



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

|                               |                                         |
|-------------------------------|-----------------------------------------|
| <b>Purpose Permit number:</b> | CPS 9257/1                              |
| <b>Permit Holder:</b>         | City of Gosnells                        |
| <b>Duration of Permit:</b>    | From 8 November 2021 to 8 November 2036 |

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

### **PART I – CLEARING AUTHORISED**

**1. Clearing authorised (purpose)**

The permit holder is authorised to clear *native vegetation* for the purpose of road construction and upgrades.

**2. Land on which clearing is to be done**

Warton Road reserve (PINs 11869318, 11869319, 12434988, 12434990), Canning Vale and Harrisdale

**3. Clearing authorised**

The permit holder must not clear more than 0.69 hectares of *native vegetation* within the areas cross-hatched yellow in Figures 1 - 3 of Schedule 1.

**4. Period during which clearing is authorised**

The permit holder must not clear any *native vegetation* after 8 November 2026.

### **PART II – MANAGEMENT CONDITIONS**

**5. 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.

## 6. Fencing

- (a) Prior to the commencement of clearing authorised under this permit, the permit holder must install a permanent fence along the road reserve boundary to the south of the areas cross-hatched yellow in Figures 1 - 3 of Schedule 1.
- (b) Within one month of installing the fence required under condition 6(a), the permit holder shall notify the *CEO* in writing that the fence has been erected.
- (c) The permit holder shall inspect the fence constructed in accordance with condition 6(a) of this permit every 12 months for the duration of this permit to ensure the fence is protecting vegetation within Bush Forever Site 253.
- (d) Where the permit holder identifies that the fence constructed in accordance with condition 6(a) of this permit is not protecting vegetation within Bush Forever Site 253, the permit holder shall repair the fence.

## 7. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

## 8. Maintenance and monitoring program

- (a) Within one month of the commencement of clearing authorised under this permit, the permit holder shall implement and adhere to the *maintenance and monitoring program* within the area cross-hatched red on Figures 1-3 of Schedule 1.
- (b) The *maintenance and monitoring program* implementation specified in condition 8(a) must include but not limited to the following actions:
  - (i) undertake *weed* control activities to maintain the minimum criteria in the attached Schedule 2;
  - (ii) undertake rubbish removal activities to maintain the minimum criteria in the attached Schedule 2;
  - (iii) monitor the *specified quadrats* to maintain the minimum criteria in the attached Schedule 2, at least biannually; and
  - (iv) monitoring of the quadrats specified in condition 8(b)(iii) is to be undertaken by an *environmental specialist*.
- (c) The permit holder shall continue to undertake the actions specified in condition 8(b) for a duration of at least 5 years, unless otherwise approved by the *CEO*.
- (d) The permit holder shall undertake the *weed* control and rubbish removal activities in conditions 8(b)(i)-(ii) every 6 weeks for the first 3 years from the date the *maintenance and monitoring program* was implemented.
- (e) Where monitoring indicates condition 8(d) has resulted in completion criteria B and E in the attached Schedule 2 being met, the permit holder may reduce the frequency of *weed* control and rubbish removal activities in conditions 8(b)(i)-(ii) to quarterly.
- (f) Where monitoring indicates that completion criteria outlined in the attached Schedule 2 have not been met for three consecutive monitoring periods, the permit holder must *revegetate* the area at an *optimal time* by deliberately *planting* and/or *direct seeding native vegetation* seeds that will result in the minimum targets specified in the attached Schedule 2 ensuring only *local provenance* seeds and propagating material are used.

## **PART III - RECORD KEEPING AND REPORTING**

### **9. 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**

| <b>No.</b> | <b>Relevant matter</b>                                      | <b>Specifications</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.         | In relation to the authorised clearing activities generally | <ul style="list-style-type: none"><li>(a) the species composition, structure, and density of the cleared area;</li><li>(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;</li><li>(c) the date that the area was cleared;</li><li>(d) the size of the area cleared (in hectares);</li><li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5;</li><li>(f) actions taken in accordance with condition 6 of this Permit, including dates in which the fence was inspected and details of any repairs undertaken;</li><li>(g) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 7; and</li><li>(h) actions taken in relation to the <i>maintenance and monitoring program</i> pursuant to condition 8 of this Permit.</li></ul> |

### **10. Reporting**

(a) The permit holder must provide to the *CEO*, on or before 30 June of each calendar year, a written report containing:

- (i) the records required to be kept under condition 9; and
- (ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding 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 30 June of each calendar year.

(c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 9, where these records have not already been provided under condition 10(a).

## DEFINITIONS

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

**Table 2: Definitions**

| <b>Term</b>                               | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>CEO</i>                                | Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>EP Act</i> .                                                                                                                                                                                                                                                              |
| <i>clearing</i>                           | has the meaning given under section 3(1) of the <i>EP Act</i> .                                                                                                                                                                                                                                                                                                                                |
| <i>condition</i>                          | a condition to which this clearing permit is subject under section 51H of the <i>EP Act</i> .                                                                                                                                                                                                                                                                                                  |
| <i>direct seeding</i>                     | means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.                                                                                                                                                                                                                                               |
| <i>environmental specialist</i>           | means a person who holds a tertiary qualification in environmental science or equivalent and has a minimum of 2 years work 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 <i>CEO</i> as a suitable environmental specialist. The person may be an employee of the permit holder. |
| <i>fill</i>                               | means material used to increase the ground level, or to fill a depression.                                                                                                                                                                                                                                                                                                                     |
| <i>dieback</i>                            | means the effect of <i>Phytophthora</i> species on <i>native vegetation</i> .                                                                                                                                                                                                                                                                                                                  |
| <i>department</i>                         | means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the <i>EP Act</i> , which includes Part V Division 3.                                                                                                                                                                           |
| <i>EP Act</i>                             | <i>Environmental Protection Act 1986</i> (WA)                                                                                                                                                                                                                                                                                                                                                  |
| <i>local provenance</i>                   | means <i>native vegetation</i> seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.                                                                                                                                                                                                                                       |
| <i>mulch</i>                              | means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.                                                                                                                                                                                                                                                          |
| <i>native vegetation</i>                  | has the meaning given under section 3(1) and section 51A of the <i>EP Act</i> .                                                                                                                                                                                                                                                                                                                |
| <i>planting</i>                           | means the re-establishment of vegetation by creating soil conditions and planting seedlings of the desired species;                                                                                                                                                                                                                                                                            |
| <i>maintenance and monitoring program</i> | means the ‘ <i>Maintenance and monitoring program</i> ’ within the <i>Flora and Vegetation Survey and Monitoring Report</i> document number ‘EP20-099(01)-001 SKP Version B’ prepared by Emerge Associates for the City of Gosnells, 2021.                                                                                                                                                     |
| <i>revegetate</i>                         | means the re-establishment of a cover of local provenance <i>native vegetation</i> 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.                                                                                                     |
| <i>specified quadrats</i>                 | means the permanent monitoring quadrats identified in the <i>maintenance and monitoring program</i> .                                                                                                                                                                                                                                                                                          |
| <i>weeds</i>                              | means any plant –<br>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or                                                                                                                                                                                                                                                           |

| Term | Definition                                                                                                                                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or<br>(c) not indigenous to the area concerned. |

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**END OF CONDITIONS**



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Meenu Vitarana  
A/MANAGER  
NATIVE VEGETATION REGULATION

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

15 October 2021

Schedule 1

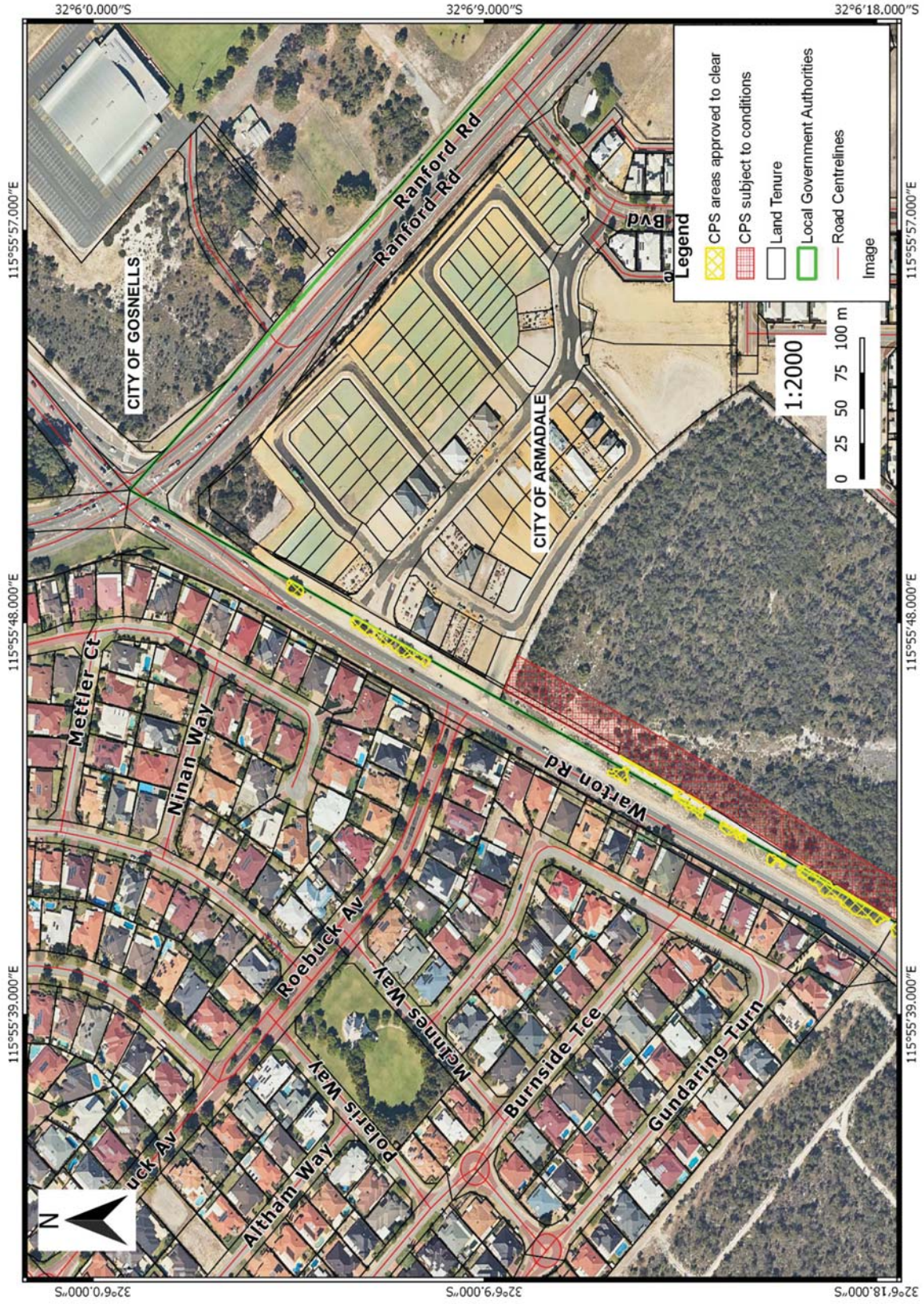
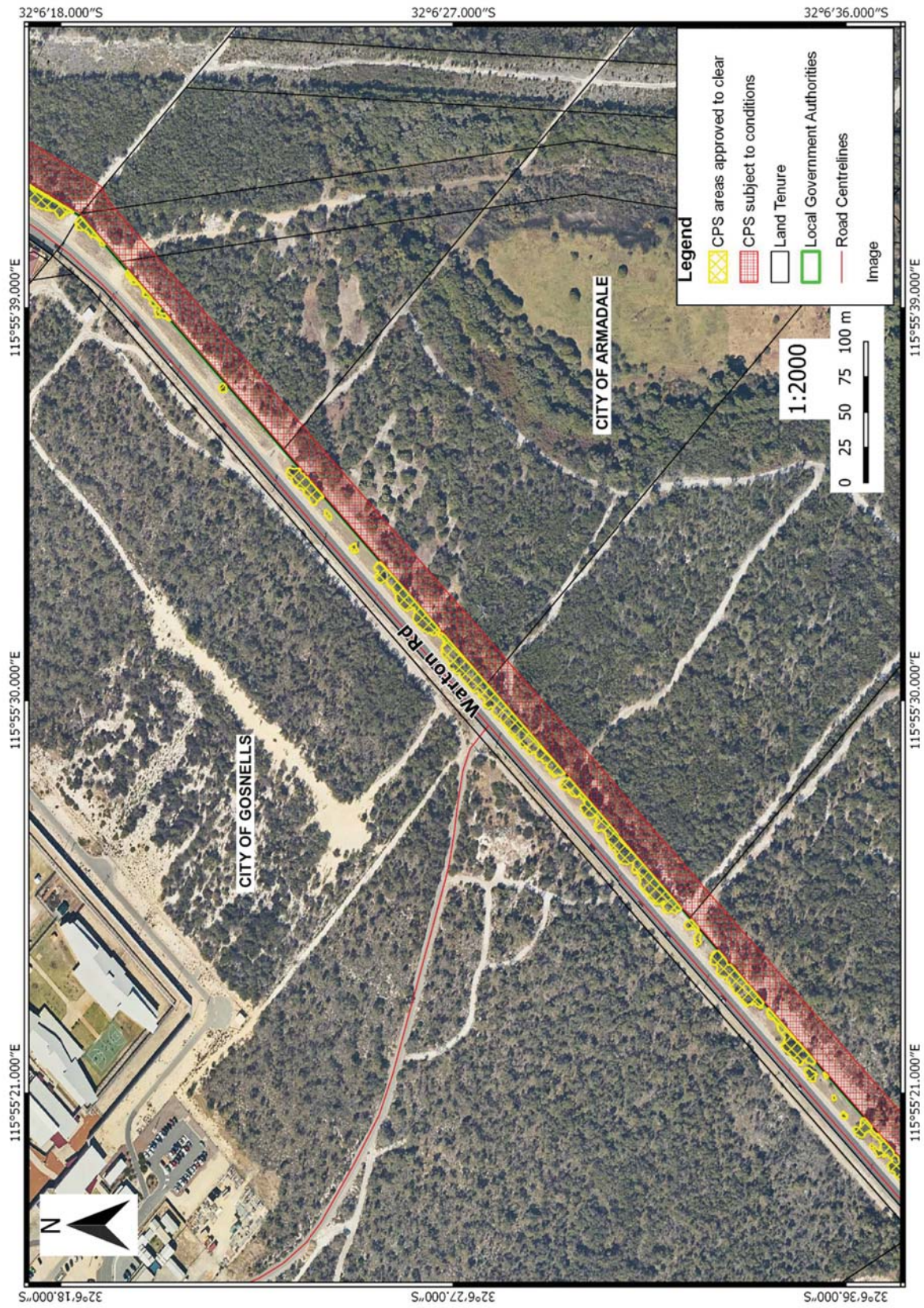


Figure 1: The boundaries of the areas authorised to be cleared are cross-hatched yellow and areas subject to conditions are cross-hatched red.



**Figure 2: The boundaries of the areas authorised to be cleared are cross-hatched yellow and areas subject to conditions are cross-hatched red.**

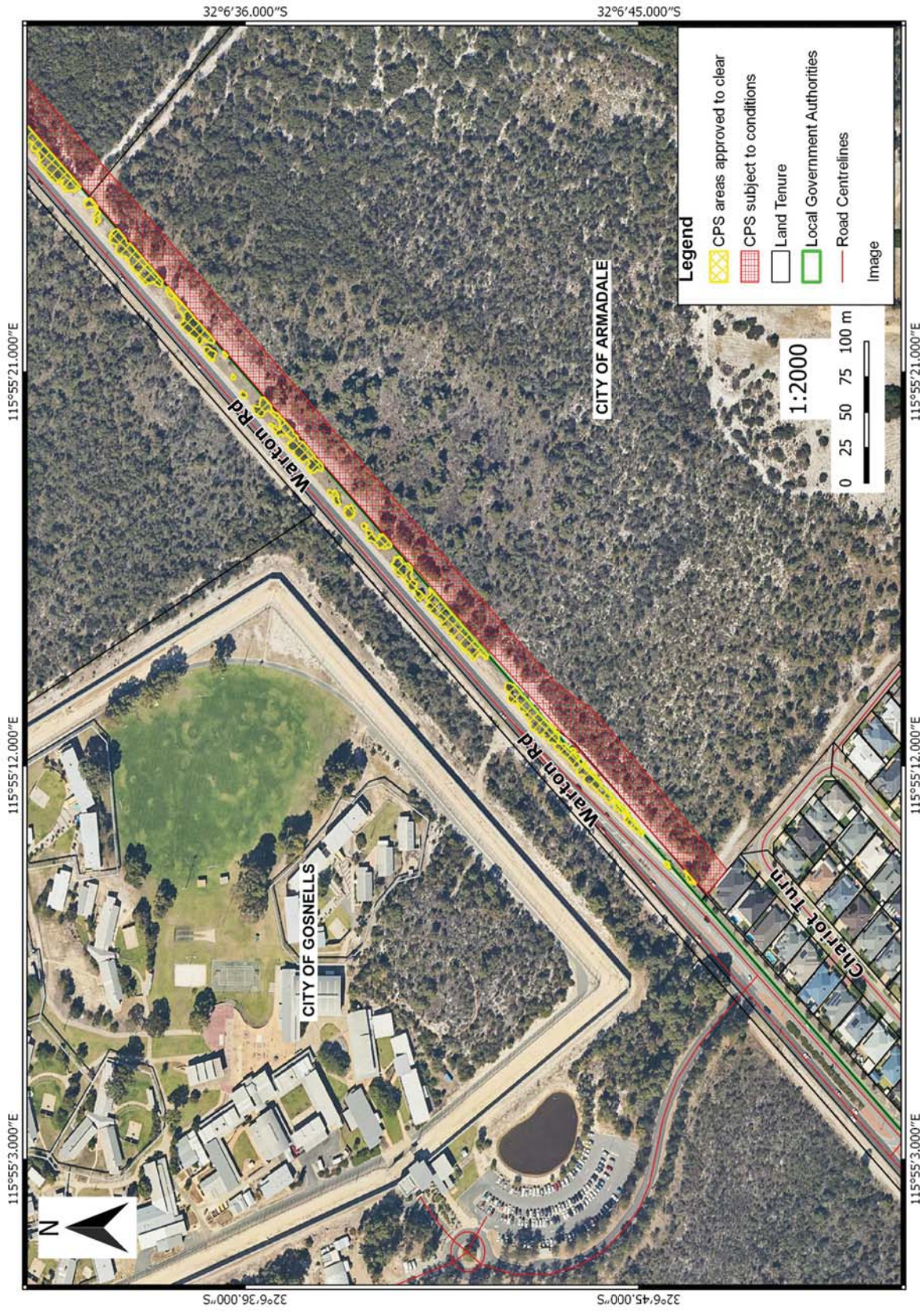


Figure 3: The boundaries of the areas authorised to be cleared are cross-hatched yellow and areas subject to conditions are cross-hatched red.



## Schedule 2

### *Maintenance and monitoring program completion criteria*

| Completion Criteria                                                                              | Monitoring parameter                             | Monitoring frequency         | Monitoring results              |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------|---------------------------------|
| A. No decrease in native species cover attributable to the Warton Road duplication project       | Flora species and origin                         | Biannual (Spring and Autumn) | Loss of native species cover    |
|                                                                                                  | Foliage projective cover                         |                              |                                 |
| B. No increase in weed over post-development attributable to the Warton Road duplication project | Flora species and origin                         | Biannual (Spring and Autumn) | Increase in weed cover          |
|                                                                                                  | Foliage projective cover                         |                              |                                 |
| C. No decline in vegetation health attributable to the Warton Road duplication project           | Vegetation condition using Keighery (1994) scale | Biannual (Spring and Autumn) | Decline in vegetation health    |
| D. No decline in vegetation condition attributable to the Warton Road duplication project        | Vegetation condition using Keighery (1994) scale | Biannual (Spring and Autumn) | Decline in vegetation condition |
| E. No increase in the incidence of rubbish attributable to the Warton Road duplication project   | Incidence of rubbish                             | Biannual (Spring and Autumn) | Increase in rubbish occurrences |



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

|                               |                                                                  |
|-------------------------------|------------------------------------------------------------------|
| <b>Permit number:</b>         | CPS 9257/1                                                       |
| <b>Permit type:</b>           | Purpose permit                                                   |
| <b>Applicant name:</b>        | City of Gosnells                                                 |
| <b>Application received:</b>  | 1 April 2021                                                     |
| <b>Application area:</b>      | 0.69 hectares of native vegetation                               |
| <b>Purpose of clearing:</b>   | Warton Road duplication                                          |
| <b>Method of clearing:</b>    | Bulldozer                                                        |
| <b>Property:</b>              | Warton Road reserve (PIN 11869318, 11869319, 12434990, 12434988) |
| <b>Location (LGA area/s):</b> | City of Gosnells; City of Armadale                               |
| <b>Localities (suburb/s):</b> | Canning Vale; Harrisdale                                         |

### 1.2. Description of clearing activities

The proposed clearing is to facilitate the duplication of Warton Road between Nicholson Road and Ranford Road, in Canning Vale (City of Gosnells, 2021a). The vegetation proposed to be cleared is spread across numerous small patches within an approximately 15 metre-wide, 1.7 kilometre-long corridor on the eastern side of the Warton Road reserve (see Figure 1, Section 1.5).

### 1.3. Decision on application

|                       |                                                                       |
|-----------------------|-----------------------------------------------------------------------|
| <b>Decision:</b>      | Granted                                                               |
| <b>Decision date:</b> | 15 October 2021                                                       |
| <b>Decision area:</b> | 0.69 hectares of native vegetation as depicted in Section 1.5, below. |

### 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 for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for information provided in the application (City of Gosnells, 2021a), additional information the applicant provided during assessment (see Appendix A), site characteristics (see Appendix B), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), the findings of a biological survey (see 0), relevant datasets (see Appendix F.1), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing is to improve road safety and enable higher traffic volumes down Warton Road as part of the Metropolitan Regional Roads Group's road improvement program and that the applicant has received written permission from the City of Armadale to access and clear within their portion of the Warton Rad reserve, which is under the management of the City of Gosnells and the City of Armadale.

The assessment identified that the proposed clearing will result in increased disturbance and edge effects to adjacent vegetation, including possible unauthorised access and litter, introduction and spread of weeds and dieback. This could reduce the quality of the vegetation within Bush Forever Area 253 (a component of Jandakot Regional Park), that contains ecological communities of conservation significance and is part of a Regional Ecological Linkage.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing of the values listed above can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values through appropriate permit conditions. The applicant has demonstrated avoidance, minimisation and mitigation measures that suitably manage the impacts above (see Section 3).

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback into adjacent vegetation
- Install a fence along the southern side of the road reserve as soon as possible after clearing and prior to road construction, to prevent unauthorised access to Bush Forever Area 253
- Conduct a weed control and rubbish removal program six-weekly within the first 20 metres of Bush Forever Area 253 to minimise weed encroachment, for five years.

## 1.5. Site map

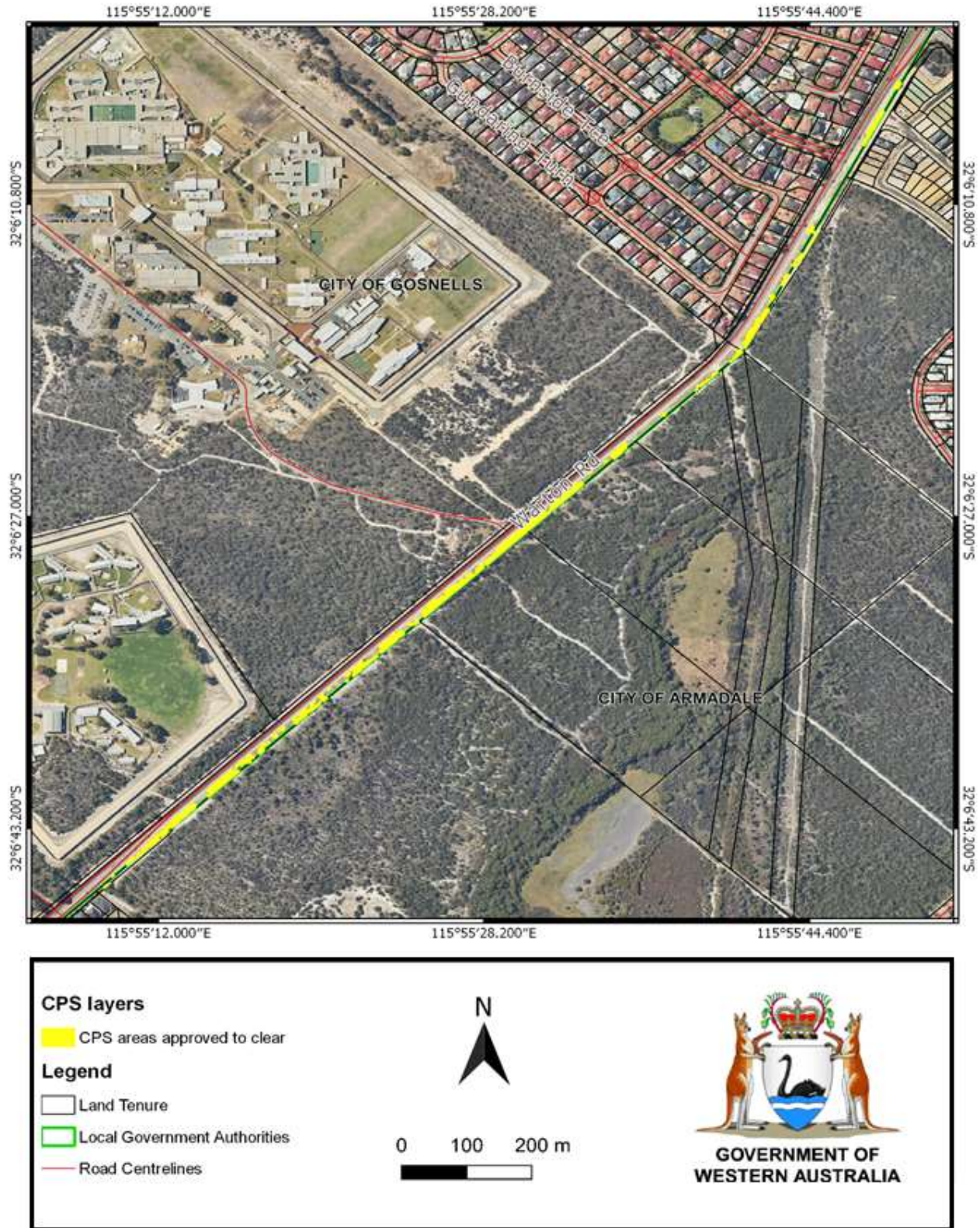


Figure 1. Map of the application area. The areas shaded yellow indicate the areas authorised to be cleared under the granted clearing permit.

## 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 (see Section 1.4), 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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The applicant advised it included the following measures in the road duplication design to minimise and mitigate clearing within the Regional Park:

- reduced the median to two metres, which is the minimum width required by Western Power for installation of street lighting
- minimised taper to the required median width at either end of the duplication length, within Austroads/MRWA guidelines
- reduced kerbing to the median and near retaining walls in high cut area with outfall captured by planted swale drains
- installation of retaining walls within the road reserve where level differences would otherwise require battering into the Bush Forever Area (BFA) 253
- installation of linear biofiltration drains in lieu of table drains in a narrow verge
- re-instatement of BFA 253 fencing
- possible salvage of large wood to provide fauna habitat in adjacent areas of vegetation and
- commitment to a 'maintenance and monitoring program' including six-weekly rubbish removal and weed control within the first 20 metres of the BFA 253 for three years post-construction, including biannual monitoring (Emerge, 2021a; Emerge 2021b).

The flora and vegetation survey and monitoring report (Emerge, 2021b) states 'an overarching goal of the Warton Road duplication project is that it does not negatively impact the vegetation within the adjacent portion of the Jandakot Regional Park' (BFA 253). Specific objectives are outlined in Figure 2, below.

| Goal                                                                                                                                               | Objective                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1) Ensure that the Warton Road duplication project does not negatively impact the vegetation within the adjacent portion of Jandakot Regional Park | 1a) No decrease in native species cover attributable to the Warton Road duplication project        |
|                                                                                                                                                    | 1b) No increase in weed cover post-development attributable to the Warton Road duplication project |
|                                                                                                                                                    | 1c) No decline in vegetation health attributable to the Warton Road duplication project            |
|                                                                                                                                                    | 1d) No decline in vegetation condition attributable to the Warton Road duplication project         |
|                                                                                                                                                    | 1e) No increase in the incidence of rubbish attributable to the Warton Road duplication project    |

Figure 2. Goals and objective for the Warton Road duplication project (Emerge, 2021b).

During assessment, the applicant agreed to additional mitigation measures including:

- extension of the 'maintenance and monitoring program' within the 20-metre mitigation area in the BFA 253 for a period of five years and commencing immediately after clearing rather than waiting for the completion of the construction to prevent deterioration
- commitment to a range of remediation works should monitoring show deterioration
- pre-clearing inspection of the hollow in Tree 63 using telescopic pole camera, which was completed on 6 October 2021 (City of Gosnells, 2021c)
- installation of an artificial black cockatoo nest hollow in one of two nominated mature jarrah trees nearby to Tree 63 and within the 20-metre mitigation area in the BFA 253
- preparation and adherence to a construction environmental management plan (CEMP) that will be prepared by a suitably qualified environmental consultant and will be tailored to the project to recognise the sensitive environmental works that will be undertaken within BFA 253. The CEMP will be provided to Department of Biodiversity, Conservation and Attractions and Western Australian Planning Commission for comment as they are the land managers (City of Gosnells, 2021b).

Considering the above, the Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid, minimise and mitigate potential impacts of the proposed clearing on environmental values.

### **3.2. Assessment of impacts on environmental values**

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the proposed clearing presents a risk to Carnaby's cockatoo, priority ecological communities and a conservation area. The consideration of these 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. Ecological communities and conservation areas - Clearing Principles (a, h)**

##### Assessment

As detailed in Appendix B., the area proposed to be cleared comprises a Commonwealth-listed threatened ecological community (TEC), two state-listed priority ecological communities (PEC), vegetation that contributes to a recognised Regional Ecological Linkage across the Swan Coastal Plain and 300m<sup>2</sup> of the Harrisdale Lake Bush Forever Area (BFA 253) within the Jandakot Regional Park.

The area proposed to be cleared is small in relation to the extent of TEC/PEC vegetation types present in the adjacent BFA 253 and broader Jandakot Regional Park in larger, intact patches and in better condition than the vegetation proposed to be cleared. Considering the size, shape and linearity of the area proposed to be cleared, as well as the highly disturbed, fragmented and significantly altered condition of the vegetation (See Appendix B), the proposed clearing is unlikely to have an appreciable impact on the function of the ecological linkage. However, it will remove the existing buffer from edge effects along one full edge of BFA 253, which is a small component of the Jandakot Regional Park and contains higher quality occurrences of the TEC/PECs.

##### Conclusion

Based on the above assessment, the proposed clearing may result in the deterioration of adjacent vegetation within BFA 253 that comprises TEC and PEC vegetation communities and forms part of a Regional Ecological Linkage between remnant vegetation and conservation areas. It is considered that the impacts of the proposed clearing on adjacent vegetation can be managed by taking steps to prevent unauthorised access and minimise the risk of the introduction and spread of weeds and dieback into the adjacent vegetation.

##### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Implementation of the 'maintenance and monitoring program' within the first 20 metres of BFA 253 for a period of five years (See Section 3.1). Weed control for this duration is considered adequate to sufficiently deplete the existing weed seed bank and will minimise the impact of edge effects on conservation significant adjacent vegetation.
- Fencing of BFA 253 to prevent unauthorised access and to protect the better condition vegetation from the construction works.

### 3.2.2. Biological values (fauna – Carnaby’s cockatoo) - Clearing Principles (b)

#### Assessment

*Calyptorhynchus latirostris* (Carnaby’s cockatoo) was once very numerous in southwest Western Australia (DPaW, 2013), however has suffered at least a 50 per cent decline in the total population and has disappeared from more than a third of its breeding range between 1968 and 1990 (Saunders and Ingram 1998). It is now listed as endangered under both the federal *Environment Protection and Biodiversity Conservation Act 1999* and state *Biodiversity Conservation Act 2016*. The decline of Carnaby’s cockatoo has been due primarily to the loss and fragmentation of habitat, as a result of clearing of native vegetation, since the middle of the 20th century (DPaW, 2013). Identified breeding and nearby feeding habitat, former breeding habitat that has hollows intact and vegetation that provides habitat for feeding, watering and regular night roosting is considered habitat critical for recovery of the species (DPaW, 2013).

#### Breeding habitat

Carnaby’s cockatoo nests in the hollows of live or dead eucalypts and in the past 60 years there has been a shift in the breeding range towards the south and west, including a more rapid increase in the Darling Scarp and Swan Coastal Plain (Johnstone and Kirkby, 2008; Johnstone et al. 2011).

Breeding habitat includes:

- trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, which is 500 millimetres for most tree species (Commonwealth of Australia, 2012)
- together with feeding areas and watering sites within foraging distance (12 kilometres) of breeding sites (DPaW, 2013).

There are numerous standing fresh water sources and significant areas of mapped potential Carnaby’s cockatoo feeding habitat within 12 kilometres of the area proposed to be cleared, including the vegetation proposed to be cleared itself. Therefore, it is considered possible for Carnaby’s cockatoo to breed in the area proposed to be cleared, where suitable hollows exist.

The loss of breeding hollows and reduced nest availability through land clearing and destruction of habitat has been identified as one of the key threats to Carnaby’s cockatoo, contributing to increased competition for hollows and reduced breeding rates and reproductive success (DPaW, 2013). Studies have shown that it may also take up to 200 years for a Eucalypt to develop suitable nest hollows for black cockatoo species, which represents a significant time lag between the loss and replacement of breeding habitat (EPA, 2019).

The significant fauna assessment (Emerge, 2021b) found a large hollow in a stag (dead tree) with suitable opening diameter and orientation for use by black cockatoos for breeding (Figure 3, below). Internal examination of the hollow found it to be too shallow to be currently suitable for breeding by black cockatoo (Emerge, 2021b).



Plate 17: Hollow inspection photographs for tree ID 63 (stag), showing external hollow (left) and internal view (right). The hollow is considered to be too shallow for breeding purposes for black cockatoo species

Figure 3. Photographs of the tree hollow with suitable entrance size and orientation for black cockatoos (Emerge, 2021b).

The applicant conducted an additional hollow assessment of this tree using a telescopic pole camera on 6 October 2021 (City of Gosnells, 2021c), which is an appropriate time to identify evidence of black cockatoo breeding activity. Photographs provided in the inspection report (Figure 4, below) indicate the hollow is not currently of dimensions suitable for use by black cockatoos and confirm that it is not currently being utilised for nesting. However, this does not rule it out as developing further into a breeding hollow for black cockatoos in the future. The applicant has committed to installing an artificial nesting box in a nearby tree to replace the loss of potential future hollows (City of Gosnells, 2021c).



Image 5. Tree 63 (stag) to be removed



Image 1. Tree 63 – Hollow 1 (not in use – hollow depth too shallow for any of the three Black-Cockatoo species).

Figure 4. Photographs from the City of Gosnells (2021c) hollow assessment confirming current lack of suitability for black cockatoos and no evidence of use.

#### **Foraging habitat**

Carnaby's cockatoo forages on the seeds, nuts and flowers of a variety of plants, including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, marri and a range of introduced species (Valentine and Stock, 2008). On the Swan Coastal Plain, it is noted that *Banksia* species (predominantly *B. attenuata*, *B. menziesii* and *B. sessilis*) are the most important natural food source for Carnaby's cockatoo, followed by marri (Groom, et al., 2014). The cumulative impact of *Banksia* woodland foraging habitat loss on the Swan Coastal Plain is a particular issue for Carnaby's cockatoo (Commonwealth of Australia, 2012).

Carnaby's cockatoo generally forages within six (and up to 12 kilometres) of its nesting or night roost site (Commonwealth of Australia, 2012). There is a known black cockatoo roost site approximately 600 metres northeast of the area proposed to be cleared and more than 20 others within six kilometres.

The vegetation proposed to be cleared includes Carnaby's cockatoo foraging species within the foraging distance to numerous roost sites. However, the area proposed to be cleared is small and the quality of the foraging habitat is low in relation to that within the surrounding Jandakot Regional Park. The proposed clearing is unlikely to represent a significant loss of Carnaby's cockatoo foraging habitat.

#### **Roosting habitat**

Black cockatoo roosting is typically noted to occur within suitable trees close to an important water source and within an area of quality foraging habitat (Commonwealth of Australia, 2012). Carnaby's cockatoo night roost sites typically have tall, dense canopied trees, are close to water where the birds can drink and close to food trees such as banksias,



bottlebrush and marri (Government of Western Australia, 2010). The roost trees are usually clumped and, at larger roosts, cover an area of at least five hectares (Government of Western Australia, 2010).

Databases and the significant fauna assessment (Emerge, 2021b) indicate the vegetation within, and adjacent to, the area proposed to be cleared is unlikely to represent a suitable Carnaby's cockatoo night roost site due to the distance to standing water sources, lack of clumps of trees with typical roost features and no signs of use. The proposed clearing is unlikely to represent a significant loss of Carnaby's cockatoo roosting habitat.

#### Conclusion

For the reasons set out above, it is considered that the proposed clearing is unlikely to impact significant habitat for Carnaby's cockatoo and the loss of a potential future breeding hollow will be mitigated by the applicant's commitment to install an artificial nest hollow in suitable nearby habitat.

### **3.3. Not required. Relevant planning instruments and other matters**

Sections of the Warton Road reserve (PINs 12434990, 12434988) are under the City of Armadale's management. The City of Armadale (2021) has authorised the applicant to obtain and execute a clearing permit for these areas.

There are no Aboriginal sites of significance mapped within 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.

**End**

## Appendix A. Additional information provided by applicant

DWER wrote to the applicant on 8 July 2021, requesting additional evidence of efforts taken to mitigate significant environmental impacts resulting from the proposed clearing including impacts to adjacent vegetation and potential black cockatoo breeding habitat.

The applicant responded on 16 July 2021 (City of Gosnells, 2021b), providing the additional comments, below.

| Summary of applicant's comments (City of Gosnells, 2021b)                                                                                                                                                                                                                                                            | DWER's consideration of comment                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Only certified clean fill will be used, construction environmental management plan will be prepared and implemented, surveyor will mark out new Regional Park (BFA 253) boundary and fencing will be installed prior to construction, cleared vegetation will be removed from site to avoid weed and hygiene issues. | Impacts to adjacent vegetation are addressed in the assessment of impacts on environmental values (see Section 3.2.1). |
| The weed control, rubbish removal and monitoring program in the Regional Park (BFA 253) 20 m wide mitigation area will be extended to 5 years. It will commence immediately after clearing and include remedial works if monitoring indicates deterioration attributable to the road works.                          | Impacts to adjacent vegetation are addressed in the assessment of impacts on environmental values (see Section 3.2.1). |
| The applicant will inspect the potential black cockatoo breeding tree (Tree 63) and, if being used, will retain it until after the chick has fledged. An artificial nest box will be installed within the 20 m-wide mitigation area in the Regional Park (BFA 253).                                                  | Impacts to black cockatoos are addressed in the assessment of impacts on environmental values (see Section 3.2.2).     |

## Appendix B. Site characteristics

| Characteristic     | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local context      | <p>The vegetation proposed to be cleared occurs in small patches spread over approximately 1.7 km of the southern side of the Warton Road reserve, in the Perth suburb of Canning Vale, approximately 25 km south of the Perth CBD.</p> <p>Apart from a 400 m-long cleared section to the north of Warton Road, vegetation on both sides of the road (in the location of the proposed clearing) is continuous with that within the surrounding regional park.</p> <p>Spatial data indicates the local area (10 km radius from the perimeter of the area proposed to be cleared) retains approximately 18% of the original native vegetation cover. The Swan Coastal Plain IBRA bioregion is approximately 38% vegetated (Government of Western Australia, 2019).</p> |
| Ecological linkage | The area proposed to be cleared is mapped as part of a Perth Metropolitan Regional ecological linkage. Emerge (2021b) reported "Ecological linkage (number 48) runs east to west through the centre of the area proposed to be cleared. This ecological linkage connects with ecological linkage (number 45) to the west of the survey area. These ecological linkages connect areas of Bush Forever located in the wider local area."                                                                                                                                                                                                                                                                                                                               |
| Conservation areas | <p>The vegetation proposed to be cleared is continuous with vegetation within the adjacent 110 ha Harrisdale Swamp and Adjacent Bushland (Forrestdale) Bush Forever Area (BFA 253). Towards the eastern end of the area proposed to be cleared, 300 m<sup>2</sup> of vegetation is proposed to be excised from the BFA and cleared for the roadworks.</p> <p>BFA 472 (Canning Vale Prison Bushland) is located on the opposite side of Warton Road to the area proposed to be cleared.</p>                                                                                                                                                                                                                                                                           |

| Characteristic         | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>BFA 253 and 472 are both components of the Jandakot Regional Park and vegetation on both sides of the road is contiguous with that within the regional park.</p> <p>Jandakot Regional Park comprises a fragmented mosaic of land comprising approximately 2,362 ha, extending over six local government areas. Jandakot Regional Park is jointly managed by Western Australian Planning Commission, Department of Biodiversity Conservation and Attractions, City of Armadale, City of Cockburn and City of Kwinana (DEC, 2010).</p> <p>The vegetation survey included the first 20m of the Jandakot Regional Park / BFA 253 area and reported vegetation in this area is subject to a low level of disturbance, with some weed and minor rubbish incursion (Emerge, 2021b).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Vegetation description | <p>Vegetation survey (Emerge, 2021b) reported three plant communities to occur within the area proposed to be cleared. The full survey descriptions and indicative photographs are available in 0.</p> <p>Vegetation survey (Emerge, 2021b) indicates vegetation proposed to be cleared is broadly consistent with the mapped Swan Coastal Plain vegetation complex:</p> <ul style="list-style-type: none"> <li>- Southern River Complex which is described as open woodland of <i>Corymbia calophylla</i> (marri) - <i>Eucalyptus marginata</i> (jarrah) - <i>Banksia</i> species with fringing woodland of <i>Eucalyptus rudis</i> (flooded gum) - <i>Melaleuca raphiophylla</i> (swamp paperbark) along creek beds (Heddlie et al, 1980).</li> </ul> <p>The Southern River Complex retains approximately 18% of the original extent (Government of Western Australia, 2019).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Vegetation condition   | <p>Vegetation survey (Emerge, 2021b) indicates the vegetation within the proposed clearing area is in very good to completely degraded (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>• 0.1957 ha 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.</li> <li>• 0.1761 ha 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.</li> <li>• 0.2787 ha 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.</li> <li>• 0.0469 ha 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.</li> </ul> <p>The full Keighery (1994) condition rating scale is provided in 0 and the full survey descriptions are available in 0.</p> |

| Characteristic         | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climate and landform   | <p>Emerge (2021b) reported an average of 819.6 mm of rainfall is recorded annually from the Jandakot Aero weather station, which is the closest weather station, located approximately 5km from the application area. The majority of this rainfall is received between the months of April and August (Emerge, 2021b).</p> <p>Emerge (2021b) reported the elevation of the survey area ranges from 27m in relation to the Australian height datum (mAHD) on the northern side of the survey area to 31mAHD on the southern side of the survey area.</p>                                                                                                                                                                                                                                                                                                                                    |
| Soil description       | <p>The soils are predominantly mapped as B2 Bassendean sands: flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak inorganic hardpan 1-2 m (DPIRD, 2019). There are also small areas of:</p> <ul style="list-style-type: none"> <li>- B1 Bassendean sands: 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 (DPIRD, 2019).</li> <li>- B3 Bassendean sands: closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam (DPIRD, 2019).</li> </ul> |
| Land degradation risk  | <p>The soils proposed to be cleared have:</p> <ul style="list-style-type: none"> <li>- High risk of nutrient export and subsurface acidification</li> <li>- Moderate risk of wind erosion</li> <li>- Low risk of waterlogging, water erosion and salinity</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Waterbodies            | <p>There are no watercourses or wetlands mapped over the area proposed to be cleared. The flora and vegetation survey (Emerge, 2021b) did not record the presence of watercourses or wetlands.</p> <p>Forestdale and Thomsons Lakes (RAMSAR wetland ID246) is approximately 14 km south.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Hydrogeography         | <p>The area proposed to be cleared is within the Proclaimed Perth Ground Water Area under the <i>Rights in Water and Irrigation Act 1914</i>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Flora                  | <p>Four threatened and 17 priority flora species are known to occur in the local area.</p> <p>Emerge (2021b) reported the spring flora and vegetation assessment was conducted to the standard required of a detailed and targeted survey (EPA, 2016) and the Survey Guidelines for Australia's Threatened Orchids (DoE, 2013). It recorded no threatened or priority flora within the area proposed to be cleared or in the first 20 m of the adjacent Regional Park.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Ecological communities | <p>Flora and vegetation survey (Emerge, 2021b) reported:</p> <ul style="list-style-type: none"> <li>- All three vegetation types within the area proposed to be cleared are associated with Commonwealth 'banksia woodlands of the Swan Coastal Plain' threatened ecological community (TEC) which is listed as 'endangered' under the EPBC Act. This community is also a Priority 3 state-listed PEC.</li> <li>- 0.3352ha of the vegetation proposed to be cleared represents FCT 21c 'low lying <i>Banksia attenuata</i> woodlands and shrublands' which is a Priority 3 state-listed priority ecological community (PEC).</li> </ul>                                                                                                                                                                                                                                                     |
| Fauna                  | <p>There are records of 32 fauna of conservation significance within the local area, including a critically endangered bird, 3 endangered birds and one mammal, 2 vulnerable birds and 17 migratory birds.</p> <p>There are numerous records of Carnaby's and forest red-tail black cockatoo in the local area and at least 20 known black cockatoo roost sites within 6 km (the typical foraging</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Characteristic | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <p>distance for black cockatoos from a night roost). There is a confirmed white tail black cockatoo nesting site 23 km to the east, on the Darling Scarp.</p> <p>Biological survey included a significant tree assessment and reported the large trees present in parts of the survey area may be locally and regionally significant due to their potential as black cockatoo habitat and close proximity to Harrisdale Swamp (Emerge, 2021b). The survey identified twelve native trees with a diameter at breast height over 500 mm within the area proposed to be cleared, including 9 <i>Allocasuarina fraseriana</i>, 1 <i>Eucalyptus todtiana</i>, 1 <i>Banksia ilicifolia</i> and 1 dead stag. The dead stag contains a hollow with sufficient height, opening and floor space but that was not deep enough to support breeding by black cockatoos (Emerge, 2021b).</p> |

### Appendix C. Assessment against the clearing principles

| Assessment against the clearing principles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Variance level               | Is further consideration required?        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------|
| <b>Environmental value: biological values</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |                                           |
| <p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u> The vegetation proposed to be cleared contains two state-listed priority ecological communities and a federally listed threatened ecological community.</p>                                                                                                                                                                                                                                                                                                        | May be at variance           | Yes<br><br>Refer to Section 3.2.1, above. |
| <p><u>Principle (b):</u> "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."</p> <p><u>Assessment:</u> The area proposed to be cleared contains a potential breeding tree, foraging and roosting habitat for Carnaby's cockatoo. Considering the condition and location of the vegetation proposed to be cleared, along with fauna habitat preferences, it is unlikely to represent important habitat for native fauna or the remaining conservation significant fauna recorded in the local area.</p> | May be at variance           | Yes<br><br>Refer to Section 3.2.2, above. |
| <p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u> Considering the vegetation condition and findings of an appropriately timed flora and vegetation survey (Emerge, 2021b), the area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.</p>                                                                                                                                                                                         | Not likely to be at variance | No                                        |
| <p><u>Principle (d):</u> "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."</p> <p><u>Assessment:</u> Considering the vegetation condition and findings of an appropriately timed flora and vegetation survey (Emerge, 2021b), the area proposed to be cleared is unlikely to contain a state-listed threatened ecological community.</p>                                                                                                                                                           | Not likely to be at variance | No                                        |
| <b>Environmental value: significant remnant vegetation and conservation areas</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                           |
| <p><u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</p> <p><u>Assessment:</u> The mapped vegetation type and the local area both retain less than 30% of the original extent and the vegetation proposed to be cleared is part of a significant ecological linkage in the local area. However, the area proposed to be cleared is within the Perth Metropolitan Region constrained</p>                                                                                                    | Not likely to be at variance | No                                        |

| Assessment against the clearing principles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Variance level               | Is further consideration required?    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------|
| <p>area, where a minimum 10% representation threshold for ecological communities is recommended (EPA, 2008). The current vegetation extent for the Swan Coastal Plain IBRA Bioregion, the Southern River Complex, and the local area are all above the 10% threshold for constrained areas. In addition, the vegetation proposed to be cleared is small pockets of highly disturbed roadside native vegetation. Noting the above, the proposed clearing is not likely to be significant as a remnant of native vegetation in an extensively cleared area.</p>                                                                                         |                              |                                       |
| <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 proposed clearing includes 300m<sup>2</sup> of vegetation growing within Bush Forever Area 253 (a component of the Jandakot Regional Park) and will remove the existing buffer from edge effects and road related disturbance along one full edge of this conservation area.</p>                                                                                                                       | May be at variance           | Yes<br>Refer to Section 3.2.1, above. |
| <b>Environmental value: land and water resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                                       |
| <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> Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>                                                                                                                                                                                                                                                                   | Not at variance              | No                                    |
| <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> The mapped soils are not highly susceptible to erosion or salinity. Noting the extent of clearing proposed and absence of watercourses from the application area, nutrient export from the proposed clearing is unlikely to have an appreciable impact on land degradation. Dust suppression measures will be implemented, the risk of erosion will reduce once the road is sealed and biofiltration drains will be installed to treat road run-off water.</p> | Not likely to be at variance | No                                    |
| <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> Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</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> No water courses or wetlands are recorded within the application area. In addition, the soils are free draining and topographic contours do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Therefore, the proposed clearing is unlikely to increase the risk of flooding.</p>                                                                                           | Not at variance              | No                                    |

## Appendix D. 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.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

### 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 E. Biological survey information excerpts

Vegetation descriptions, extents within the area proposed to be cleared and representative photographs taken from *Flora and Vegetation Survey and Monitoring Report* (Emerge, 2021b).

**Table 1: Extent of vegetation condition categories within the wider works area, clearing permit application area and exempt clearing**

| Condition category (Keighery 1994) | Size (ha)  |                                  |                                                           |
|------------------------------------|------------|----------------------------------|-----------------------------------------------------------|
|                                    | Works area | Clearing permit application area | Exempt clearing (for firebreaks within the Regional Park) |
| Pristine                           | 0          | 0                                | 0                                                         |
| Excellent                          | 0.0003     | 0                                | 0.0003                                                    |
| Very good                          | 0.2374     | 0.1957                           | 0.0417                                                    |
| Good                               | 0.1816     | 0.1761                           | 0.0055                                                    |
| Degraded                           | 0.2788     | 0.2787                           | 0.0002                                                    |
| Completely degraded <sup>^</sup>   | 1.2539     | 0.0469                           | 0                                                         |
| TOTAL                              | 1.9521     | 0.6974                           | 0.1308                                                    |

Note: <sup>^</sup>Total area of completely degraded vegetation within the works area is much larger than what is included within the clearing permit application area to avoid including cleared areas with no native cover. 'Completely degraded' areas included within the clearing permit application area consist of scattered native shrubs present within cleared areas.



| Plant community | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BaBm            | Open woodland of <i>Banksia</i> spp., <i>Eucalyptus todtiana</i> and <i>Allocasuarina fraseriana</i> over tall open shrubland <i>Adenanthos cygnorum</i> over open shrubland to shrubland of <i>Macrozamia fraseri</i> , <i>Eremaea pauciflora</i> subsp. <i>pauciflora</i> and <i>Acacia pulchella</i> var. <i>glaberrima</i> over forbland to closed forbland of <i>Dasypogon bromeliifolius</i> , <i>Burchardia congesta</i> , <i>Anigozanthos manglesii</i> , <i>Phlebocarya</i> sp., <i>*Ursinia anthemoides</i> and <i>*Gladiolus caryophyllaceus</i> over open tussock grassland (Plate 1– Plate 3). |
| MpAf            | Open woodland to woodland of <i>Melaleuca preissiana</i> , <i>Allocasuarina fraseriana</i> and <i>Nuytsia floribunda</i> over tall shrubland to closed shrubland of <i>Adenanthos cygnorum</i> and <i>Regelia inops</i> over shrubland to closed shrubland of <i>Xanthorrhoea</i> spp. and <i>Hypocalymma angustifolium</i> and vineland of <i>Cassytha flava</i> over forbland of <i>Podotheca gnaphalioides</i> and <i>*Gladiolus caryophyllaceus</i> , open rush/sedgeland of <i>Schoenus efoliatus</i> and <i>Lyginia barbata</i> and open to closed tussock grassland (Plate 5 and Plate 6)            |
| AfBKg           | Open woodland to woodland of <i>Allocasuarina fraseriana</i> and <i>Banksia</i> spp. over tall shrubland to closed shrubland of <i>Kunzea glabrescens</i> , <i>Adenanthos cygnorum</i> , <i>Melaleuca thymoides</i> and <i>Jacksonia furcellata</i> over open forbland to forbland of <i>Dasypogon bromeliifolius</i> , <i>Burchardia congesta</i> , <i>*Ursinia anthemoides</i> , <i>*Gladiolus caryophyllea</i> and <i>*Hypochaeris glabra</i> , open rushland to rushland of <i>Desmocladius flexuosus</i> and sparse to closed tussock grassland (Plate 7 - Plate 9).                                   |
| Cleared         | Tracks and other disturbed areas with limited native species cover, planted shrubs and open to closed forblands of <i>*Arctotheca calendula</i> and <i>*Oxalis pes-caprae</i> and open to closed tussock grassland of <i>*Ehrharta calycina</i> , <i>*Eragrostis curvula</i> , <i>*Avena barbata</i> and <i>*Briza maxima</i> (Plate 10 and Plate 11).                                                                                                                                                                                                                                                      |



*Plate 1: Plant community BaBm in 'degraded' condition within the north eastern extent of the works area.*



*Plate 2: Plant community BaBm in 'good' condition within the south western extent of the works area.*



*Plate 7: Plant community AfBKg in 'degraded' condition within the works area.*



*Plate 8: Plant community AfBKg in 'good' condition within the works area.*

## Appendix F. Sources of information

### F.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- 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)
- Offsets Register – Offsets (DWER-078)
- Perth Regional Ecological Linkages (WALGA 2004)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- 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:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

### F.2. References

City of Armadale (2021) *Letter of authority for clearing permit application CPS 9257/1, 24 March 2021*. (DWER Ref: DWERDT434706).

City of Gosnells (2021a) *Clearing permit application CPS 9257/1, received 1 April 2021* (DWER Ref: DWERDT434706).

City of Gosnells (2021b) *Response to request for information for clearing permit application CPS 9257/1, received 16 July 2021* (DWER Ref: A2030400).

- City of Gosnells (2021c) *Hollow Survey for Black-Cockatoo Breeding Activity for CPS 9257/1*, received 6 October 2021 (DWER Ref: A2053391)
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
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