



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 9184/1
<b>Permit Holder:</b>	Shire of York
<b>Duration of Permit:</b>	From 17 December 2022 to 17 December 2037

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**

Goldfields Road reserves (PINs 11580934, 1353886 and 1353887), Badgin, Cold Harbour, Narraloggan, Malebelling and Greenhills

**3. Clearing authorised**

The permit holder must not clear more than 0.205 hectares of *native vegetation* within the areas cross-hatched yellow in Figures 1 to 10 of Schedule 1.

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

The permit holder must not clear any *native vegetation* after 17 December 2027.

### **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. 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.

## 7. Fauna management – black cockatoo habitat

- (a) Within 48 hours prior to undertaking the clearing of the *suitable black cockatoo habitat tree* identified in the '*Black Cockatoo Habitat Tree Assessment and Threatened Ecological Community Assessment, Goldfields Road, York*' prepared by Del Botanics on 24 August 2022 within the area cross-hatched yellow in Figures 1 - 10 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect the *suitable black cockatoo habitat tree* for evidence of current breeding use by *black cockatoo species*.
- (b) Where the *suitable black cockatoo habitat tree* in condition 7(a) is identified with evidence of current breeding use by *black cockatoo species*, and *clearing* of that tree cannot be avoided, that tree must be monitored by a *fauna specialist* to determine when it is no longer in use for that breeding season.
- (c) Clearing of the *suitable black cockatoo habitat tree* in condition 7(a) must only be cleared when not in use by *black cockatoo species*.
- (d) Within two months of *clearing* authorised under this permit, the permit holder must provide the results of the fauna survey in a report to the CEO including the methodology used and whether the *suitable black cockatoo habitat tree* identified shows current or no use by *black cockatoo species*.
- (e) Prior to undertaking any *clearing* authorised under this permit, the permit holder must install two artificial black cockatoo nest hollows.
- (f) The artificial black cockatoo nest hollows required by condition 7(e) of this permit must:
  - (i) be installed within the area cross-hatched red on Figure 11 of Schedule 1;
  - (ii) be designed and placed in accordance with the specifications detailed in Schedule 2;
  - (iii) be monitored and maintained in accordance with the specifications detailed in Schedule 3, for a period of at least ten years
  - (iv) the location of the artificial nesting hollows is to be provided to the CEO within two months of installation.

## 8. Flora Management

- (a) Prior to undertaking any *clearing* authorised under this Permit, the Permit Holder must demarcate all *Thomasia glabripetala* plants identified in the report '*Detailed Flora and Vegetation Survey and Targeted Flora Search, Goldfields Rd, York, March 2022*' prepared by Del Botanics at the locations shown in Table 1.

**Table 1: Locations of *Thomasia glabripetala* plants identified in the report ‘Detailed Flora and Vegetation Survey and Targeted Flora Search, Goldfields Rd, York, March 2022’ prepared by Del Botanics**

Species name	Zone	Easting	Northing
<i>Thomasia glabripetala</i>	50 J	500338.00	6476205.00
<i>Thomasia glabripetala</i>	50 J	500397.24	6476212.02
<i>Thomasia glabripetala</i>	50 J	500396.74	6476215.34

- (b) The Permit Holder shall not cause or allow clearing of the identified *Thomasia glabripetala* plants, unless approved by the CEO, and in accordance with an authorisation under section 40 of the *Biodiversity Conservation Act 2016*.

## 9. Revegetation and rehabilitation

The permit holder shall take the following actions for the purpose of *revegetation* and *rehabilitation*;

- (a) Prepare the *revegetation* and *rehabilitation* area cross-hatched in red on Figure 12 of Schedule 1 by undertaking *weed* control;
- (b) Implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;
- (c) Within 12 months of the commencement of *clearing* and at an *optimal time*, commence *revegetating* and *rehabilitating* the areas cross-hatched red on Figure 12 of Schedule 1, by way of:
- (i) deliberately *planting* tube stock and/or salvaged vegetation of the following:
    - A. Six (6) Wandoo (*Eucalyptus wandoo*) plants; and
    - B. Six (6) Salmon gum (*Eucalyptus salmonophloia*) plants.
  - (ii) ensuring only *local provenance* propagating material is used for plantings;
  - (iii) installing tree guards around the plantings;
  - (iv) undertake *weed* control and watering of plantings for at least three years post *planting*;
- (d) The permit holder must within 24 months of planting the 12 plants in accordance with condition 9(c) of this Permit:
- (i) engage an *environmental specialist* to make a determination that six (6) *Eucalyptus wandoo* and six (6) *Eucalyptus salmonophloia* will survive;
  - (ii) if the determination made by the *environmental specialist* under condition 9(d)(i) that the six (6) *Eucalyptus wandoo* and six (6) *Eucalyptus salmonophloia* will not survive, plant additional *Eucalyptus wandoo* and *Eucalyptus salmonophloia* that will result in six (6) *Eucalyptus wandoo* and six (6) *Eucalyptus salmonophloia* plants persisting within the area cross hatched red on Figure 12 of Schedule 1.
- (e) Where additional planting of *Eucalyptus wandoo* and/or *Eucalyptus salmonophloia* is undertaken in accordance with condition 9(d)(ii), the permit holder must repeat the activities required by condition 9(c)–(d) of this Permit.

## PART III - RECORD KEEPING AND REPORTING

### 10. 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 2.

**Table 2: Records that must be kept**

No.	Relevant matter	Specifications
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 1994/2020 (GDA94/2020), 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; and</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6.</li> </ul>
2.	In relation to black cockatoo fauna management pursuant to conditions 7	<ul style="list-style-type: none"> <li>(a) the time and date of inspection of the <i>suitable black cockatoo habitat tree</i> by the <i>fauna specialist</i> in accordance with condition 7(a);</li> <li>(b) a description of the inspection methodology employed by the <i>fauna specialist</i>;</li> <li>(c) where the <i>suitable black cockatoo habitat tree</i> is determined by the <i>fauna specialist</i> to be occupied by <i>black cockatoo species</i>: <ul style="list-style-type: none"> <li>(i) the species name of the fauna determined by the <i>fauna specialist</i> to be occupying the <i>suitable black cockatoo habitat tree</i>; and</li> <li>(ii) the time and date that it was determined to be no longer occupied;</li> <li>(iii) a description of the evidence by which it was determined to be no longer occupied;</li> </ul> </li> <li>(d) the time and date that the <i>suitable black cockatoo habitat tree</i> was cleared;</li> <li>(e) the date and location the artificial nesting hollows were installed in accordance with condition 7, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/2020), expressing the geographical coordinates in Eastings and Northings</li> </ul>

No.	Relevant matter	Specifications
		(f) actions taken in order to monitor and maintain the installed artificial nest hollow in accordance with condition 7(f).
3.	In relation to flora management pursuant to condition 8	(a) actions taken to demarcate each <i>Thomasia glabripetala</i> plant identified in condition 8.
4.	In relation to <i>revegetation</i> and <i>rehabilitation</i> management pursuant to condition 9	(a) A description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken; (b) the date(s) on which the <i>revegetation</i> and <i>rehabilitation</i> was undertaken; and (c) all actions taken in accordance with conditions 9(a) to 9(e).

## 11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

## DEFINITIONS

In this permit, the terms in Table 3 have the meanings defined.

**Table 3: Definitions**

Term	Definition
black cockatoo species	means one or more of the following species: (a) <i>Calyptorhynchus lateriosis</i> (Carnaby's cockatoo); (b) <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo); and/or (c) <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
environmental specialist	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 CEO as a suitable environmental specialist.
evidence	means showing chew marks or scratchings on the habitat tree representative of the species being surveyed, the presence of the species entering or leaving the habitat tree, and/or the presence of chicks/young.
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the <i>CEO</i> as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.

<b>Term</b>	<b>Definition</b>
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	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 EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from May to June for undertaking <i>planting</i> .
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
rehabilitate / rehabilitated / rehabilitation	means actively managing an area containing <i>native vegetation</i> in order to improve the ecological function of that area.
revegetate /revegetated / revegetation	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
suitable black cockatoo habitat tree	means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for <i>Eucalyptus salmonophloia</i> or <i>Eucalyptus wandoo</i> ) that contains hollows suitable for breeding by <i>black cockatoo species</i> .
weeds	means any plant – <ul style="list-style-type: none"> <li>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>(c) not indigenous to the area concerned.</li> </ul>

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**END OF CONDITIONS**



**Meenu Vitarana**  
**MANAGER**  
NATIVE VEGETATION REGULATION

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

23 November 2022

# Schedule 1



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

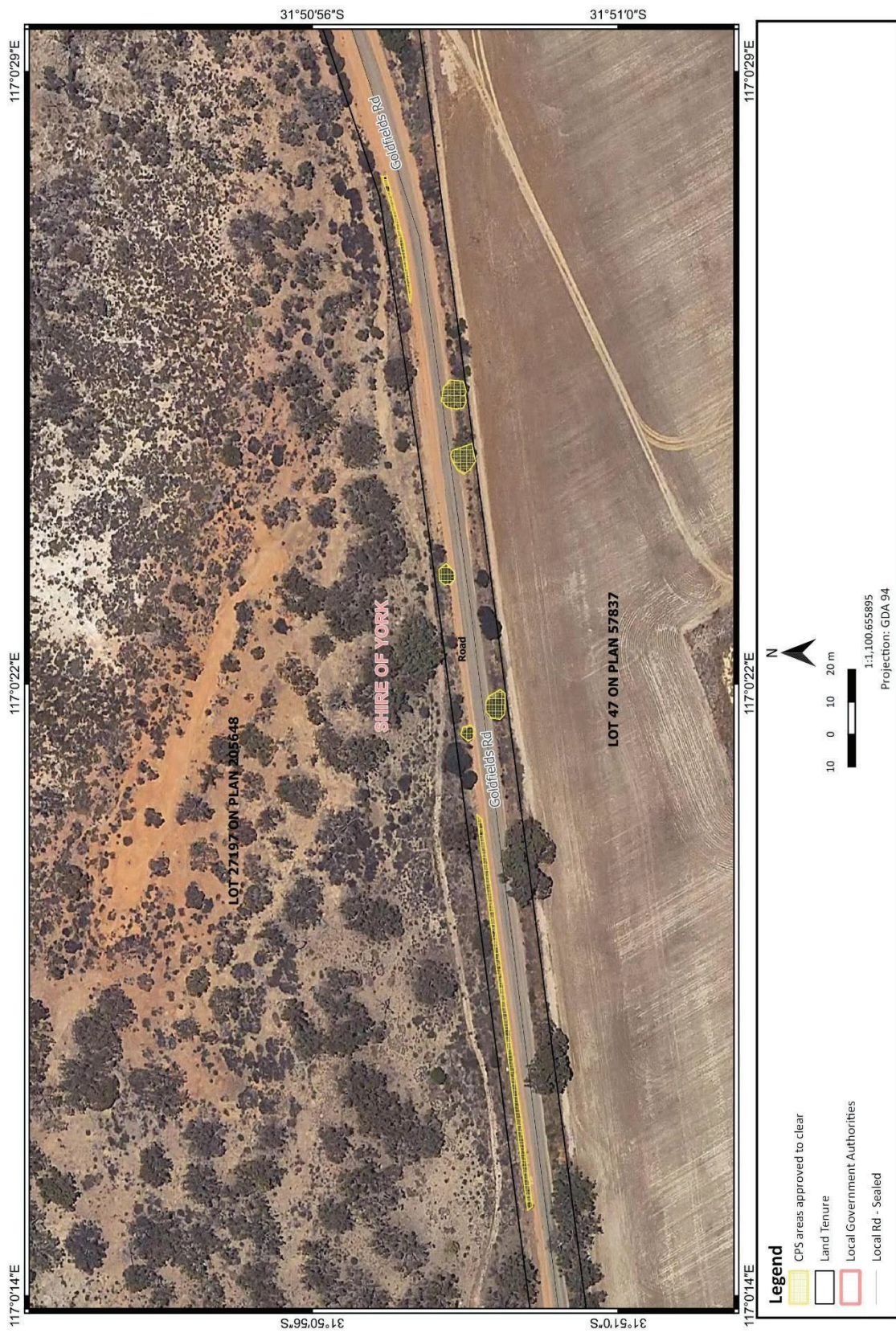


**Figure 2: Map of the boundary of the area within which clearing may occur**





**Figure 3: Map of the boundary of the area within which clearing may occur**



**Figure 4: Map of the boundary of the area within which clearing may occur**



**Figure 5: Map of the boundary of the area within which clearing may occur**



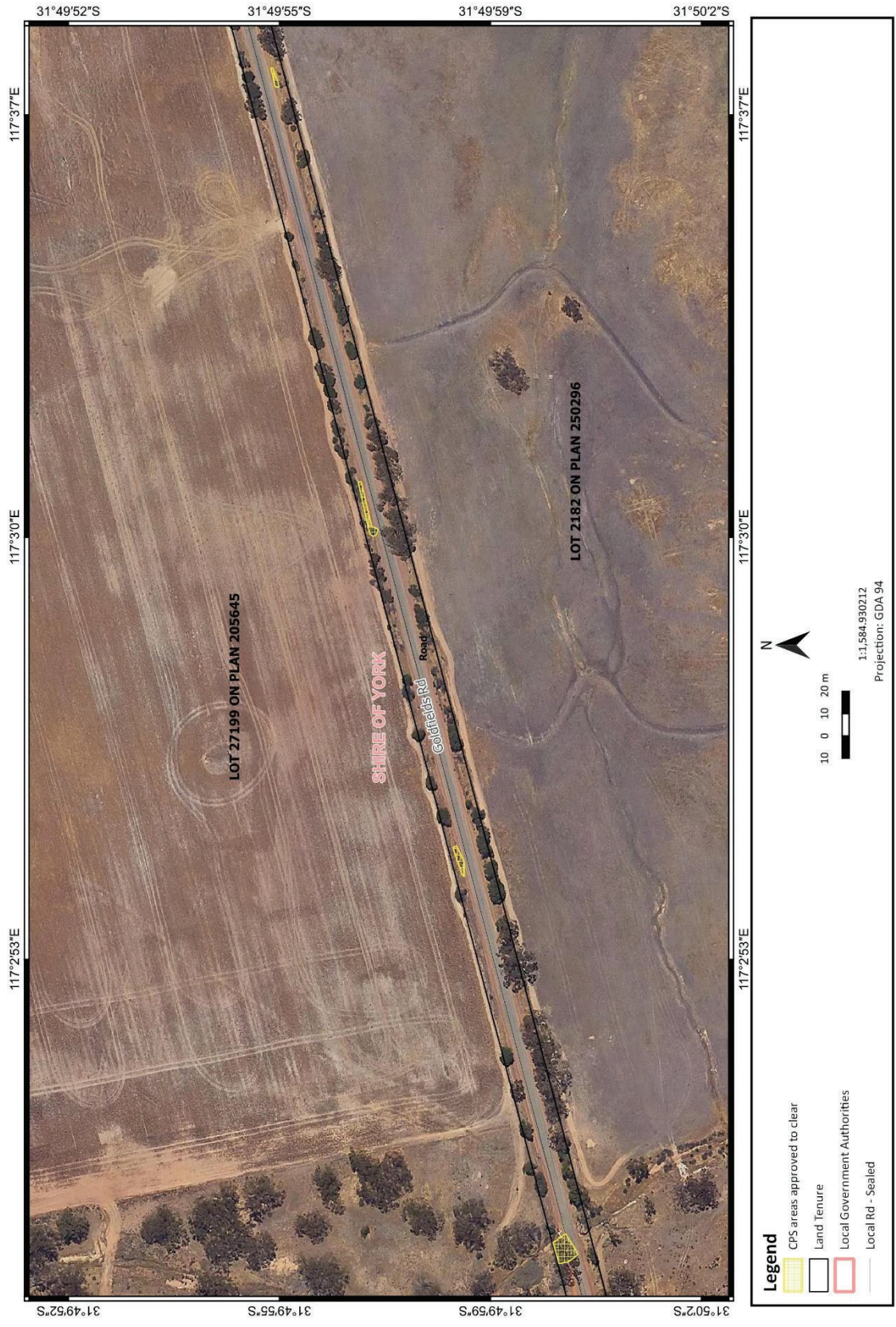
**Figure 6: Map of the boundary of the area within which clearing may occur**



**Figure 7: Map of the boundary of the area within which clearing may occur**



**Figure 8: Map of the boundary of the area within which clearing may occur**

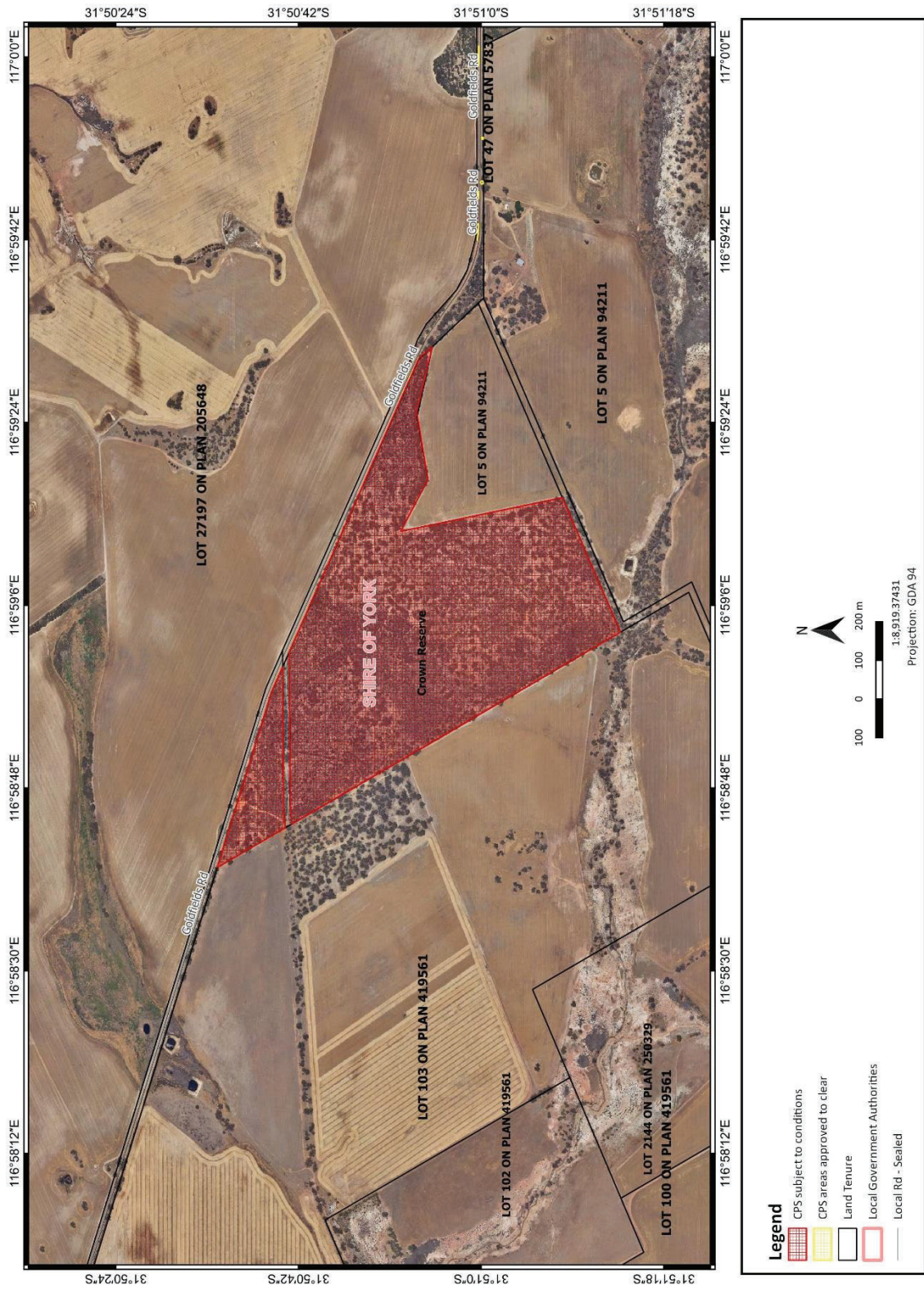


**Figure 9: Map of the boundary of the area within which clearing may occur**



**Figure 10: Map of the boundary of the area within which clearing may occur**





**Figure 11: Any artificial hollow(s) required to be installed under condition 7(e) is/are to be installed within the area cross-hatched red.**



**Figure 12: Revegetation and rehabilitation required under condition 9 is to occur within the area cross-hatched red.**

**Schedule 2 - How to design and place artificial hollows for Carnaby's cockatoo**

## Artificial hollows for Carnaby's cockatoo



## How to design and place artificial hollows for Carnaby's cockatoo

Artificial hollows can be used to help conserve the threatened Carnaby's cockatoo by enabling the cockatoos to breed in areas where natural hollows are limited.

A wide variety of artificial hollow designs have been used with mixed success. Evidence suggests that, while the hollow must meet some basic requirements, other factors such as proximity to existing breeding areas may be more important in determining the success of artificial hollows. Before using this information sheet to construct or install an artificial hollow, you should refer to the criteria listed in the separate information sheet; *When to use artificial hollows for Carnaby's cockatoo*.

This information sheet contains broad guidelines for the design and placement of artificial hollows for Carnaby's cockatoo.

Below are three examples of successful artificial hollows used by Carnaby's cockatoo for nesting. Artificial hollows made from a natural log with cut side entrance (left), white industrial pipe with top entrance (centre) and natural log with natural side entrance (right).



## Walls

The walls of the artificial hollow need to be constructed from a material that is;

- Durable enough to withstand exposure to elements for an extended period of time (i.e. 20+ years).
- Able to simulate the thermal properties of a natural tree hollow.
- Not less than 380 mm in internal diameter.
- Preferably 1.2 m deep overall and 1m deep to top of substrate/nesting material.

Successful artificial hollows have been constructed from sections of salvaged natural hollow, black and white industrial pipe. When using non-natural materials care must be taken to ensure there are no toxic residues and that the materials are safe to ingest.

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## Base

The base of the artificial hollow must be;

- Able to support the adult and nestling(s).
- Durable enough to last the life of the nest.
- Free draining.
- At least 380 mm in diameter.
- Covered with 200 mm of sterile, dry, free draining material such as charcoal, hardwood woodchips or wood debris.

### Do not use:

- Saw dust or fibre products that will retain moisture.

Example materials that could be used for artificial hollow bases include heavy duty stainless steel, galvanised or treated metal (e.g. Zinalume ®), thick hardwood timber slab or marine ply (not chipboard or MDF). The base material must be cut to size to fit internally with sharp or rough edges ground away or curled inwards and fixed securely to the walls.



Carnaby's cockatoo eggs in an artificial hollow.  
*Photo by Rick Dawson*

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## Entrance

The entrance of the artificial hollow must;

- Have a diameter of at least 270 mm).
- Preferably be top entry which will minimise use by non-target species.

Top entry hollows are unattractive to nest competitors such as feral bees, galahs and corellas. Side entry hollows have been successful in areas where feral bees are not a problem and where galahs and corellas are deterred.

## Ladder

For artificial hollows made of non-natural materials, or of processed boards, it is necessary to provide a ladder to enable the birds to climb in and out of the hollow easily.

The ladder must be;

- Securely mounted to the inside of the hollow.
- Made from an open heavy wire mesh such as WeldMesh™ with mesh size of 30 - 50 mm, or heavy chain.

### Do not use:

- A material that the birds can chew.
- Galvanized because the birds may grip or chew the ladder and ingest harmful compounds.

If using mesh for the ladder, the width will depend on the curvature of the nest walls. A minimum width of about 60 - 100 mm is recommended.

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## Sacrificial chewing posts

For artificial hollows made of non-natural materials, or of processed boards, it is necessary to provide sacrificial chewing posts. The birds chew material to prepare a dry base on which to lay their egg(s).

The sacrificial chewing posts must:

- Be made of untreated hardwood such as jarrah, marri or wandoo
- Be thick enough to satisfy the birds' needs between maintenance visits.
- Extend beyond the top of the hollow as an aid to see whether the nest is being used.
- Be placed on the inside of the hollow.
- Be attached in such a way that they are easy to replace e.g. hook over the top of hollow or can slide in/out of a pair of U bolts fitted to the side of the hollow.

It is recommended that at least two posts are provided. Posts 70 x 50 mm have been used, but require replacing at least every second breeding season when the nest is active. Birds do vary in their chewing habits and therefore the frequency at which the chewing posts require replacement will also vary.



Bottom of an artificial hollow showing ladder that is fixed to the wall and a chewed sacrificial post which is 200 mm from the floor.

*Photo by Rick Dawson*

## Mountings

The artificial hollows must be mounted such that:

- The fixings used will last the duration of the nest e.g. galvanized bracket or chain fixed with galvanized coach screws.
  - It is secured by more than one anchor for security and stability.
  - It is positioned vertically or near vertically.
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## **Placement**

Sites should be chosen within current breeding areas and where they can be monitored, but preferably not conspicuous to the general public. It is important that artificial hollows are placed where they will be accessible for future monitoring and maintenance. For more detail refer to the separate information sheet; *When to use artificial hollows for Carnaby's cockatoo*.

The height at which artificial hollows should be placed is variable. The average height of natural hollows in dominant tree species in the area is a good guide. Natural hollows used by Carnaby's cockatoos have been recorded as low as 2 m above the ground. If located on private property the hollows can be placed lower to the ground so they are accessible by ladder or a rope and pulley system can be used. Where public access is possible artificial hollows should be placed at least 7 m high (i.e. higher than most ladders) and on the side of the tree away from public view to reduce the chance of interference or poaching.

Carnaby's cockatoo show no preference for aspect of natural hollows, however, it may still be beneficial to place artificial hollows facing away from prevailing weather and where they receive the most shade and protection.

Artificial hollows to be placed in trees require:

- Accessibility of the tree for a vehicle, elevated work platform or cherry picker.
- A section of trunk 2-3 m long suitable for attaching the hollow

If necessary, artificial hollows may be placed on poles, but this may result in excessive exposure to sun during very hot weather. When erected on poles there should be"

- A hinge at the bottom of the pole that can be secured when the pole is in the upright position.
- Access for a vehicle to assist raising the pole.

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## **Safety**

Care needs to be taken when placing artificial hollows to ensure safety is considered at all times. Artificial hollows are heavy and require lifting and manoeuvring into position up to 7 m above the ground.

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## **Maintenance and monitoring**

Once artificial hollows have been placed they require monitoring and maintenance to ensure they continue to be useful for nesting by Carnaby's cockatoo. It is important to monitor artificial hollows to determine use by Carnaby's cockatoo, other native species as well as pest species. By undertaking monitoring the success of the design and placement of artificial hollows can be determined and areas for improvement identified for future placement of artificial hollows.

Monitoring can also assess whether any maintenance is required. Without regular maintenance artificial hollows are unlikely to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore it is important to continue a regime of regular maintenance while the artificial hollow is required. It may be several (to many) decades until a natural replacement hollow is available.

For further advice on monitoring and maintenance of artificial hollows please refer to the separate information sheet; *How to monitor and maintain artificial hollows for Carnaby's cockatoo*.



Carnaby's cockatoo female prospecting an artificial hollow.  
*Photo by Rick Dawson*



Example fixing for artificial hollow  
*Photo by Christine Groom*

### **Acknowledgements**

This information sheet is a joint initiative of Birdlife Australia, the Western Australian Museum and the Department of Parks and Wildlife. Many individuals have contributed to its preparation. Special acknowledgement is made for the contributions of Ron Johnstone from the WA Museum, Alan Elliott from the Serpentine-Jarrahdale Land care Centre and Denis Saunders. This updated version was compiled by Rick Dawson (Department of Parks and Wildlife).

### **Other information sheets in the series: Artificial hollows for Carnaby's cockatoo**

- *How to design and place artificial hollows for Carnaby's cockatoo*
- *How to monitor and maintain artificial hollows for Carnaby's cockatoo*

Information sheets available on the *Saving Carnaby's cockatoo* webpage:

<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/208-saving-carnaby-s-cockatoo>

#### **Further information**

Last updated 28/04/2015

Contact [fauna@dpaw.wa.gov.au](mailto:fauna@dpaw.wa.gov.au) or your local office of the Department of Parks and Wildlife

See the department's website for the latest information: [www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)

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**Schedule 3 - How to monitor and maintain artificial hollows for Carnaby's cockatoo**



## How to monitor and maintain artificial hollows for Carnaby's cockatoo

It is important to monitor and maintain artificial hollows after they have been erected. Monitoring ensures that the effectiveness of the artificial hollow can be determined. It also means that problems with pest species or any maintenance requirements can be identified and resolved.

Without regular maintenance, artificial hollows are likely to fail to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore it is important to continue a regime of regular maintenance while the artificial hollow is required. It may be several (to many) decades until a natural replacement hollow is available.

Monitoring should be undertaken in order to detect:

- Use by Carnaby's cockatoo
- Maintenance requirements
- Use by other native species
- Use by pest species (e.g. feral bees, galahs, corellas etc.)



Carnaby's cockatoo female prospecting an artificial hollow.  
*Photo by Rick Dawson*

### ***How do I monitor artificial hollows?***

Before undertaking monitoring of artificial hollows for Carnaby's cockatoo it is recommended that you seek advice from BirdLife Australia, the WA Museum or the Department of Parks and Wildlife. It is also important to contact Parks and Wildlife, Wildlife Licensing Section, to determine if a scientific licence is required ([wildlifelicensing@dpaw.wa.gov.au](mailto:wildlifelicensing@dpaw.wa.gov.au)).

Monitoring artificial hollows requires keen observation and naturalist skills. It is often not possible to observe evidence of breeding directly (i.e. nestlings or eggs) and inferences must be made based on observation. There are many techniques available to monitor artificial hollows. A combination of several is likely to achieve the best results.

### **Looking for signs of use**

Cobwebs covering the entrance to the hollow will indicate that the hollow has not been used recently. This would also apply to other light debris that may have fallen to cover the opening partially. Signs of recent use or interest in the hollow include evidence of chewing.

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### **Observing parent behaviour around the hollow**

The behaviour of parent birds around a hollow will indicate an approximate age of young in the nest.

<b>Parent behaviour</b>	<b>Approximate age/stage of young</b>
Prospecting for hollow	Unborn
Male only seen out of hollow	Egg or very young nestling (< 3 - 4 weeks)
Both parents seen entering/exiting the hollow	Nestling(s) have hatched (> 3 - 4 weeks)

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### **Observing feeding flocks**

Flocks of all male birds indicate that the females are incubating eggs. When flocks are mixed it suggests the birds have either not laid yet or that the nestlings have hatched and no longer require brooding (approximately 3 - 4 weeks old).

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### **Tapping**

When females are sitting on eggs they will usually respond to tapping at the base of their tree (or pole) by appearing at the entrance or flying from the hollow opening. This is not a guarantee of breeding activity, but an indication that it is possibly occurring in the hollow.

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### **Observing insect activity around nest**

The faecal matter produced by nestlings in a nest attracts insects, especially flies and ants. The type and number of these insects will help indicate how old any nestlings present may be. Factors such as temperature and humidity will also affect insect activity and so observations of insect activity should only be used as supporting evidence for other indications of age/use. Blowflies around a nest usually indicate that a death has occurred.

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### **Listening for nestlings**

With experience it is possible to determine if one or two nestlings are present and a broad estimate of age based on the type and loudness of noises they make.

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### **Looking inside the nest**

This can be achieved either with the aid of a telescopic pole and camera or mirror, or with the use of a ladder or other climbing equipment. This method can obtain the most detailed monitoring information for artificial hollows. However it is also the most time consuming and difficult to organise. Special equipment is likely to be needed depending on the height and positioning of artificial hollows. There are also safety issues associated with ladder or rope climbing options to reach nests to undertake observations.

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### **How often should I monitor artificial hollows?**

The minimum frequency of monitoring and the techniques used will be determined by the aims of the monitoring and the resources available. It is important to limit disturbance to breeding birds and this should be considered when determining the techniques used and frequency.

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### **How do I maintain artificial hollows?**

Artificial hollows require maintenance to ensure they continue to have the greatest chance of them being used by Carnaby's cockatoos. Periodic maintenance checks should be undertaken at least every two years, preferably annually. These checks should be undertaken prior to the breeding season which is between July and January with breeding occurring later in this period in southern areas. It is important to maintain a regime of regular maintenance as long as the artificial hollow is required. It may take several (to many) decades until a natural replacement hollow is available.

Maintenance checks should assess the following as a minimum:

- Condition of chewing posts (if present)
- Condition of attachment points
- Condition of hollow bases
- Stability of tree or pole used to mount the artificial hollow



Artificial hollow base needing repair.  
*Photo by Christine Groom*

### **Repairing hollows**

Any problems identified during maintenance checks should be addressed, and any repairs required done, as soon as possible. If breeding is currently occurring, maintenance may need to be delayed if it is likely to disturb the parents or nestling. Likely maintenance needs include replacement of chewing posts (frequently) or nest bases (occasionally) and repairing of any cracks (infrequently). Maintenance concerns regarding the security of attachment points or the stability of the tree or pole should be addressed as a priority for safety reasons.

For artificial hollows known to be used, spare chewing posts should be taken into the field when undertaking maintenance checks.

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**Monitoring of artificial hollows:**

Monitoring aim	Frequency of visits	Monitoring techniques
<b>To determine possible use by Carnaby's cockatoo</b>	At least once during peak breeding season (i.e. between September and December)	<ul style="list-style-type: none"> <li>• Observing behaviour of adults around hollow</li> <li>• Tapping to see if female will flush from hollow (best undertaken between 10am and 3pm when females most likely to be sitting)</li> <li>• Listening for nestlings</li> <li>• Looking for evidence of chewing</li> <li>• Looking inside nest</li> </ul>
<b>To confirm use by Carnaby's cockatoo</b>	At least two visits during peak breeding season (i.e. between September and December)	<p>To observe at least two of the following:</p> <ul style="list-style-type: none"> <li>• Breeding behaviour of adults around hollow or evidence of chewing</li> <li>• Female flushed from hollow</li> <li>• Noises from nestlings in hollow</li> </ul> <p>Or to observe:</p> <ul style="list-style-type: none"> <li>• Nestlings or eggs in nest</li> </ul>
<b>To determine nesting success by Carnaby's cockatoo</b>	The more visits, the better. Preferably fortnightly visits between July and December. As a minimum, at least 3 visits spread throughout breeding season.	<ul style="list-style-type: none"> <li>• Looking inside nest to observe eggs or nestlings.</li> </ul>
<b>To determine use by any species</b>	As often as possible.	<ul style="list-style-type: none"> <li>• Inspection from ground as a minimum.</li> <li>• Looking inside nest for detailed observations.</li> </ul>
<b>To determine maintenance requirements</b>	At least every two years and preferably annually if hollow fitted with sacrificial chewing posts, can be longer if without.	<ul style="list-style-type: none"> <li>• A basic maintenance check can be undertaken from the ground. A ladder or elevated work platform will be required for a comprehensive check and to replace sacrificial chewing posts</li> </ul>

**Acknowledgements**

This information sheet is a joint initiative of Birdlife Australia, the Western Australian Museum and the Department of Parks and Wildlife. Many individuals have contributed to its preparation. The updated version was compiled by Rick Dawson (Department of Parks and Wildlife) with assistance from Denis Saunders.

**Other information sheets in the series: Artificial hollows for Carnaby's cockatoo**

- *How to design and place artificial hollows for Carnaby's cockatoo*
- *How to monitor and maintain artificial hollows for Carnaby's cockatoo*

Information sheets available on the *Saving Carnaby's cockatoo* webpage:

<http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/208-saving-carnaby-s-cockatoo>

Further information

Last updated 28/04/2015

Contact [fauna@dpaw.wa.gov.au](mailto:fauna@dpaw.wa.gov.au) or your local office of the Department of Parks and Wildlife

See the department's website for the latest information: [www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)

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# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9184/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Shire of York
<b>Application received:</b>	13 January 2021
<b>Application area:</b>	0.205 hectares of native vegetation
<b>Purpose of clearing:</b>	Road construction and upgrades
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Goldfields Road reserves (PINs 11580934, 1353886 and 1353887)
<b>Location (LGA area/s):</b>	Shire of York
<b>Localities (suburb/s):</b>	Badgin, Cold Harbour, Narraloggan, Malebelling and Greenhills

### 1.2. Description of clearing activities

The area proposed to be cleared comprise a total of 0.205 hectares and contain 14 trees across 39 scattered areas, distributed across an approximately 2.2 kilometre stretch of Goldfields Road (see Figures 1 to 7, Section 1.5).

The westernmost area (Area 1, see Figure 1) is for the purpose of increasing the sight obstruction distance for a crossover. Clearing within the other areas (Areas 2 to 8, see Figures 2 to 10) is to facilitate road widening and the associated extension of a culvert.

The application was revised twice during the assessment process. The changes included:

- Changes to the clearing footprint initially proposed to ensure that the clearing footprint included all areas of native vegetation required to facilitate the road design;
- Following a request that the applicant consider further avoidance and mitigation measures, a reduction in the amount of clearing from 0.51 hectares in a larger footprint of 4.27 hectares to a definite 0.205 hectare area (the permitted clearing area), to avoid and minimise the clearing impacts (see Section 3.1 for further details), although several small areas were added to ensure all required clearing to facilitate the road upgrades was included.

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	23 November 2022
<b>Decision area:</b>	0.205 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 the site characteristics (see Appendix B), relevant datasets (see Appendix G), the findings of a flora and vegetation survey (Del Botanics, 2022a) and a black cockatoo habitat tree survey (Del Botanics, 2022b), a site inspection (DWER, 2022), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C) and relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration that the Shire of York had advised that the works are necessary to improve road safety.

The assessment identified that the proposed clearing:

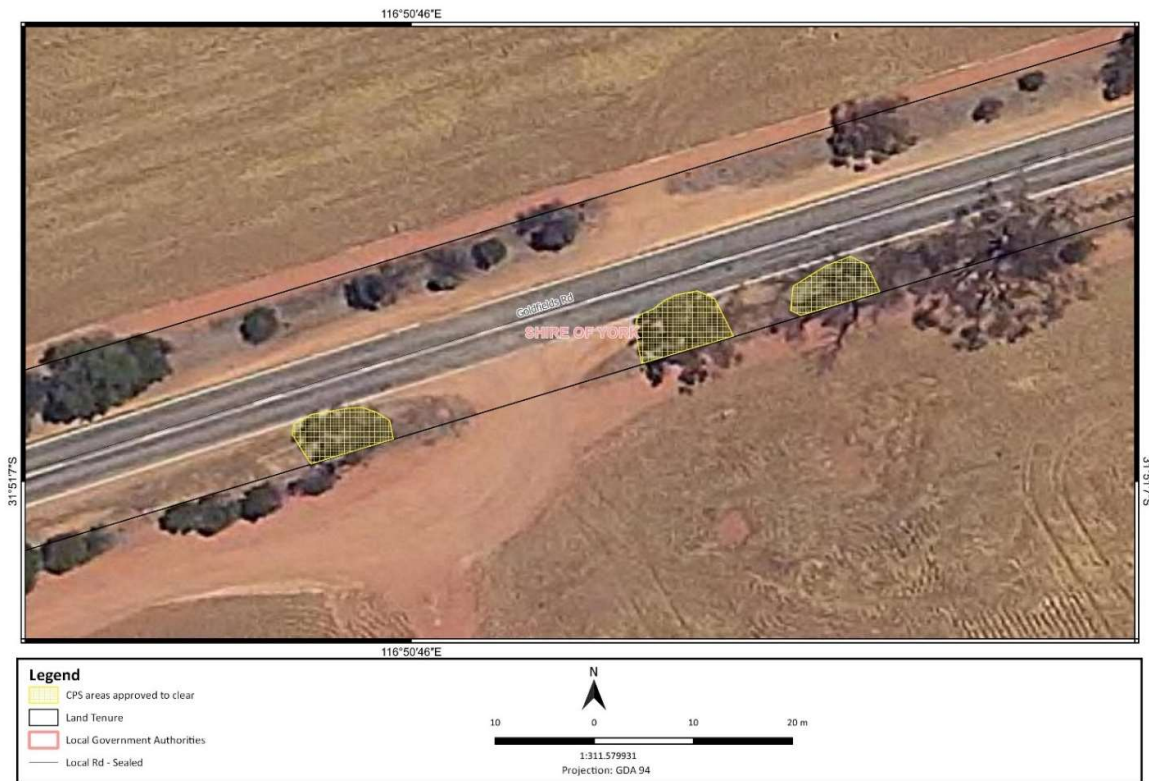
- Is unlikely to result in significant impacts to threatened or priority flora species or ecological communities. However, some inadvertent take of seed of *Thomasia glabripetala* may occur noting its proximity to the application areas
- Will result in clearing of six potential breeding trees for Carnaby's cockatoo, one of which contains two potentially suitable nesting hollows. The proposed clearing however is unlikely to significantly impact foraging or roosting habitat for Carnaby's cockatoo
- Is unlikely to significantly impact other conservation significant fauna species
- Will impact vegetation that is significant as a remnant of native vegetation in an area that has been extensively cleared, noting that it contains potential breeding habitat for Carnaby's cockatoo.

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

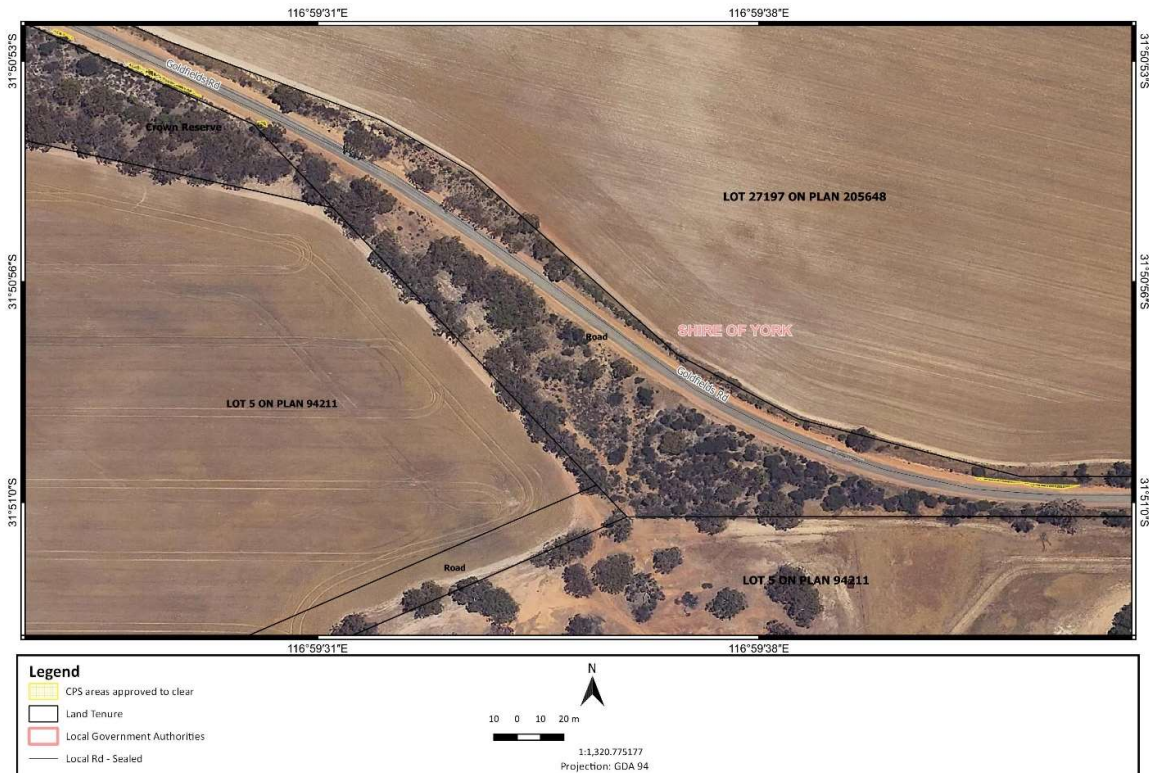
The Delegated Officer decided to grant a clearing permit subject to conditions to:

- Avoid, minimise to reduce the impacts and extent of clearing;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- Demarcate all *Thomasia glabripetala* plants prior to clearing to avoid inadvertent take;
- Inspect the suitable black cockatoo nesting tree prior to clearing, and no clearing of this tree is to occur if it is in use by black cockatoos;
- Install of two artificial hollows in the adjacent Wallaby Reserve to mitigate the loss of two potentially suitable nest hollows being cleared; and
- Rehabilitate an adjoining area of road reserve, including planting of six wandoo and six salmon gum trees. This planting has been calculated as adequate mitigation to offset impacts to potential breeding trees in accordance with the DWER Environmental Offset Calculator (refer to Appendix E).

## 1.5. Site maps

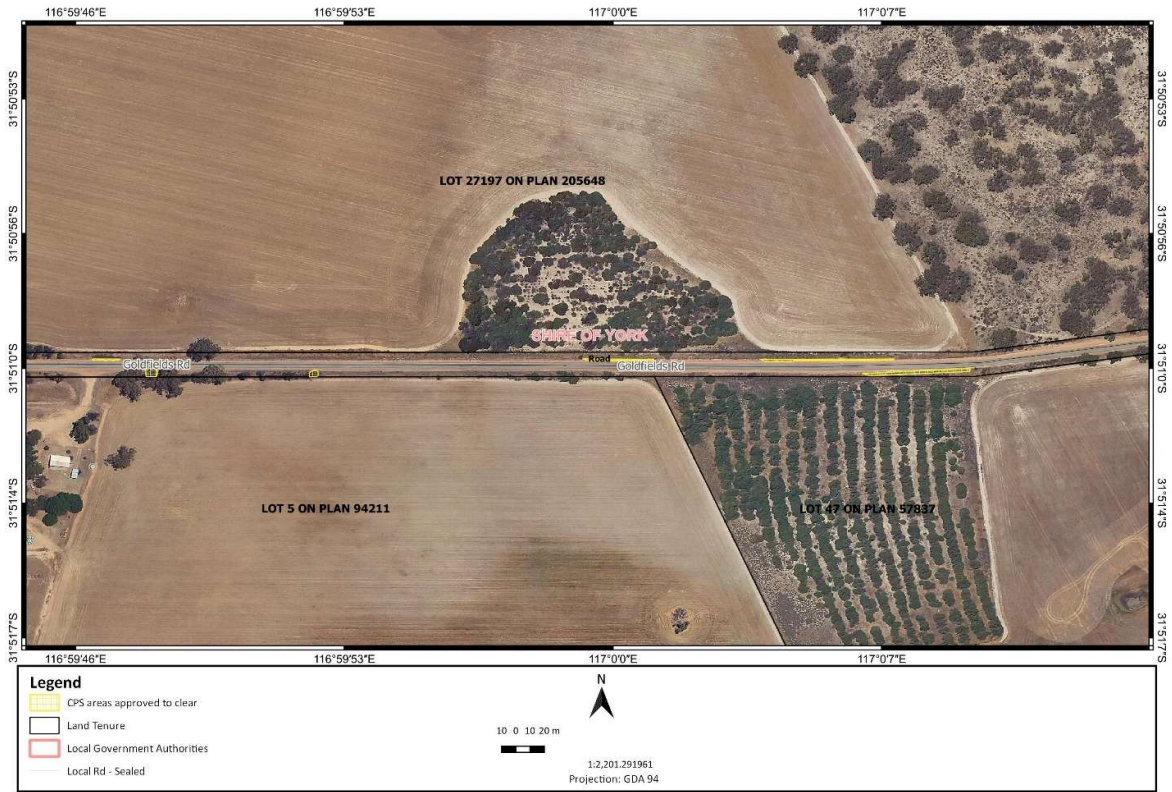


**Figure 1. Map of the application area (Area 1 - SLK 3.59-3.62). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**

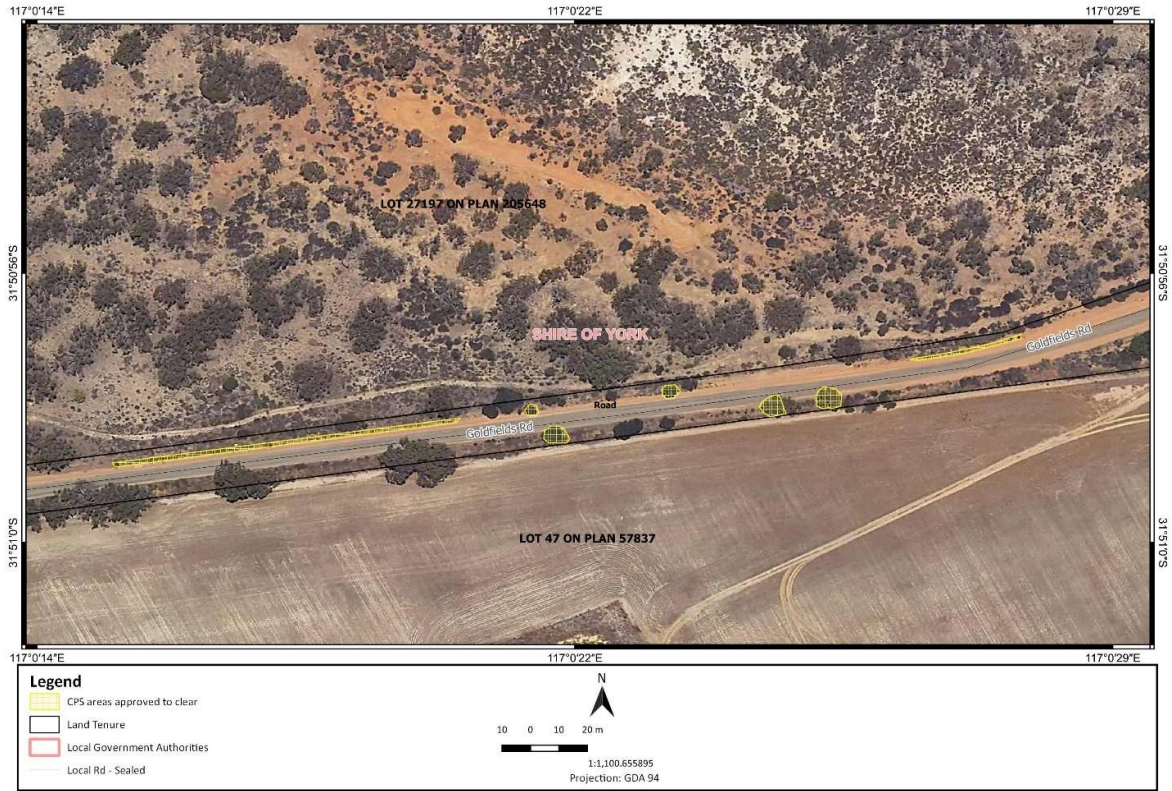


**Figure 2. Map of the application area (Area 2A - SLK 18.10-18.73). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**

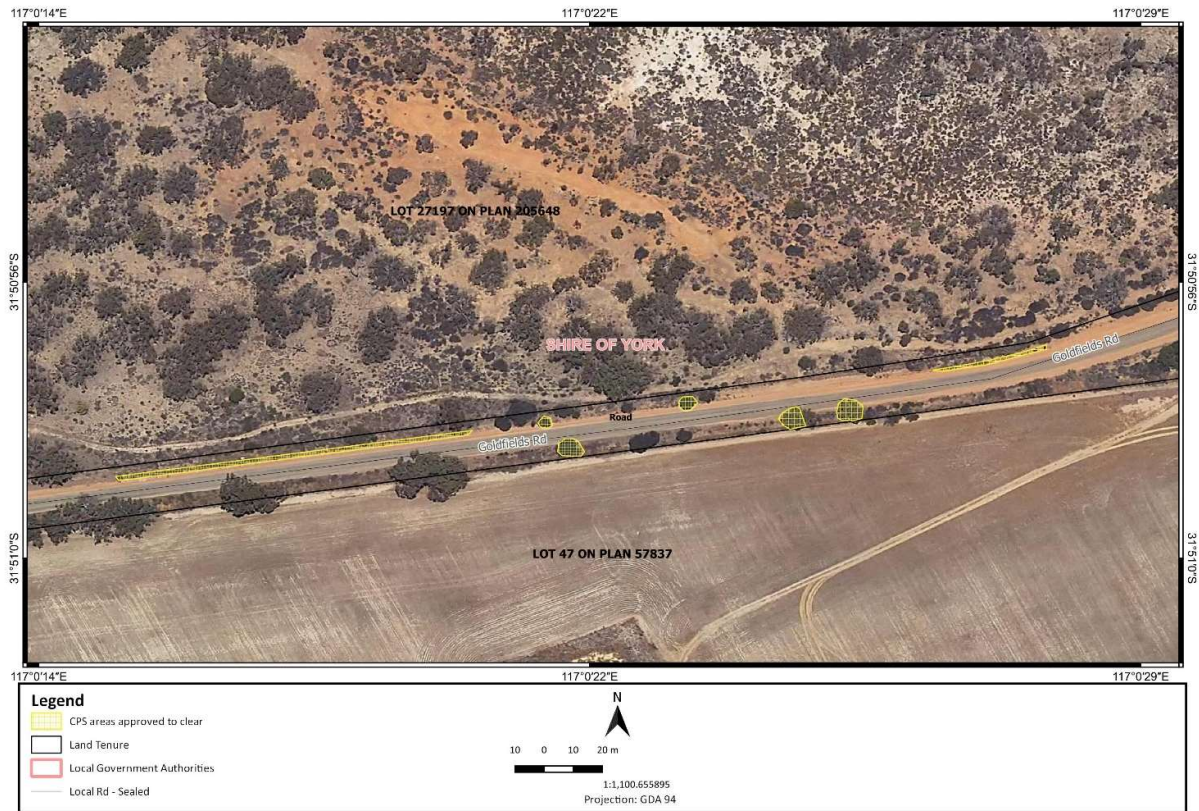




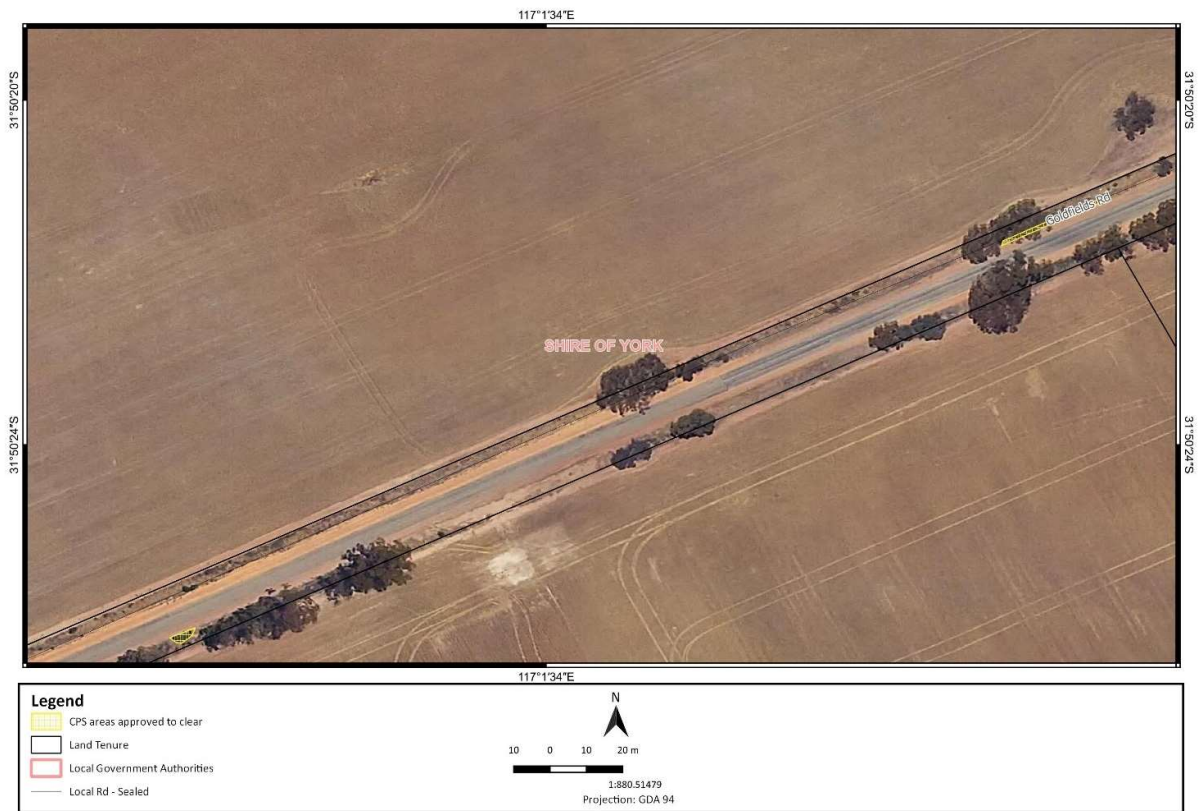
**Figure 3. Map of the application area (Area 2 - SLK 18.73-18.87). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



**Figure 4. Map of the application area (Area 3 - SLK 19.68-19.76). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



**Figure 5. Map of the application area (Area 4 - SLK 21.30-21.65). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



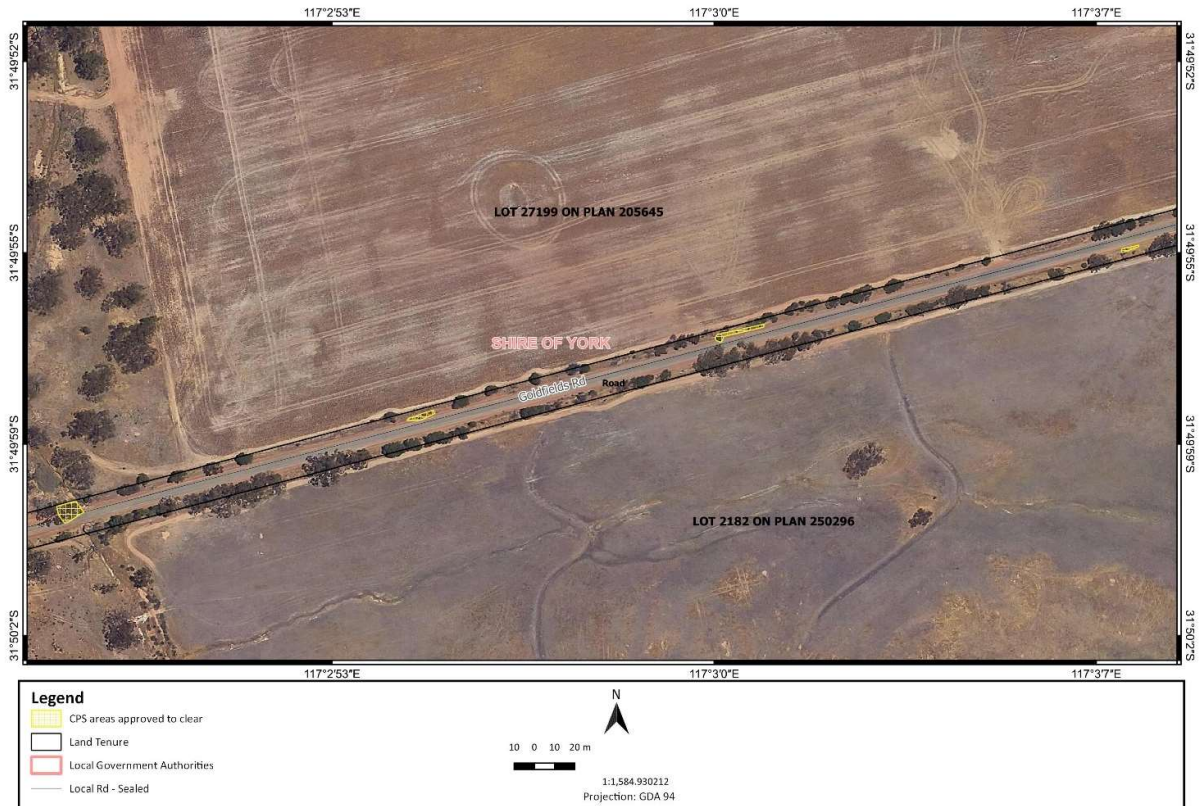
**Figure 6. Map of the application area (Area 4A - SLK 21.65-22.07). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



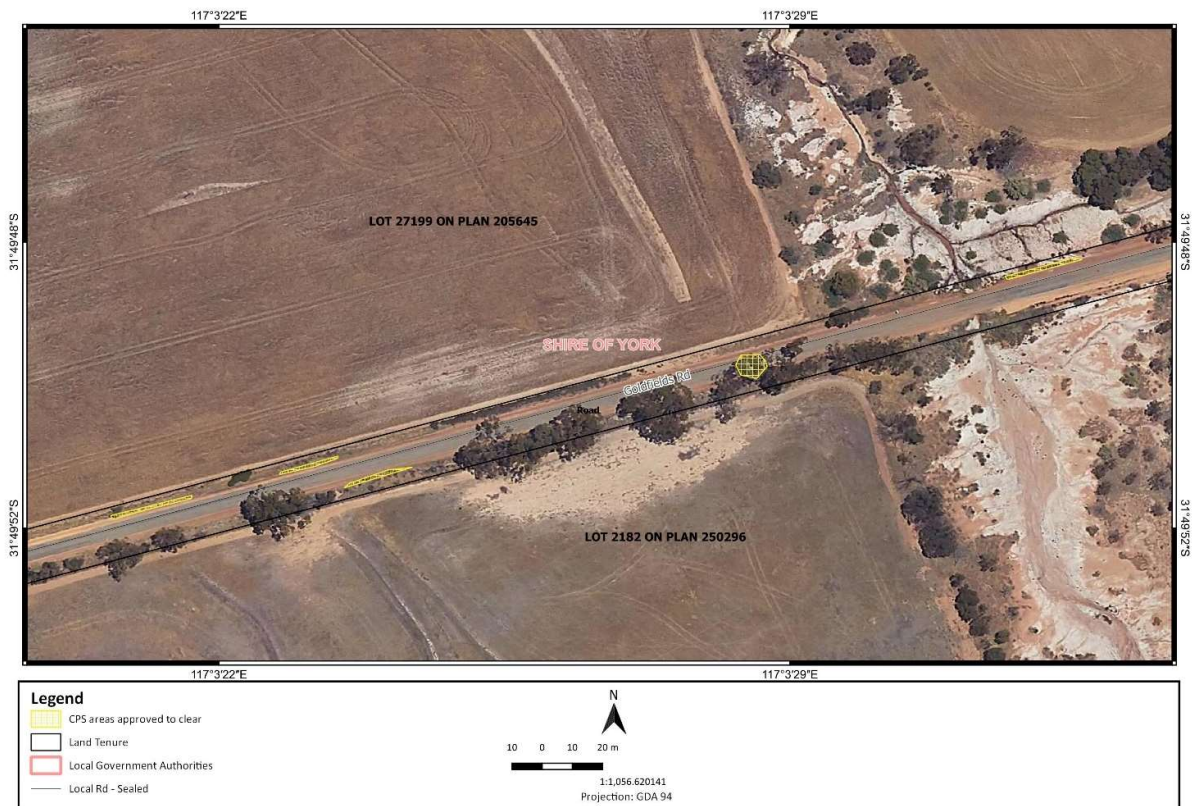
**Figure 7. Map of the application area (Area 5 - SLK 22.07-23.03). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



**Figure 8. Map of the application area (Area 6 - SLK 23.54-23.56). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



**Figure 9. Map of the application area (Area 7 - SLK 23.93-24.65). The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.**



**Figure 10. Map of the application area (Area 8 - SLK 25.04-25.08). The areas crosshatched 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 polluter pays principle
- 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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *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)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The applicant initially advised that alternatives to avoid or minimise the need for clearing had been considered and applied, as there were no alternatives to provide a safe road (Shire of York, 2021a). Following a request to provide evidence of efforts taken to avoid and/or minimise clearing, the applicant provided a revised updated clearing area, reducing the area of clearing from 0.51 hectares within a 4.27 hectare footprint area to a defined 0.205 hectare area. This reduced clearing area avoided numerous black cockatoo habitat trees identified by Del Botanics (2022b) and avoided clearing of vegetation associated with two watercourses intersecting the original clearing footprint. The applicant also committed to management conditions to be placed on the permit to mitigate impacts of the clearing, including:

- rehabilitation of a road reserve area adjacent to the application area (refer to Section 3.2.2 for further details);
- inspection of a tree containing potentially suitable hollows for black cockatoo breeding prior to clearing, and that this tree cannot be cleared if nesting is occurring; and
- placement of artificial hollows in a nearby area.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise 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 impacts of the proposed clearing present a risk to biological values including fauna and flora, and significant remnant vegetation. 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.

## **Biological values (flora and ecological community) - Clearing Principles (a) and (c)**

### Assessment

According to available databases, seven threatened flora species and 29 priority flora species have previously been recorded within the local area (10 kilometre radius from the perimeter of the application area). Based on information from previous records, the soil and vegetation types present within the application and DBCA advice (2022a), three conservation significant flora species were identified as potentially occurring within the application area, being *Acacia campylophylla* (P3), *Hakea aculeata* (T) and *Thomasia glabripetala* (T). All three species can persist in highly degraded road reserves.

*Hakea aculeata* (T) is known from 33 populations (43 subpopulations) and approximately 1300 plants. It is noted that no plants have been recorded at 19 of the 33 populations during the most recent survey efforts (DBCA, 2021). A flora survey, which included a targeted search for this species, did not record the presence of this species within the proposed clearing areas or a wider surveyed area (Del Botanicus, 2022a).

*Thomasia glabripetala* (T) has been recorded very close to the application area (within 150 metres from the application area). This species is known from seven populations (9 populations) with 682 plants. A flora survey, which included a targeted search for this species, recorded no *Thomasia glabripetala* plants within the proposed clearing areas, although three plants were found within a wider surveyed area, including one plant approximately 10 metres west of, and on the same side of the road as, one of the proposed clearing areas (Del Botanicus, 2022a). DBCA (2022) advised that populations of *Thomasia glabripetala* have declined in abundance over recent years, and as such new occurrences of these species would be of significance. Noting that the proposed clearing will not take any *Thomasia glabripetala* plants, impacts to this species are not considered to be significant, however it is acknowledged that seed may be present within the soil which may inadvertently be taken during the proposed clearing given the distance of the clearing to the nearest plant. The applicant has been advised that authorisation under Section 40 of the *Biodiversity Conservation Act 2016* will therefore be required to conduct the proposed clearing. A condition will also be placed on the permit requiring the applicant to demarcate *Thomasia glabripetala* plants identified by Del Botanicus (2022a) to prevent inadvertent take of these plants.

*Acacia campylophylla* (P3) is only known from six confirmed locations, and has been recorded in low number (less than 5 individuals) where plant counts have been undertaken (DBCA, 2021). Only 5 records of this species have been recorded since 2000 (DBCA, 2022). A flora survey encompassing the application area (Del Botanicus, 2022a) did not search for this species. DBCA (2022) advised if a new subpopulation of this species was located within or near the application area, it would be considered regionally significant, however given the limited extent of the clearing, it is unlikely that impacts would be considered significant to the conservation of the species. Noting the condition and extent of the vegetation to be cleared it is considered unlikely that this species would be present, and if it were to be present, it is unlikely that the proposed clearing would result in impacts significant to the conservation of the species.

Good condition vegetation within four of the proposed clearing areas, comprising a total of 0.031 hectares, is considered to be part of a patch of the Eucalypt Woodlands of the WA Wheatbelt ecological community, listed as Priority 3 under the BC Act and Threatened under the EPBC Act (Eucalypt Woodlands PEC/TEC) (Del Botanicus, 2022b). Noting the small extent of this vegetation to be cleared, that no eucalyptus trees will be cleared from this patch and that the vegetation is on the edge of this patch and therefore the clearing will not sever the patch, the proposed clearing is unlikely to significantly impact this patch or the conservation status of this ecological community. The implementation of weed and dieback management conditions will minimise the impact to environmental values of the adjacent vegetation.

### Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to threatened or priority flora species or ecological communities. However, some inadvertent take of seed of *Thomasia glabripetala* may occur. The applicant has been advised that authorisation under Section 40 of the *Biodiversity Conservation Act 2016* will therefore be required to conduct the proposed clearing.

### Conditions

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

- Weed and dieback management
- Demarcate all *Thomasia glabripetala* plants prior to clearing to avoid inadvertent take.

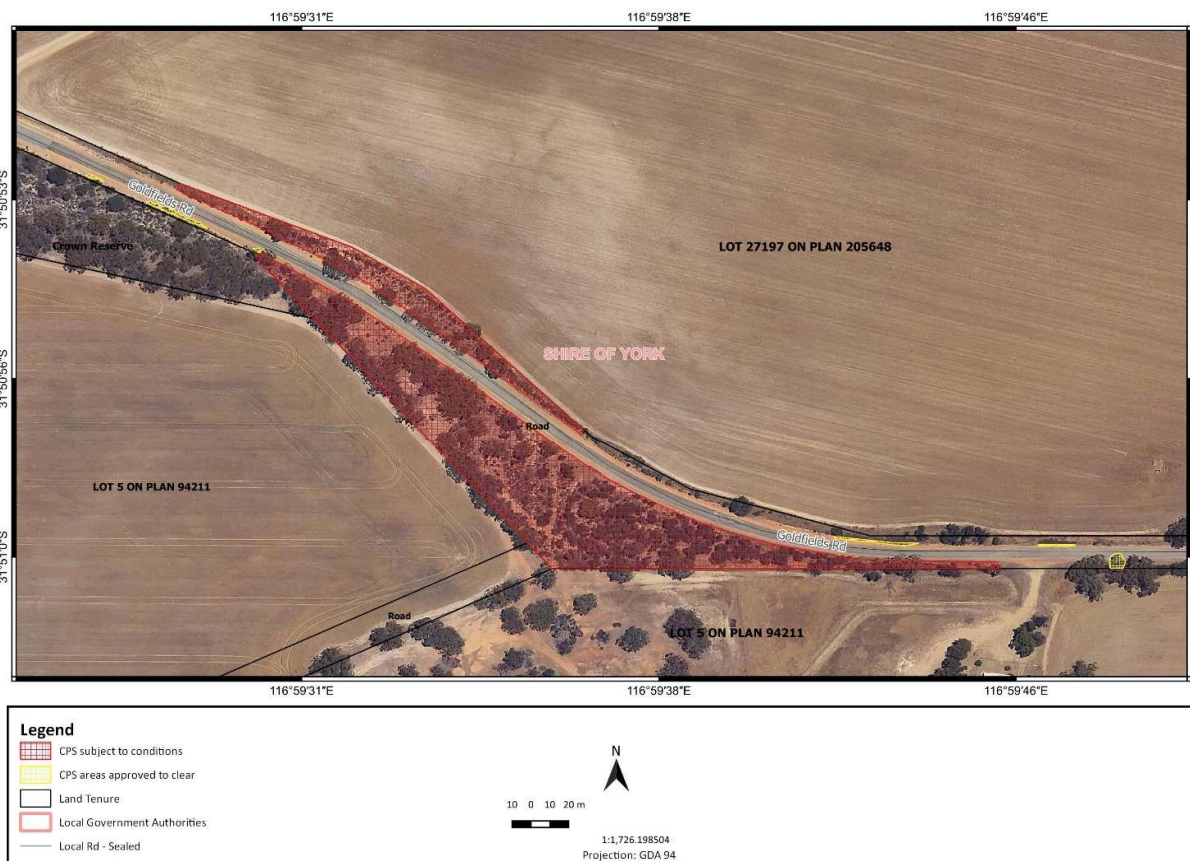
### 3.2.1. Biological values (fauna) - Clearing Principles (b)

#### Assessment

#### Carnaby's cockatoo (*Zanda latirostris*) – Endangered

The application area is within the modelled breeding range of Carnaby's cockatoo. Requirements for this species can be categorised as breeding habitat, foraging habitat and night roosting habitat. Black cockatoo breeding habitat as defined in the referral guidelines (DAWE, 2022) is habitat that contains known, suitable or potential nesting trees. Known nesting trees are those where there is evidence of black cockatoo breeding, suitable nesting trees are those which contain hollows suitable to support black cockatoo breeding, and potential nesting trees are trees of species known to support breeding (which include wandoo, salmon gum and York gum) that are of a suitable diameter at breast height (DBH) to develop a nest hollow (generally 500 mm, but 300 mm for wandoo and salmon gum). A black cockatoo habitat survey (Del Botanics, 2022) found no known nesting trees within the application area, one suitable nesting tree (a York gum with two suitably large hollows) and five additional potential nesting trees. All areas of breeding habitat (i.e. including suitable and potential breeding habitat) in the Wheatbelt region are considered critical to black cockatoos. As such, to mitigate impacts to black cockatoo breeding habitat, the following will be required as conditions of the permit:

- Inspect the suitable black cockatoo nesting tree prior to clearing, and no clearing of this tree is to occur if it is in use by black cockatoos;
- Installation of two artificial hollows in the adjacent Wallaby Reserve;
- Rehabilitation of an adjoining area of road reserve (see Figure 11 below), including planting of six wandoo and six salmon gum trees. This planting has been calculated as adequate mitigation to offset impacts to potential breeding trees in accordance with the DWER Environmental Offset Calculator (refer to Appendix E).



**Figure 11. Red cross-hatched area indicates the area which the applicant is required to rehabilitate.**

Carnaby's cockatoo forage within 12 kilometres of their nest, and 20 kilometres from night roosting habitat (DAWE, 2022). Although no known breeding sites have been recorded within a 12 kilometre radius of the application area, one roosting site is present within a 20 kilometre radius, approximately 8.3 km west from the western extent of the app area, although it would appear as though surveys have not been conducted at this site since 2010. Carnaby's

cockatoo typically forage in native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species, *Callistemon* spp. And marri (DAWE, 2022) but have also been known to forage on *Allocasuarina* spp., wandoo, salmon gums and York gums (Groom, 2011). Only small roteaceae plants were found within the application area and these were not dominant (Del Botanics, 2022a), however 14 *Allocasuarina* spp., wandoo, salmon gum and York gum trees, with a combined canopy area of approximately 0.07 hectares, were all present within the application area. Noting that these are non-preferred foraging species, the largely Degraded condition of the vegetation and that only six of these trees had a diameter of 300 millimetres or greater and are therefore not likely to provide significant amounts of foraging material, it is considered that the proposed clearing will remove approximately 0.07 hectares of low quality foraging habitat for Carnaby's cockatoo. Noting the poor quality and limited extent of the foraging habitat present within the application area, the proposed clearing is not considered likely to significantly impact black cockatoo foraging habitat, and that a condition placed on the permit to rehabilitate an adjoining area of road reserve (including planting of six wandoo and six salmon gum trees) will mitigate impacts to foraging habitat.

Carnaby's cockatoo typically roost in tall trees (particularly flat-topped Yate, salmon gum, wandoo, marri, karri, blackbutt, tuart, introduced eucalypts and introduced pines) located in or near riparian environments or natural and artificial permanent water sources (DAWE, 2022). Larger trees in the application area (i.e. the six potential habitat trees identified by Del Botanics (2022)) may therefore provide suitable roosting habitat for Carnaby's cockatoo. Given that the proposed clearing will only remove a small proportion of suitable roosting trees from the patches of vegetation containing these trees, the proposed clearing is considered unlikely to have a significant impact on black cockatoo roosting habitat. It is considered that a condition placed on the permit to rehabilitate an adjoining area of road reserve (including planting of six wandoo and six salmon gum trees) will help to mitigate impacts to loss of Carnaby's cockatoo foraging habitat resulting from the proposed clearing.

### **Mortlock River shield-backed trapdoor spider (*Idiosoma schoknechtorum*) – Priority 3**

The Mortlock River shield-backed trapdoor spider (*Idiosoma schoknechtorum*) was recorded approximately 5.64 kilometres from the application area. This record is historical (1955), and based on current aerial imagery, is located within a cleared paddock. This species extends from near Toodyay, the Wongamine Nature Reserve and Meckering in the north, south to near Jarrahdale and Westdale, and east to near Quaraiding. Similar to the closely related *Idiosoma nigrum*, *Idiosoma schoknechtorum* is known to form burrows that are adorned with typical 'moustache-like' arrangement of twig-lines in heavy clays, and prefer a sparse leaf litter (Rix et al. 2018). The soils mapped within the application area may provide suitable substrate to form burrows. However, the vegetation within the application area is completely degraded and narrow in extent, with weedy understorey or entirely devoid of vegetation in some areas. Noting this, and the age of the nearest record of this species, it is unlikely that the application area provides habitat that is significant for *Idiosoma schoknechtorum*.

### **Peregrine Falcon (*Falco peregrinus*) – Other specially protected fauna**

Peregrine falcon are found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). There are three known records of Peregrine falcon within the local area. This species is widespread, highly mobile and is found in various habitats. As such, and noting the extent of the clearing, the proposed clearing is unlikely to significantly impact this species.

### **Conclusion**

Based on the above assessment, the proposed clearing will result in clearing of six potential breeding trees for Carnaby's cockatoo, one of which contains two potentially suitable nesting hollows, however is unlikely to significantly impact foraging or roosting habitat for Carnaby's cockatoo. The proposed clearing is unlikely to significantly impact other conservation significant fauna species.

The applicant may have notification responsibilities under the EPBC Act for impacts to Carnaby's cockatoo and their habitats, as set out in the EPBC Act referral guidelines for black cockatoo species (DAWE, 2022). The applicant has been advised to contact DAWE to discuss EPBC Act referral requirements.

### **Conditions**

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

- Inspect the suitable black cockatoo nesting tree prior to clearing, and no clearing of this tree is to occur if it is in use by black cockatoos;
- Installation of two artificial hollows in the adjacent Wallaby Reserve;



- Rehabilitation of an adjoining area of road reserve, including planting of six wandoo and six salmon gum trees. This planting has been calculated as adequate mitigation to offset impacts to potential breeding trees in accordance with the DWER Environmental Offset Calculator (refer to Appendix E).

### **3.2.2. Significant remnant vegetation and conservation areas - Clearing Principle (e)**

#### Assessment

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of what was present pre-1750. Below this extent, species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The application area is located within the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia bioregion, which retains approximately 18.5 per cent of the pre-European vegetation extent, and is mapped as Beard vegetation associations 352 and 1049, which retain approximately 17.3 and 6.8 per cent of their pre-European vegetation extents respectively (Government of Western Australia, 2019). Based on spatial data, the local area retains approximately 9.5 per cent of the pre-European vegetation extent.

Vegetation within the application area is in largely Completely Degraded condition and therefore not a good representation of the mapped vegetation types, and noting its extent the proposed clearing is not considered likely to significantly impact any ecological linkage associated with the corridor of patchy vegetation along Goldfields Road. However, vegetation within the application area is considered a significant remnant as it contains potential and suitable nesting habitat for Carnaby's cockatoo.

Given the limited extent of clearing and the largely Degraded condition of the vegetation proposed to be cleared, it is considered that the impact of clearing could be mitigated through appropriate revegetation. A condition requiring the application to undertake rehabilitation and planting of 12 wandoo and salmon gum trees within an adjacent area of road reserve, that is in itself adjacent to Wallaby Nature Reserve, is considered adequate mitigation, as it will improve the quality of vegetation within this patch.

#### Conclusion

For the reasons set out above, it is considered that the clearing will impact vegetation that is significant as a remnant of native vegetation in an area that has been extensively cleared, noting that it contains potential breeding habitat for Carnaby's cockatoo. It is considered that this impact could be mitigated through appropriate revegetation.

#### Conditions

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

- Rehabilitation of an adjoining area of road reserve, including planting of six wandoo and six salmon gum trees.

### **3.3. Relevant planning instruments and other matters**

There are no Aboriginal sites of significance that have been 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

Summary of comments	Consideration of comment
Applicant provided photographs of application area (Shire of York, 2021b)	Based on photographs, DWER determined that a flora and vegetation survey was required
Applicant provided flora and vegetation survey (Del Botanics, 2022a) and a black cockatoo habitat tree survey and Threatened Ecological Community assessment (Del Botanics, 2022b)	Considered in the assessment, as discussed in Section 3.2
Applicant providing further information about and photographs of trees to be cleared (Shire of York, 2022a)	Photographs are provided in Appendix G
Applicant provided revised application area and further information regarding trees within area (Shire of York, 2022b)	Discussed in Section 1.2
Applicant provided details of mitigation revegetation (Shire of York, 2022c)	Discussed in Section 3.2.2 and 3.2.3 and Appendix E

## Appendix B. Site characteristics

### B.1. Site characteristics

Characteristic	Details
Local context	<p>The vegetation proposed to be cleared is distributed across eight separate areas adjacent to a stretch of Goldfields Road that is approximately 23 kilometres in length (see Figure 1, Section 1.5). The application area is located within the intensive land use zone of Western Australia.</p> <p>Spatial data indicates the local area (10-kilometre radius from the areas proposed to be cleared) retains approximately 9.5 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>The proposed clearing areas are not part of any mapped ecological linkage. However, was mapped in July 1997 by the Roadside Conservation Committee (RCC) as having a conservation value that ranges from low to high. The majority of the application area was determined to be of medium conservation value (RCC, 2003).</p> <p>Vegetation along Goldfields Road in the vicinity of the proposed clearing areas is patchy, however may provide a weak ecological linkage for some ground dwelling fauna species.</p>
Conservation areas	The nearest conservation area is the Wallaby Hills Nature Reserve (R 39149), located along Goldfields Road, approximately 430 metres from the application area.
Vegetation description	<p>A vegetation survey (Del Botanics, 2022a) indicate the vegetation within the proposed clearing areas consists of Eucalyptus Open Woodland over weed dominated understorey, described as open Woodland of <i>Eucalyptus wandoo</i>, <i>Eucalyptus salmonophloia</i> and <i>Eucalyptus loxophleba</i> over Grassland of <i>*Lolium rigidum</i>, <i>*Erharta longiflora</i>, <i>*Bromus diandrus</i> over Very Open Herbland of <i>*Raphanus raphanistrum</i> and <i>*Brassica tournefortii</i>. Representative photos are available in Appendix F.</p> <p>This is consistent with the mapped Beard vegetation associations (Shepherd et al, 2001):</p> <ul style="list-style-type: none"> <li>• 352, which is described as Medium woodland; York gum; and</li> <li>• 1049, which is described as Medium woodland; wandoo, York gum, salmon gum, morrel &amp; gimlet</li> </ul> <p>The mapped vegetation types retain approximately 17.27 and 6.79 per cent of the original extent, respectively (Government of Western Australia, 2019).</p>

Characteristic	Details
Vegetation condition	<p>A vegetation survey (Del Botanics, 2022a) indicate the vegetation within the proposed clearing areas is in Completely Degraded (0.133 ha), Degraded (0.016 ha), Degraded-Good (0.008 ha) and Good (0.049 ha) (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>• 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>• 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>• 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 Appendix D. Representative photos and mapping are available in Appendix F.</p>
Soil description	<p>The proposed clearing areas are located within the following soil types (van Gool et al., 2005).</p> <ul style="list-style-type: none"> <li>• Ewarts 2 Phase: Hillslopes containing sand and loamy sand over yellowish clay soils, with some gravel ridges, and some heavier soils that often occur immediately below a breakaway.</li> <li>• Greenhills 4 Subsystem: Tributaries of the Mortlock river, expressing as flat narrow valleys with saline soils, semi-wet soils and grey sandy duplexes, vegetated by Wandoo-Salmon-York Gum woodlands, east of Northam and Beverley.</li> <li>• Greenhills York Subsystem: Areas of soils derived from freshly exposed rock. This unit is typified by the red soils of the Avon Valley but also includes areas of similar, but often greyer and lighter textured soils to the east of the valley.</li> <li>• Jelcobine York Subsystem: Areas of soils derived from freshly exposed rock. This unit is typified by the red soils of the Avon Valley but also includes areas of similar, but often greyer and lighter textured soils to the east of the valley.</li> <li>• Quailing 1 Phase: Yellow and pale sandplain and gravelly soils of the central wheatbelt that are often found above a breakaway.</li> </ul>
Land degradation risk	<p>Soil types mapped within the application area have a high risk of wind erosion, subsurface acidification, flooding, water logging and phosphorus export and a moderate risk of salinity.</p>
Waterbodies and hydrogeography	<p>No watercourses intersect the application area, although several non-perennial minor watercourses within the Mortlock River catchment are close to the application area, with the closest mapped approximately 3 m from the proposed clearing area.</p> <p>The application area is located within the Avon River Catchment Area, a proclaimed surface water area under the <i>Rights in Irrigation and Water Act 1914</i> (RIWI Act).</p> <p>The application area is not located within a proclaimed groundwater area under the RIWI Act, a public drinking water source area or a <i>Country Areas Water Supply Act 1947</i> catchment area.</p> <p>Groundwater salinity is mapped as 14,000-35,000 Total Dissolved Solids (TDS).</p>
Climate	<p>Mean annual rainfall: 400 mm (western) to 500 mm (eastern)  Annual evapotranspiration (areal actual): 400 mm (western) to 500 mm (eastern)</p>
Topography	<p>Elevation within the proposed clearing areas ranges from approximately 230 m to 280 m AHD.</p>

Characteristic	Details
Flora	<p>There are records of 7 threatened and 29 priority flora species within the local area, the closest of which to the application area is threatened species <i>Thomasia glabripetala</i>, mapped approximately 2 metres from one of the areas.</p> <p>A flora and vegetation survey (Del Botanics, 2022a) did not record any conservation significant flora species within the proposed clearing areas, although recorded three instances of Threatened species <i>Thomasia glabripetala</i> within the wider survey area, one of which was 10 m west from one of the proposed clearing areas.</p>
Ecological communities	<p>There are records of 3 conservation significant priority ecological communities within the local area, one of which, the Eucalypt woodlands of the Western Australian Wheatbelt, is mapped within the application area.</p> <p>A flora and vegetation survey (Del Botanics, 2022a) in conjunction with a Threatened Ecological Community Assessment (Del Botanics, 2022b) concluded that the Eucalypt woodlands of the Western Australian Wheatbelt was present within several of the proposed clearing areas, comprising a total of 0.031 ha.</p>
Fauna	<p>Three threatened, four priority and one conservation dependent fauna species have been recorded in local area, the closest of which to the application area is <i>Falco peregrinus</i> (Peregrine falcon) recorded approximately 4.3 km west of the proposed clearing areas.</p> <p>The application area is located within the modelled distribution of Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>). One black cockatoo roost has been recorded within a 20 km radius of the proposed clearing areas, approximately 8.4 km southwest. However, this roost site has not been surveyed since 2010, and therefore has not been confirmed that it is recently being used. No known black cockatoo breeding sites have been recorded within a 20km radius of the proposed clearing areas.</p> <p>A black cockatoo habitat assessment (Del Botanics, 2022b) recorded 6 trees with a diameter at breast height of over 300 mm within the application area, three of which were considered to contain potentially suitable hollows for black cockatoo breeding.</p>

## B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
<b>IBRA bioregion*</b>					
Avon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84
<b>Beard vegetation association*</b>					
352	630,577.61	108,887.52	17.27	10,191.45	1.62
1049	833,384.77	56,618.34	6.79	3,375.83	0.41
<b>Local area</b>					
10 kilometre radius	-	6,684.84	9.56	-	-

\*Government of Western Australia (2019)

## B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G), and biological survey information (Del Botanics, 2022a), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
<i>Acacia campylophylla</i>	P3	Yes	Yes	2.4	1	N
<i>Hakea aculeata</i>	T	Yes	Yes	6.72	4	Y
<i>Thomsia glabripetala</i>	T	Yes	Yes	0.07	28	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

#### B.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G) and biological surveys (Del Botanics, 2022b), impacts to the following conservation significant fauna required further consideration.

Species	Conservation status	Suitable habitat features	Distance to closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Carnaby's cockatoo ( <i>Calyptorhynchus latirostris</i> )	EN	Yes	6.71	11	N/A
Peregrine falcon ( <i>Falco peregrinus</i> )	OS	Yes	4.26	3	N/A
Mortlock River shield-backed trapdoor spider ( <i>Idiosoma schoknechtorum</i> )	P3	Yes	5.64	7	N/A

EN: endangered, VU: vulnerable, P: priority, OS: Other specially protected species

#### B.5. Ecological community analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G) and biological surveys (Del Botanics, 2022a and 2022b) impacts to the following conservation significant ecological community required further consideration.

Community name	Conservation status	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Eucalypt woodlands of the Western Australian Wheatbelt	P3	Y	Y	0	548	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

#### B.6. Land degradation risk tables

Risk categories	<i>Jelcobine York Subsystem</i>
Wind erosion	L2: 3-10% of the map unit has a high to extreme hazard
Water erosion	L2: 3-10% of the map unit has a very high to extreme hazard
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

<b>Risk categories</b>	<b>Ewarts 2 Phase</b>
Wind erosion	M2: 30-50% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	L2: 3-10% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	M1: 10-30% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

<b>Risk categories</b>	<b>Quailing 1 Phase</b>
Wind erosion	H2: >70% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	M2: 30-50% of the map unit has a high to extreme hazard

<b>Risk categories</b>	<b>Greenhills York Subsystem</b>
Wind erosion	M1: 10-30% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

<b>Risk categories</b>	<b>Greenhills 4 Subsystem</b>
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	M2: 30-50% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	H2: >70% of the map unit has a moderate to high hazard
Water logging	H2: >70% of the map unit has a moderate to very high to risk
Phosphorus export risk	H2: >70% of the map unit has a high to extreme hazard

**Appendix C. Assessment against the clearing principles**

<b>Assessment against the clearing principles</b>	<b>Variance level</b>	<b>Is further consideration required?</b>
<b>Environmental value: biological values</b>		
Principle (a): "Native vegetation should not be cleared if it comprises a high level of biodiversity." <u>Assessment:</u>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
A portion of the application area is mapped as the 'Eucalypt woodlands of the Western Australian Wheatbelt' (Priority 3) priority ecological community (PEC), also listed as Threatened under the EPBC Act.		
<p><u>Principle (b):</u> <i>"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains significant breeding habitat for Carnaby's cockatoo.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> <i>"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is not likely to contain habitat for threatened flora species listed under the BC Act.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d):</u> <i>"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."</i></p> <p><u>Assessment:</u></p> <p>A portion of the application area is mapped as the 'Eucalypt woodlands of the Western Australian Wheatbelt' ecological community which is listed as Threatened under the EPBC Act.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</i></p> <p><u>Assessment:</u></p> <p>The extent of the native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
<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></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
<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></p> <p>No mapped water courses intersect the application area and the vegetation is not consistent with riparian vegetation.</p>	Not likely to be 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></p> <p>Although soil types mapped within the application area have a high risk of wind erosion, subsurface acidification, flooding, water logging and</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
phosphorus export and a moderate risk of salinity, noting the extent of the proposed clearing is unlikely to have an appreciable impact on land degradation.		
<p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u></p> <p>Noting the extent of the proposed clearing for the purpose of widening an existing road, it is unlikely that the proposed clearing will significantly impact on the quality of surface or groundwater. The proposed clearing is also unlikely to impact on- or off-site hydrology.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>The mapped soils within the application area, and the topographic contours in the surrounding area do not indicate the proposed clearing is likely to cause or exacerbate the incidence or intensity of flooding.</p>	Not likely to be 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. Offset calculator value justification

### WA Environmental Offsets Calculator

#### Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation		Score (Feature)	Rationale
<b>Conservation significance</b>			
Description		Carnaby's cockatoo potential breeding trees	
Type of environmental value		Species (flora/fauna)	fauna species
Conservation significance of environmental value		Rare/threatened species - endangered	As listed under the EPBC Act
Landscape-level value impacted		yes/no	NA
<b>Significant impact</b>			
Description		Carnaby's cockatoo potential breeding trees	6 potential breeding trees (i.e. those with suitable DBH to develop suitable breeding hollows in the future) as identified within a black cockatoo habitat survey (Del Botanics, 2022a)
Significant impact (hectares) / Type of feature		Breeding trees	
Quality (scale) / Number		6.00	
<b>Rehabilitation credit</b>			
Description		Planting of potential breeding trees which may develop suitable hollows	Planting of 6 wandoo and 6 salmon gum trees that may develop into potential breeding trees in the future.
Proposed rehabilitation (area in hectares)		N/A	
Current quality of rehabilitation site / Start number (of type of feature)		0.00	No trees are currently planted
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation		0.00	No trees will be planted without rehabilitation
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation		12.00	12 trees will be planted
Time until ecological benefit (years)		30.00	A conservative estimate of how long it will take for trees to develop a DBH of 300 mm. Based upon growth rates of wandoo by Jonson (2010).
Confidence in rehabilitation result (%)		0.8	Conditions requiring the applicant to check that tree plantings survive will ensure a fairly high confidence rate that trees will survive and develop into habitat trees, however can expect a small failure rate.
<b>Offset</b>			
Description		0	
Proposed offset (area in hectares)		N/A	
Current quality of offset site / Start number (of type of feature)		0.00	
Future quality WITHOUT offset (scale) / Future number WITHOUT offset		0.00	
Future quality WITH offset (scale) / Future number WITH offset		0.00	
Time until ecological benefit (years)		0.00	
Confidence in offset result (%)		0	
Duration of offset implementation (maximum 20 years)		N/A	
Time until offset site secured (years)		N/A	
Risk of future loss WITHOUT offset (%)		N/A	
Risk of future loss WITH offset (%)		N/A	
Offset ratio (Conservation area only)		N/A	

**Appendix F. Photographs of the vegetation and biological survey information excerpts**



**Figure F-1. Trees proposed to be cleared in Area 1 (SLK 3.59-3.62) (see Figure 1) (Shire of York, 2022a)**



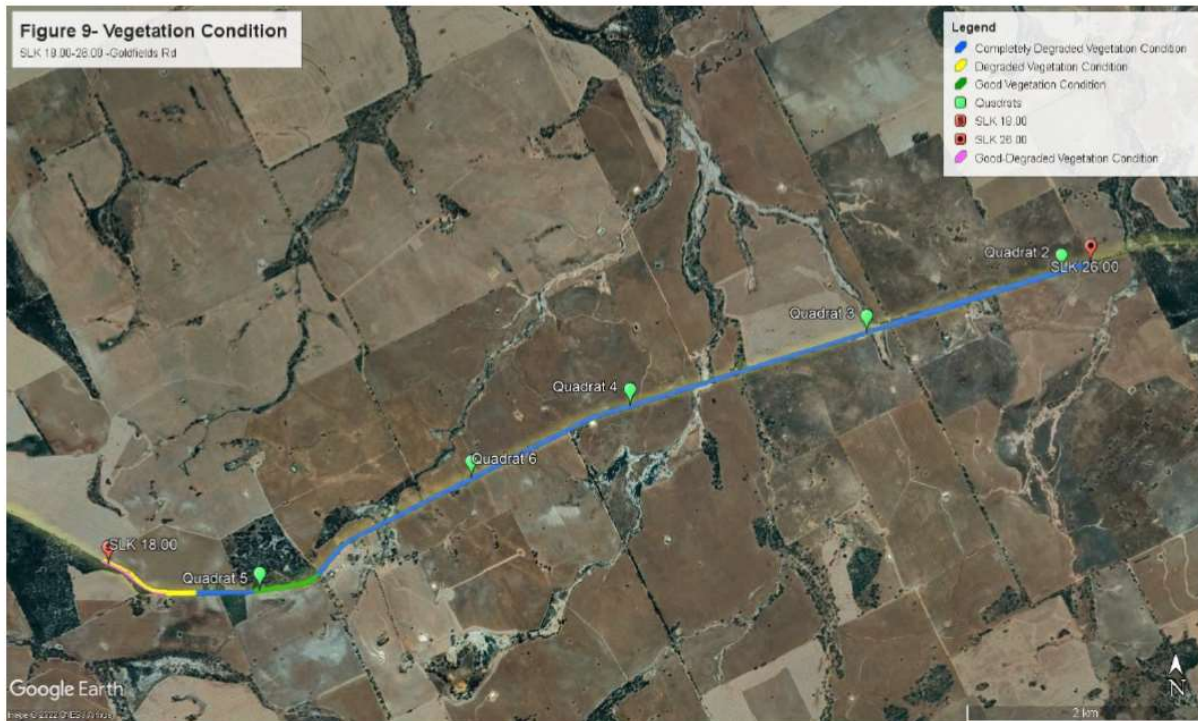
**Figure F-2 –Shrub in Eucalypt Woodlands of the WA Wheatbelt ecological community area along northern side of road reserve in Area 3 (see Figure 4) (DWER, 2022)**



**Figure F-3. York gum tree with hollows proposed to be cleared in Area 6 on southern side of road reserve (see Figure 8) (Shire of York, 2022a)**



**Figure F-4. Salmon gum tree proposed to be cleared in Area 8 on southern side of road reserve (see Figure 10) (Shire of York, 2022a).**



**Figure F-5. Vegetation condition mapped over easternmost portion of application area (Del Botanic, 2022a)**



**Figure F-6. – Vegetation condition mapped over westernmost portion of application area (Del Botanic, 2022a)**

## Appendix G. Sources of information

### G.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- 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)

### G.2. References

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