|
| 749 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 751 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 752 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 753 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 754 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 755 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollow. |
| 756 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 757 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |
| 759 | <i>Corymbia Calophylla</i> | 0.3m | 7m | Removal | No visible signs of nesting or hollows. |

F.3 Trees proposed to be retained - Photographs and attributes (Shire of Waroona 2021b)



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|--------------------------------|-----------|------------|------------------|---|
| 522 | <i>Corymbia Calophylla</i> | 0.6m | 12m | Possible Pruning | No visible signs of nesting or hollows. |
| 523 | <i>Corymbia Calophylla</i> | 0.6m | 12m | Possible Pruning | No visible signs of nesting or hollows. |
| 525 | <i>Melaleuca Rhapsiophylla</i> | 0.4m | 8m | Possible Pruning | No visible signs of nesting or hollows. |
| 529 | <i>Melaleuca Rhapsiophylla</i> | 0.4m | 8m | Possible Pruning | No visible signs of nesting or hollows. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|----------------------------|-----------|------------|------------------|--|
| 717 | <i>Corymbia Calophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 712 | <i>Corymbia Calophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|--------------------------------|-----------|------------|------------------|--|
| 663 | <i>Melaleuca Rhapsiophylla</i> | 0.5m | 10m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 662 | <i>Melaleuca Rhapsiophylla</i> | 0.5m | 10m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 661 | <i>Melaleuca Rhapsiophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 660 | <i>Melaleuca Rhapsiophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 657 | <i>Melaleuca Rhapsiophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|--------------------------------|-----------|------------|------------------|--|
| 667 | <i>Melaleuca Rhapsiophylla</i> | 0.5m | 10m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 666 | <i>Melaleuca Rhapsiophylla</i> | 0.5m | 10m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |



| Tree ID | Description | Trunk (m) | Canopy (m) | Pruning/ Removal | Observations |
|---------|----------------------------|-----------|------------|------------------|--|
| 304 | <i>Corymbia Calophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |
| 305 | <i>Corymbia Calophylla</i> | 0.4m | 8m | Pruning | No visible signs of nesting or hollows. Tree is outside of corner realignment. |

Appendix G – Figures (A to C)

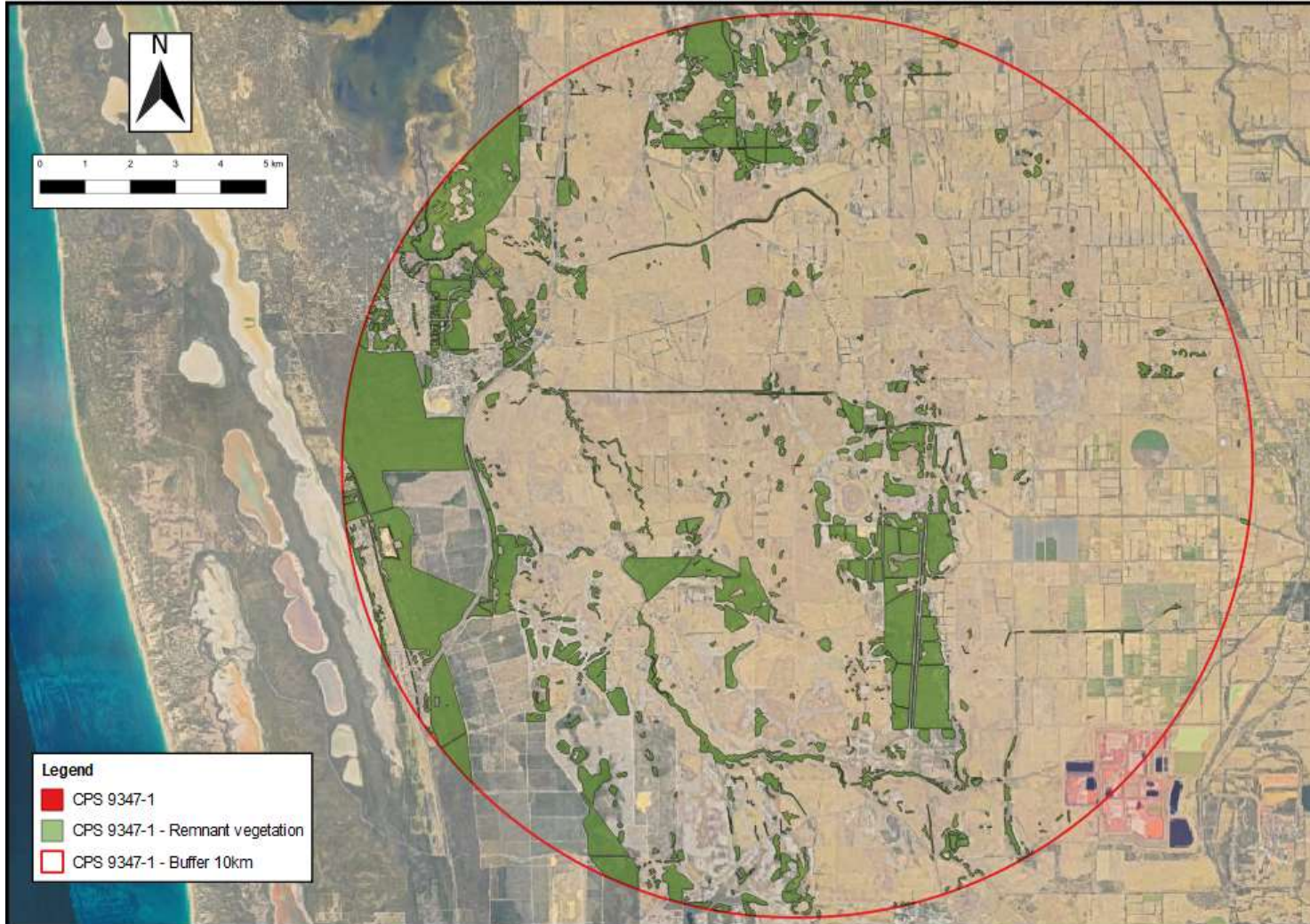


Figure A: Mapped remnant vegetation within 10 kilometres of the application area

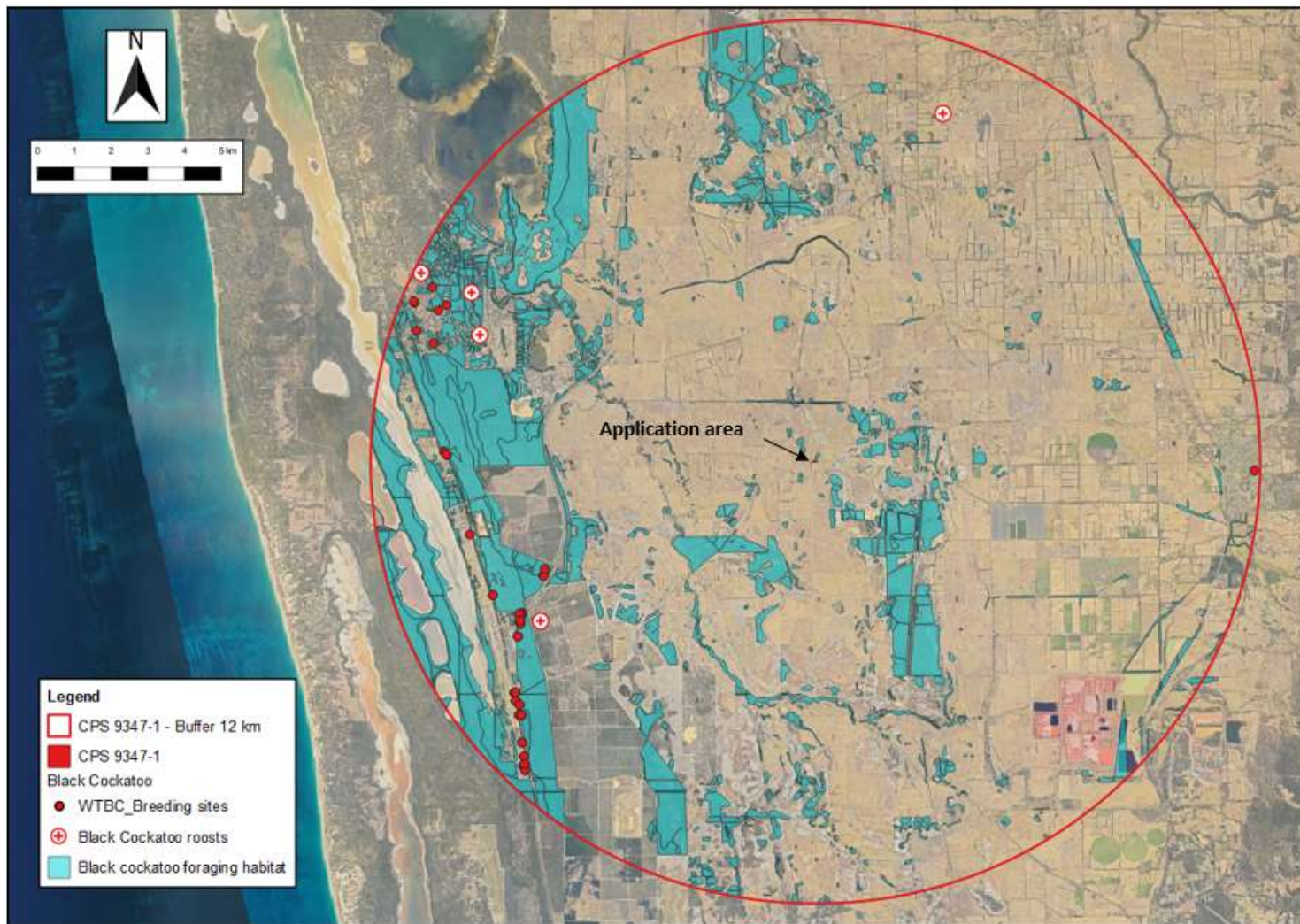


Figure B: Mapped black cockatoo features within 12 kilometres of the application area



Figure C: Mapped geomorphic wetlands in the vicinity of the application area

Appendix H – References and databases

G.1 References

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G.2 GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)

- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Remnant Vegetation, All Areas
- Native Vegetation Extent (DPIRD-005)
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)