

Black Cockatoo Action Management Plan (BORR IPT, 2020e)



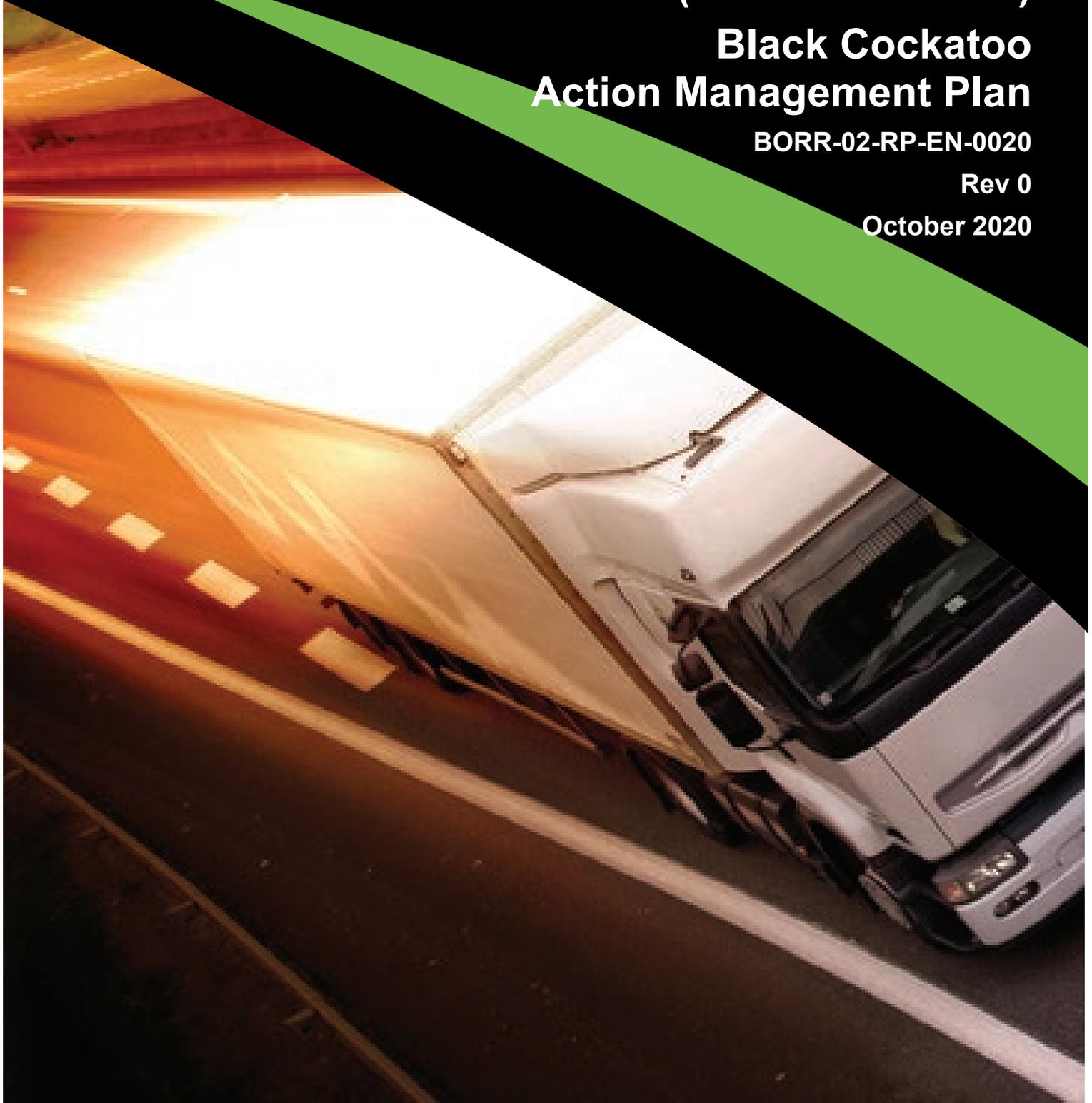
**Bunbury Outer Ring Road
Southern Section
(EPBC 2019/8543)**

**Black Cockatoo
Action Management Plan**

BORR-02-RP-EN-0020

Rev 0

October 2020



EXECUTIVE SUMMARY

Bunbury Outer Ring Road Project

Main Roads Western Australia (Main Roads) is proposing to construct and operate the Southern Section of the Bunbury Outer Ring Road (BORR) project. BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port, improve road user safety and facilitate proposed development to the east of the City of Bunbury. BORR provides an effective bypass of Bunbury for inter-regional traffic. The proposed BORR comprises three sections:

- 'BORR Northern Section' – Forrest Highway to Boyanup-Picton Road
- 'BORR Central Section' – Boyanup-Picton Road to South Western Highway (an existing four km section which was completed in May 2013, along with a three km extension of Willinge Drive southwards to South Western Highway)
- 'BORR Southern Section' – South Western Highway (near Bunbury Airport) to Bussell Highway.

The proposed BORR Project occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. Construction of the BORR Project is anticipated to commence in year 2021 and continue for a period of up to approximately three years.

Bunbury Outer Ring Road Southern Section Proposal

This document refers to BORR Southern Section only (the Proposal). The 200 hectare (ha) Proposal Area is located approximately 160 km south of Perth, mainly within the Shire of Capel including the localities of Gelorup, North Boyanup and Statham with some overlap into neighbouring localities (College Grove, Usher and Dalyellup). A small part of the Proposal occurs in the City of Bunbury. The Proposal Area connects the Northern and Central Sections of BORR (from Forrest Highway) to Bussell Highway.

The Proposal includes the construction and operation of approximately 10.5 km of new freeway standard, dual carriageway southwest of South Western Highway to Bussell Highway and a 3 km regional distributor from Bussell Highway at Centenary Road southeast to a grade separated interchange at the western end of Lilydale Road. The Proposal includes associated bridges, interchanges, local road modifications and other infrastructure including, but not limited to, drainage basins, drains, culverts, lighting, noise barriers, fencing, landscaping, road safety barriers and signs.

Approximately 62 % of the land within the Proposal Area is cleared and highly modified, including previously constructed roads. The remaining approximately 38 % is native vegetation, including revegetation and scattered vegetation in road reserves or as isolated patches on agricultural land.

The Proposal was formally referred to the then Commonwealth Department of the Environment and Energy (DoEE) on 3 December 2019 (EPBC Act referral 2019/8543) as a potential Controlled Action under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to impacts on Matters of National Environmental Significance (MNES).

Subsequent to the referral of the Proposal on 3 December 2019, the Department of Environment and Energy (DoEE) was consolidated with the Department of Agriculture. Effective 1 February 2020, the Department of Agriculture, Water and the Environment (DAWE) is the Commonwealth Department with primary EPBC Act regulatory authority. DAWE provided advice on 11 February 2020 that the Proposal is considered a Controlled Action and that it would be assessed by Preliminary Documentation (DAWE, 2020).

Purpose of this AMP

This Action Management Plan (AMP) has been prepared to support documentation prepared to address the DAWE request of 11 February 2020 for further information for assessment of the Proposal.

This document sets out the environmental management actions to manage, monitor and mitigate the direct and potential indirect impacts of the Proposal on the following listed fauna taxa listed as 'Threatened' MNES:

- Carnaby's Cockatoo *Calyptorhynchus latirostris* (listed as 'Endangered')
- Baudin's Cockatoo *Calyptorhynchus baudinii* (listed as 'Endangered')
- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* (listed as 'Vulnerable').

This AMP has been prepared consistent with the following guidance documentation:

- Department of the Environment (DotE) (2014) *Environmental Management Plan Guidelines*
- Department of the Environment and Energy (DoEE) (2019) *Action Management Plan Criteria*.

The AMP structure and content has been prepared to align to DotE (2014), with the content then incorporating the additional criteria outlined by DoEE (2019).

Environmental management and monitoring

As outlined within this AMP, the key environmental management and monitoring actions for the Proposal are identified in Table E-1 and Table E-2.

Table E-1 Environmental management measures

TIMING	MANAGEMENT ACTIONS	PERFORMANCE TARGETS
Prior to construction	<ul style="list-style-type: none"> • Design refinement to minimise area of Black Cockatoo habitat needed to be cleared for the Proposal • Habitat to be cleared within the area of the Proposal Area will be demarcated in the field to ensure clearing only occurs within the approved clearing area • The final design will avoid trees with suitable nest hollows where possible • Where any of the thirteen trees with suitable nest hollows for Black Cockatoo will require clearing for the Proposal, the hollow will be visually inspected where safe and practicable. Where not in use the hollow will be 'blocked' to prevent breeding • Where blocking of the nest hollows cannot be undertaken (e.g. timing, access), a pre-clearing fauna assessment will be undertaken by a suitably experienced person to determine if the hollows are being used by Black Cockatoos 	<ul style="list-style-type: none"> • Avoid direct impacts to Black Cockatoos • Avoid clearing outside the approved footprint • Reduce clearing of Black Cockatoo habitat to the extent practicable in final design • Preclude potential breeding within the area of the Proposal prior to construction

TIMING	MANAGEMENT ACTIONS	PERFORMANCE TARGETS
<p>During construction</p>	<ul style="list-style-type: none"> • A suitably experienced zoologist / environmental scientist will be on-site at all times during clearing of breeding habitat for Black Cockatoos and must maintain radio communication with machinery operators • Where a suitable nest hollow within the area of the Proposal has been blocked prior to the Black Cockatoo breeding season, the tree may be felled as part of the standard vegetation clearing process • Where a suitable nest hollow within the area of the Proposal has not been blocked and the pre-clearing fauna assessment has not identified Black Cockatoo occupation of the nest hollow, prior to clearing the tree, the tree will be 'bumped gently' with a machine with the machine operator and zoologist then to wait and observe the tree for a short time after. If no Black Cockatoo appears to be present then the tree may be pushed over slowly to minimise risk of injury to any undetected animal (if present) • Where suitable nest hollows within the area of the Proposal have not been blocked and the pre-clearing fauna assessment identifies Black Cockatoo occupation of the nest hollow (which may include chicks), the tree with the nest hollow will not be cleared until after the chick/s have left the nest. No vegetation within 10 m of the tree will be cleared until after the hollow is vacant • Any Black Cockatoos observed within the Proposal Area showing signs of injury or illness will be promptly taken to an experienced wildlife veterinarian or approved wildlife rehabilitation facility • A post-clearing survey shall be undertaken to ensure no injured Black Cockatoo individuals are present • Implement Proposal Drainage Strategy and ground and surface water management measures to avoid impacts to adjacent Black Cockatoo habitat • Implement WONS and Declared Plant control, and surface water and Phytophthora dieback management measures within Proposal Area vegetation / revegetation to prevent potential indirect impacts to Black Cockatoo habitat 	<ul style="list-style-type: none"> • Avoid direct impacts to Black Cockatoos • Avoid clearing outside the approved footprint • Avoid abandonment of breeding hollows within the Proposal Area

TIMING	MANAGEMENT ACTIONS	PERFORMANCE TARGETS
	<ul style="list-style-type: none"> As part of the CEMP, the construction contractor will prepare a Fire Management Plan to minimise risk of ignition from construction activities and effectively manage any resulting fire / wildfire. 	
Post construction	<ul style="list-style-type: none"> Where space and access allows, revegetation and landscaping of cleared areas within the Proposal Area with suitable endemic native species will be undertaken to provide foraging habitat for Black Cockatoos (excluding 10 m buffer from nearest traffic lane). 	<ul style="list-style-type: none"> Rehabilitation provides suitable foraging habitat within 10 years of completion.

GLOSSARY OF TERMS

DEFINED TERMS	
TERM	DEFINITIONS
BORR Sections	<p>The BORR Project includes three sections (North, Central and South), which are referred to as:</p> <ul style="list-style-type: none"> • ‘BORR Northern Section’ – section between Forrest Highway (north) and Boyanup-Picton Road (south) • ‘BORR Central Section’ – section that has already been constructed, between Boyanup-Picton Road (north) and South Western Highway (south) • ‘BORR Southern Section’ – section between South Western Highway (north) and Bussell Highway (south).
Main Roads	Main Roads Western Australia
Proposal	Main Roads proposes to construct the Bunbury Outer Ring Road (BORR) Southern Section from South West Highway (north) to Bussell Highway (south), at its closest point approximately six km from East Bunbury, in the South West Region of Western Australia (WA) (referred to as the Proposal)
Proposal Area	<p>The Proposal Area is located within the City of Bunbury and Shire of Capel, at its closest point approximately six km south-east of Bunbury and 200 km south of Perth.</p> <p>The Proposal Area extends 10.5 km between South Western Highway and Bussell Highway.</p> <p>The Proposal Area covers 200 hectares (ha) and includes existing road reserves, agricultural land and native vegetation.</p>
Site	As per the Proposal Area
Standard construction management	Measures that have been applied successfully to other large scale projects that are considered appropriate in minimising the environmental impacts. These measures ensure that clearing is implemented properly, that erosion does not occur, and that spills are minimised and managed appropriately
Survey Area	The Survey Area includes all sites of significance that occur both within the Proposal Area and wherever relevant, outside the Proposal Area, in order to determine both direct and indirect impacts
ACRONYMS	
ANZECC	Australian and New Zealand Environment and Conservation Council
BC Act	<i>Biodiversity Conservation Act 2016</i>
BORR	Bunbury Outer Ring Road

ACRONYMS	
BORR IPT	Bunbury Outer Ring Road Integrated Project Team
CEMP	Construction environmental management plan
DAWE	Department of Agriculture, Water and the Environment
DBH	Diameter Breast Height
DoEE	Department of the Environment and Energy
DPaW	Department of Parks and Wildlife
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EP Act	<i>Environmental Protection Act 1986</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
MNES	Matters of National Environmental Significance
WA	Western Australia
WoNS	Weeds of National Significance

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APPENDICES

Appendix A	Figures
Appendix B	Annual Compliance Report Template

Document Control					
Revision	Date	Description	Prepared	Reviewed	Approved
A	July 2020	Draft for Main Roads review	BORR IPT	FH	FH
0	October 2020	Final for issue	BORR IPT	FH	FH

COVER PAGE AND DECLARATION OF ACCURACY

- **EPBC number:** 2019/8543
- **Project name:** Bunbury Outer Ring Road Southern Section
- **Action management plan title:** Bunbury Outer Ring Road Southern Section Black Cockatoo Action Management Plan BORR-02-RP-EN-0020 Rev0
- **Proponent / approval holder and ACN or ABN:** Main Roads Western Australia, ABN 50860676021
- **Proposed / approved action:** Construction and operation of the Southern Section of the Bunbury Outer Ring Road (BORR) project
- **Location of the action:** South Western Highway (near Bunbury Airport) to Bussell Highway, within the Shire of Capel and City of Bunbury
- **Date of preparation of the action management plan:** October 2020
- **Person accepting responsibility for the action management plan:** Martine Scheltema, Manager Environment, Main Roads Western Australia

Declaration of accuracy

I declare that to the best of my knowledge, all the information contained in, or accompanying this document is complete, current and correct. I am duly authorised to sign this declaration on behalf of the proponent / approval holder. I am aware that:

- a) giving false or misleading information is a serious offence under section 137. 1 of the Criminal Code Act 1995 (Cth)
- b) section 137.2 of the Criminal Code Act 1995 (Cth) makes it an offence for a person to produce a document to another person in compliance or purported compliance with a law of the Commonwealth where the person knows that the document is false or misleading;
- c) section 490 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading; and
- d) section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) (EPBC Regulations) where the person knows the information or document is false or misleading.

Signed: _____

Full name: Martine Scheltema, Manager Environment

Organisation: Main Roads Western Australia (ABN 50 860 676 021)

Date: ____/____/____

Election to have an action management plan approved

Note: Pursuant to section 132B of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), this election must be given to the Minister before the Minister grants an approval of the proposed action under section 133 of the EPBC Act.

Person Proposing to Take Action

Name and Title: Martine Scheltema, Manager Environment

Organisation: Main Roads Western Australia

EPBC Referral Number: EPBC 2019/8543

ACN/ABN: ABN 50860676021

Postal Address: PO Box 6202 EAST PERTH WA 6002

Telephone: 138 138

Email: enquiries@mainroads.wa.gov.au

- I elect to submit an action management plan(s) for approval in accordance with section 132B of the Environment Protection and Biodiversity Conservation Act 1999. I understand that a fee of \$2,690 may apply under the cost recovery arrangements.

Declaration:

- I declare that to the best of my knowledge the information I have given on this form is complete, current and correct.
- I understand that giving false or misleading information is a serious offence.

Signed: _____

Full name: Martine Scheltema, Manager Environment

Organisation: Main Roads Western Australia (ABN 50 860 676 021)

Date: ____/____/____

1 PROPOSAL DESCRIPTION

1.1 Bunbury Outer Ring Road project

Main Roads Western Australia (Main Roads) is proposing to construct and operate the Southern Section of the Bunbury Outer Ring Road (BORR) project. BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port, improve road user safety and facilitate proposed development to the east of the City of Bunbury. BORR provides an effective bypass of Bunbury for inter-regional traffic. The proposed BORR comprises three sections:

- 'BORR Northern Section' – Forrest Highway to Boyanup-Picton Road
- 'BORR Central Section' – Boyanup-Picton Road to South Western Highway (an existing four km section which was completed in May 2013, along with a three km extension of Willinge Drive southwards to South Western Highway)
- 'BORR Southern Section' – South Western Highway (near Bunbury Airport) to Bussell Highway.

The proposed BORR Project occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. Construction of the BORR Project is anticipated to commence in year 2021 and continue for a period of up to approximately three years.

1.2 Bunbury Outer Ring Road Southern Section proposal

This document refers to BORR Southern Section only (the Proposal). The 200 hectare (ha) Proposal Area is located approximately 160 kilometres (km) south of Perth, mainly within the Shire of Capel including the localities of Gelorup, North Boyanup and Statham with some overlap into neighbouring localities (College Grove, Usher and Dalyellup). A small part of the Proposal occurs in the City of Bunbury. The Proposal Area connects the Northern and Central Sections of BORR (from Forrest Highway) to Bussell Highway.

The Proposal includes the construction and operation of approximately 10.5 km of new freeway standard, dual carriageway southwest of South Western Highway to Bussell Highway and a 3 km regional distributor from Bussell Highway at Centenary Road southeast to a grade separated interchange at the western end of Lilydale Road. The Proposal includes associated bridges, interchanges, local road modifications and other infrastructure including, but not limited to, drainage basins, drains, culverts, lighting, noise barriers, fencing, landscaping, road safety barriers and signs.

Approximately 62 % of the land within the Proposal Area is cleared and highly modified, including previously constructed roads. The remaining approximately 38 % is native vegetation, including revegetation and scattered vegetation in road reserves or as isolated patches on agricultural land.

1.3 Environmental assessment and management

The Proposal was formally referred to the then Commonwealth Department of the Environment and Energy (DoEE) on 3 December 2019 (EPBC Act referral 2019/8543) as a potential Controlled Action under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to impacts on Matters of National Environmental Significance (MNES).

Subsequent to the referral of the Proposal on 3 December 2019, the Department of Environment and Energy (DoEE) was consolidated with the Department of Agriculture. Effective 1 February 2020, the Department of Agriculture, Water and the Environment (DAWE) is the Commonwealth Department with

primary EPBC Act regulatory authority. DAWE provided advice on 11 February 2020 that the Proposal is considered a Controlled Action and that it would be assessed by Preliminary Documentation (DAWE, 2020).

This Action Management Plan (AMP) has been prepared to support the documentation prepared to address the DoEE request for further information. The DoEE request identified a requirement for Main Roads to detail the proposed management measures to achieve the environmental outcomes, including performance indicators, periodic milestones, proposed monitoring and adaptive management, and record keeping, publication and reporting processes.

This AMP sets out the environmental management actions to manage, monitor and mitigate the direct and potential indirect impacts of the Proposal on the following conservation significant fauna taxa:

- Carnaby's Cockatoo *Calyptorhynchus latirostris* (listed as 'Endangered' (*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) EPBC-E, Western Australian *Biodiversity Conservation Act 2016* (WA) (BC Act) BC-E))
- Baudin's Cockatoo *Calyptorhynchus baudinii* (listed as 'Endangered' (EPBC-E, BC-E))
- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* (listed as 'Vulnerable' (EPBC-V, BC-V)).

These are collectively referred to herein as Black Cockatoos.

This AMP has been prepared consistent with the following guidance documentation:

- Department of the Environment (DotE) (2014) *Environmental Management Plan Guidelines*
- Department of the Environment and Energy (DoEE) (2019) *Action Management Plan Criteria*.

The AMP structure and content has been prepared to align to DotE (2014), with the content then incorporating the additional criteria outlined by DoEE (2019).

Impacts of the Proposal to other conservation significant fauna taxa are addressed within a separate *Conservation Significant Fauna Environmental Management Plan* (Bunbury Outer Ring Road Integrated Planning Team (BORR IPT) (2020a).

1.4 Black Cockatoo species' descriptions

Carnaby's Cockatoo is a large white-tailed cockatoo, endemic to the south-west of Western Australia. It is listed as 'Threatened' fauna under both the Commonwealth EPBC Act and the State BC Act at the level of 'Endangered' (EPBC-E, BC-E) as assessed under the criteria of the IUCN (2012).

Baudin's Cockatoo is a large white-tailed cockatoo, endemic to the south-west of Western Australia. It is listed as 'Threatened' fauna under both the Commonwealth EPBC Act and the State BC Act at the level of 'Endangered' (EPBC-E, BC-E) as assessed under the criteria of the IUCN (2012).

Forest Red-tailed Black Cockatoo is a large red-tailed cockatoo, endemic to the south-west of Western Australia. It is listed as 'Threatened' fauna under both the Commonwealth EPBC Act and the State BC Act at the level of 'Vulnerable' (EPBC-V, BC-V) as assessed under the criteria of the IUCN (2012).

2 OBJECTIVES

2.1 Purpose

This AMP has been developed to support documentation prepared to address the DAWE request of 11 February 2020 for further information for assessment of the Proposal (DAWE, 2020).

This AMP sets out the environmental management actions proposed to manage, monitor and mitigate the direct and potential indirect impacts of the Proposal on Black Cockatoos. It has been prepared consistent with the guidance documentation detailed in Section 1.3.

The AMP structure and content has been prepared to align to DotE (2014), with the content then incorporating the additional criteria outlined by DoEE (2019).

2.2 Objectives

This AMP has been prepared to ensure the impacts of the Proposal to Black Cockatoos are acceptable, minimised and managed. It is a 'management-based' AMP to document management actions required during Proposal implementation and operation. Management measures within this AMP are specific to the Proposal, and include management actions that are 'over and above' standard environmental management practises.

The following management targets have been identified:

- Construct and operate the Proposal to avoid and minimise impacts to Black Cockatoos
- No disturbance to nesting Black Cockatoos (adults and young).

3 ENVIRONMENTAL MANAGEMENT ROLES AND RESPONSIBILITIES

This AMP identifies the environmental management of activities to be undertaken by Main Roads in implementation of the Proposal. Main Roads acknowledges that the environmental management actions contained within this AMP are legal requirements to be met by Main Roads.

The Manager Environment at Main Roads will maintain responsibility for implementation of the management actions outlined within this AMP, on behalf of Main Roads' Managing Director. Management actions may be undertaken by employees and / or contractors of Main Roads on behalf of the Managing Director.

Where management actions are undertaken by employees and / or contractors of Main Roads, these will be communicated and documented to the relevant personnel through relevant environmental training (refer to Section 4.2).

4 REPORTING AND ACCOUNTABILITY

4.1 Reporting

Main Roads will report to DAWE on the implementation of this AMP as part of annual compliance reporting under the conditions of approval for the Proposal.

Where compliance audits undertaken by Main Roads identify that the environmental management actions and / or the environmental objectives are not being achieved (i.e. non-compliance or an environmental incident), Main Roads will notify DAWE as soon as reasonably practicable. Consistent with standard document control procedures, Main Roads will maintain copies of all reports submitted to DAWE.

The reporting requirements for this AMP are identified in Table 4-1. A template for the annual compliance report is included in Appendix B.

Table 4-1 Reporting requirements

ASPECT	REPORT FROM	REPORT TO	REPORTING FREQUENCY
Implementation of AMP	Manager Environment	DAWE	Annually (as part of annual compliance reporting)
Non-compliance with AMP or Environmental Incident	Manager Environment	DAWE	As soon as reasonably practicable but not more than seven days

The format and content of annual reporting will be in accordance with the requirements of the annual reporting conditions. The format and content of reporting of a non-compliance event or an environmental incident will be subject to the nature of the non-compliance / incident and will include all requested information from DAWE. In consideration of this, specific templates for reporting these are not provided as part of this AMP.

4.2 Environmental training

Main Roads will ensure that all personnel undertaking works for the Proposal, including visitors, have undertaken a site induction training program, or are escorted to the site. Main Roads will evaluate all personnel undertaking the site induction training program through a written test to ensure that all personnel have an understanding of the environmental requirements for the Proposal.

Where it is identified that personnel have not undertaken the works in accordance with the environmental requirements for the Proposal, Main Roads will require such personnel to repeat the site induction training program.

The general content of the site induction training program for the Proposal is outlined in Table 4-2.

Table 4-2 Site induction training program content

ASPECT	SITE INDUCTION TRAINING PROGRAM CONTENT
	Awareness of Main Roads' Environmental Policy
	Identification of the environmental values in the area of the Proposal

ASPECT	SITE INDUCTION TRAINING PROGRAM CONTENT
Site induction training program	Identification of key environmental risks associated with the Proposal, and the identification of management requirements to control such risks
	Roles and responsibilities of all personnel in the protection and management of the environment, including identification of key personnel that have specific roles or responsibilities
	Awareness of importance of compliance with the environmental requirements (including penalties for non-conformance with the environmental requirements)
	Pegging of the area of works, and other pegging types (for example, trees to be retained)
	Clearing of native vegetation and management of topsoil
	Hygiene procedures for <i>Phytophthora</i> Dieback management and weed management
	Appropriate disposal of wastes
	Environmental incidents, including the requirements for management and reporting
	The environmental benefits of improved personal performance

4.3 Emergency contacts and procedures

Emergency contact details will be signposted at appropriate locations within the Proposal Area, to enable immediate contact and response in the event of an emergency / environmental incident observed by Main Roads' personnel, contractors or the public.

Emergency response procedures will be followed in the event of an emergency / environmental incident.

Main Roads' general and emergency contacts for the Proposal are provided in Table 4-3.

Table 4-3 Emergency contact details

ASPECT	CONTACT DETAILS
General contact	<ul style="list-style-type: none"> Main Roads Head Office Address: Don Aitken Centre, Waterloo Crescent, EAST PERTH WA 6004 Mail: PO Box 6202, EAST PERTH WA 6002 Email: enquiries@mainroads.wa.gov.au Phone: 138 138 Main Roads South West Region Address: Robertson Drive, BUNBURY WA 6231 Mail: PO Box 5010, EAST PERTH WA 6231 Email: enquiries@mainroads.wa.gov.au Phone: 138 138 / (08) 9724 5600
Emergency contact	<ul style="list-style-type: none"> Manager Environment, Main Roads Email: Martine.Scheltema@mainroads.wa.gov.au Phone: (08) 9323 4614 Regional Manager, Main Roads South West Region

ASPECT	CONTACT DETAILS
	Email: robert.barnsley@mainroads.wa.gov.au Phone: (08) 9724 5600

5 POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS

5.1 Threats to Black Cockatoos

The Department of Sustainability Environment Water Protection and Communities (DSEWPaC) (2012) identifies the key threats to the Black Cockatoo taxa as comprising:

- Habitat loss and habitat degradation - loss of foraging habitat, nesting hollows, habitat connectivity and habitat quality
- Interactions with humans - vehicle strikes, agriculture protection measures, disturbance from noise / light, unauthorised taking (poaching)
- Invasive species - competition for nest hollows with European honey bees and bird invading taxa, injury / death from European honey bees.

A complete assessment of the potential impacts of the Proposal to Black Cockatoos, and impacts to other matters protected under Part 3 of the EPBC Act, is contained within *BORR Southern Section Additional Information for Preliminary Documentation* (BORR IPT, 2020b).

5.2 Assumptions and uncertainties

This AMP has been prepared on the basis of information provided in the environmental surveys for the Proposal (Table 5-1), and based upon knowledge of Main Roads' construction and operation of similar linear infrastructure works.

Table 5-1 Environmental surveys relevant to this AMP

SURVEY / REPORT NAME	LOCATION / EXTENT IN SURVEY AREA	METHODOLOGY
<i>Bunbury Outer Ring Road Southern Section Targeted Fauna Assessment (Biota, 2020)</i>	Targeted habitat survey encompassing the 200 ha Proposal Area and approximately 97 ha buffering context area	Targeted field surveys conducted in five phases over the course of spring and summer 2018, and winter 2019 for conservation significant Black Cockatoo species, WRP and BSM survey
<i>Bunbury Outer Ring Road Southern Section Vegetation and Flora Study (BORR IPT, 2020c)</i>	Flora and vegetation survey to identify vegetation types and vegetation condition for the Proposal	Detailed and targeted field surveys conducted between August 2018 and November 2019 in accordance with relevant State survey guidelines
<i>Phytophthora Dieback Survey Bunbury Outer Ring Road South (Great</i>	<i>Phytophthora</i> dieback survey of the Bunbury Outer Ring Road southern section alignment	Survey undertaken in accordance with DBCA guidelines

SURVEY / REPORT NAME	LOCATION / EXTENT IN SURVEY AREA	METHODOLOGY
Southern Bio Logic, 2020)		

The key assumptions and uncertainties relevant to the Proposal and Black Cockatoos are:

- Environmental survey reports have not been independently verified. These surveys were undertaken by suitably qualified individuals experienced in Black Cockatoo fauna ecology and habitats identification and are therefore assumed to have accurately recorded the presence and locations of Black Cockatoo foraging habitat and breeding habitat, including nest hollows. It is acknowledged that fauna survey results may change over time, for example, not all suitable hollows are actively used in all years
- The Proposal may have the potential for indirect impacts to Black Cockatoo individuals and habitat.

More information on the key assumptions and uncertainties are provided in the appendices of BORR IPT (2020b).

5.3 Potential impacts

As outlined in BORR IPT (2020b), implementation of the Proposal will result in clearing of up to 65.4 ha of Black Cockatoo foraging habitat within the 200 ha Proposal Area, representing < 1 % of the recorded 8,000 ha of locally available foraging habitat (suitable remnant vegetation within a 12 km radius) (Figure 2). This area includes thirteen potential nesting trees with a diameter at breast height (DBH) of ≥ 500 millimetres that contain a hollow(s) assessed as potentially suitable for nesting by Black Cockatoos. Two trees indicated some evidence of potential nesting use however no direct signs of Black Cockatoo breeding were observed (Biota, 2020). The Proposal Area contains 1,096 large (suitable DBH) trees without suitable hollows that will be removed by the Proposal.

Environmental surveys conducted for the Proposal identified evidence of foraging by all three species of Black Cockatoo both within and adjacent to the area of the Proposal, and either Baudin’s Cockatoo or Carnaby’s Cockatoo were observed flying overhead during field surveys (Biota, 2020). All three species were identified as likely to occur within the area of the Proposal with suitable foraging habitat and potential breeding habitat (trees containing a suitably-sized hollow(s) for nesting) present (Biota, 2020).

The environmental surveys also identified habitat quality and vegetation condition (BORR IPT, 2020c; Biota, 2020), which establish the baseline habitat health condition prior to implementation of the Proposal.

43.7 ha of vegetation remaining within the Proposal Area represents high quality foraging habitat, and a further 21.7 ha represents moderate quality foraging habitat (Biota, 2020).

The location and extent of Black Cockatoo habitat, large (potential nesting) trees and large trees with suitable nesting hollows within the Proposal Area are shown in Figure 4, Figure 5 and Figure 6 respectively (Appendix A).

Direct impacts of the Proposal to Black Cockatoos are outlined in Table 5-2. These have been informed through targeted environmental surveys undertaken for the Proposal.

Table 5-2 Environmental impacts of the Proposal

TAXON	IMPACT
Carnaby's Cockatoo, Baudin's Cockatoo, Forest Red-tailed Black Cockatoo	Clearing of native vegetation comprising: <ul style="list-style-type: none"> • 65.4 ha of foraging habitat • 1,109 trees with a DBH ≥ 500 mm • Thirteen trees of the 1,109 trees with a DBH ≥ 500 mm that contain a potentially suitable nesting hollow(s).

5.4 Risk assessment

The DotE (2014) and DoEE (2019) identify a requirement for a risk assessment to assess the likelihood and consequence of each potential impact in order to ensure that risks are translated into controls, mitigation and management actions.

Main Roads applies a standard risk assessment matrix to its operations, whereby the 'likelihood' and 'consequence' of events is considered, with monitoring and management actions identified to control the level of risk.

Main Roads has completed a risk assessment in preparation of this AMP. The likelihood and consequence assessment, with the resulting 'risk outcome', have been based upon the residual risk levels after management and monitoring activities are implemented. The assessment has applied the definitions for both likelihood and consequence as prescribed within DoEE (2019).

The outcome of the risk assessment for the Proposal for Black Cockatoos is identified in Table 5-3.

Table 5-3 Risk assessment

Objective: To ensure that impacts to Black Cockatoos are avoided and minimised as far as practicable during the construction and operation of the Proposal.				
Key environmental values: Black Cockatoo individuals and foraging / breeding (nesting) habitat				
ENVIRONMENTAL OBJECTIVE	RISK	POST CONTROL RISK ASSESSMENT	MANAGEMENT	MONITORING
Minimise impacts to Black Cockatoos	Injury or death of Black Cockatoos during Proposal implementation	Likelihood: Unlikely Consequence: Minor Risk outcome: Low	Nil risk of impact to mature individuals Management required during construction for risk of impact to nesting adults / young	Pre-construction monitoring of nest hollows required

Objective: To ensure that impacts to Black Cockatoos are avoided and minimised as far as practicable during the construction and operation of the Proposal.

Key environmental values: Black Cockatoo individuals and foraging / breeding (nesting) habitat

ENVIRONMENTAL OBJECTIVE	RISK	POST CONTROL RISK ASSESSMENT	MANAGEMENT	MONITORING
Minimise the area of Black Cockatoo foraging habitat cleared during construction	Clearing or disturbance of Black Cockatoo habitat outside of the approved clearing area	Likelihood: Unlikely Consequence: Moderate Risk outcome: Low	Standard construction management to control construction clearing (not specific to Black Cockatoo AMP)	Standard construction monitoring to verify construction clearing (not specific to Black Cockatoo AMP)
No significant indirect impacts to Black Cockatoo habitat adjacent to the Proposal attributable to Proposal implementation	Reduction in function and value of adjacent habitat	Likelihood: Unlikely Consequence: Minor Risk outcome: Low	Implement WoNS, Declared Plant, surface water, and <i>Phytophthora</i> dieback management measures within Proposal Area vegetation / revegetation Standard construction management to control construction clearing	Monitoring to verify construction clearing, presence and effectiveness of control of erosion, WoNS and / or Declared Plants, implementation of Hygiene Management Plan and Drainage Strategy
No significant indirect impacts to Black Cockatoo habitat adjacent to the Proposal attributable to Proposal implementation	Bushfire occurrence as a result of Proposal construction resulting in loss of adjacent Black Cockatoo habitat	Likelihood: Possible Consequence: Moderate Risk outcome: Medium	Standard construction management to control potential ignition sources construction clearing (not specific to Black Cockatoo AMP)	Standard construction monitoring to verify management of potential ignition sources and fire response during construction clearing (not specific to Black Cockatoo AMP)

Objective: To ensure that impacts to Black Cockatoos are avoided and minimised as far as practicable during the construction and operation of the Proposal.

Key environmental values: Black Cockatoo individuals and foraging / breeding (nesting) habitat

ENVIRONMENTAL OBJECTIVE	RISK	POST CONTROL RISK ASSESSMENT	MANAGEMENT	MONITORING
	Groundwater drawdown impacts on, or changes in hydrology of, Black Cockatoo habitat	Likelihood: Unlikely Consequence: Moderate Risk outcome: Low	Standard construction management to control groundwater water abstraction consistent with WA Government water supply approvals (not specific to Black Cockatoo AMP)	Standard construction monitoring to verify groundwater water abstraction consistent with WA Government water supply approvals (not specific to Black Cockatoo AMP)
Re-establish Black Cockatoo habitat in identified rehabilitation areas as per design specifications	Failure to establish quality foraging habitat	Likelihood: Unlikely Consequence: Minor Risk outcome: Low	Management to establish and maintain rehabilitation	Field survey by suitably experienced personnel bi-annually once rehabilitation works are completed

6 ENVIRONMENTAL MANAGEMENT MEASURES

In order to comply with relevant environmental legislation and manage impacts to the local environment, Main Roads has defined objectives, outcomes and management based provisions to ensure that impacts to Black Cockatoos are avoided and minimised as far as practicable during the implementation of the Proposal.

6.1 Environmental management activities, controls and performance targets

As identified in Table 5-2, direct impacts of the Proposal to Black Cockatoos result from the clearing of:

- 65.4 ha of foraging habitat
- 1,109 trees with a DBH \geq 500 mm
- Thirteen trees of the 1,109 trees with a DBH \geq 500 mm that contain a potentially suitable nesting hollow(s).

Main Roads has taken a 'hierarchical approach' to the mitigation of potential impacts associated with the Proposal, and in the first instance, has sought to avoid areas of Black Cockatoo habitat through route selection and design refinement. Where impacts cannot be avoided, Main Roads has designed the Proposal to reduce the intensity and / or extent of impacts on Black Cockatoo individuals and habitat.

Main Roads has identified a range of management actions to be implemented to control and minimise direct and potential indirect impacts of the Proposal to Black Cockatoos and their habitat. These have been informed by the results of field studies (Table 5-1), best practice and recent experience on similar road projects in Western Australia. These will minimise potential residual impacts and achieve the identified management targets.

The following species Recovery Plans and referral guidelines have informed the development of this AMP:

- Department of Environment and Conservation (DEC) (2008). *Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan*
- Department of Parks and Wildlife (DPaW) (2013). *Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan*
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2012). *Referral guidelines for three species of Western Australian black cockatoos.*

Based on the controls identified above and these management actions Main Roads has developed performance targets to identify the outcomes sought from the management actions. These, along with the proposed management actions, are identified in Table 6-1.

Table 6-1 Management actions and performance targets

TIMING	MANAGEMENT ACTIONS	PERFORMANCE TARGETS
<p>Prior to construction</p>	<ul style="list-style-type: none"> • Design refinement to minimise area of Black Cockatoo habitat needed to be cleared for the Proposal • Habitat to be cleared within the area of the Proposal Area will be demarcated in the field to ensure clearing only occurs within the approved clearing area • The final design will avoid trees with suitable nest hollows where possible • Where any of the thirteen trees with suitable nest hollows for Black Cockatoo will require clearing for the Proposal, the hollow will be visually inspected where safe and practicable. Where not in use the hollow will be 'blocked' to prevent breeding • Where blocking of the nest hollows cannot be undertaken (e.g. timing, access), a pre-clearing fauna assessment will be undertaken by a suitably experienced person to determine if the hollows are being used by Black Cockatoos 	<ul style="list-style-type: none"> • Avoid direct impacts to Black Cockatoos • Avoid clearing outside the approved footprint • Reduce clearing of Black Cockatoo habitat to the extent practicable in final design • Preclude potential breeding within the area of the Proposal prior to construction
<p>During construction</p>	<ul style="list-style-type: none"> • A suitably experienced zoologist / environmental scientist will be on-site at all times during clearing of breeding habitat for Black Cockatoos and must maintain radio communication with machinery operators • Where a suitable nest hollow within the area of the Proposal has been blocked prior to the Black Cockatoo breeding season, the tree may be felled as part of the standard vegetation clearing process • Where a suitable nest hollow within the area of the Proposal has not been blocked and the pre-clearing fauna assessment has not identified Black Cockatoo occupation of the nest hollow, prior to clearing the tree, the tree will be 'bumped gently' with a machine with the machine operator and zoologist then to wait and observe the tree for a short time after. If no Black Cockatoo appears to be present then the tree may be pushed over slowly to minimise risk of injury to any undetected animal (if present) • Where suitable nest hollows within the area of the Proposal have not been blocked and the pre-clearing fauna assessment identifies Black Cockatoo occupation of the nest hollow (which may include chicks), the tree with the nest hollow will not be cleared until after the chick/s have left the nest. No 	<ul style="list-style-type: none"> • Avoid direct impacts to Black Cockatoos • Avoid clearing outside the approved footprint • Avoid abandonment of breeding hollows within the Proposal Area

TIMING	MANAGEMENT ACTIONS	PERFORMANCE TARGETS
	vegetation within 10 m of the tree will be cleared until after the hollow is vacant <ul style="list-style-type: none"> Any Black Cockatoos observed within the Proposal Area showing signs of injury or illness will be promptly taken to an experienced wildlife veterinarian or approved wildlife rehabilitation facility A post-clearing survey shall be undertaken to ensure no injured Black Cockatoo individuals are present Implement Proposal Drainage Strategy and ground and surface water management measures to avoid impacts to adjacent Black Cockatoo habitat Implement WoNS and Declared Plant control, and surface water and <i>Phytophthora</i> dieback management measures within Proposal Area vegetation / revegetation to prevent potential indirect impacts to Black Cockatoo habitat As part of the CEMP, the construction contractor will prepare a Fire Management Plan to minimise risk of ignition from construction activities and effectively manage any resulting fire / wildfire. 	
Post construction	<ul style="list-style-type: none"> Where space and access allows, revegetation and landscaping of cleared areas within the Proposal Area with suitable endemic native species will be undertaken to provide foraging habitat for Black Cockatoos (excluding 10 m buffer from nearest traffic lane). 	<ul style="list-style-type: none"> Rehabilitation provides suitable foraging habitat within 10 years of completion.

6.1.1 SMART performance standards

The DoEE (2019) *Action Management Plan Criteria* identifies the application of ‘SMART’ (specific, measurable, achievable, relevant and time-bound) performance standards to be applied to AMPs, in addition to the management and monitoring actions identified within the DoE (2014) guideline.

SMART performance standards are intended to relate to measurable (numerical) values which can be applied to a Proposal (rather than qualitatively measured management / monitoring actions), and may include measurements such as ‘threshold criteria’, ‘performance indicators’, ‘corrective actions’ and ‘completion criteria’.

In relation to Black Cockatoos, Main Roads has prepared SMART performance standards directly related to the measurable impacts of the Proposal as identified in Table 5-2. These SMART performance standards complement the management actions and performance targets identified in Table 6-1. The proposed SMART performance standards for the Proposal are identified in Table 6-2. Proposed monitoring and corrective actions are identified in Table 6-3 and Table 6-4 respectively.

The ‘threshold criteria’ and ‘completion criteria’ are considered to be achievable, with the risk potential of not achieving the proposed SMART performance standards captured by the risk assessment presented in Table 6.

As the proposed SMART performance standards for ‘threshold criteria’ and ‘completion criteria’ relate to physical measures which can be readily controlled through standard construction management processes, it is considered the proposed SMART performance standards have a low level of uncertainty, with additional margins for safety not required.

The SMART performance standards do not require detailed statistical analysis to determine if the ‘threshold criteria’ and ‘completion criteria’ have been met, nor require statistical power to detect change (for example, seasonal or climatic variability), nor control or reference sites (for comparative purposes).

Table 6-2 SMART performance standards

THRESHOLD CRITERIA (REFER Table 5)	PERFORMANCE INDICATORS	CORRECTIVE ACTIONS (REFER Table 10)	COMPLETION CRITERIA (REFER Table 5)
Clearing of 65.4 ha of Black Cockatoo foraging habitat	Amount of Black Cockatoo foraging habitat cleared	Record environmental incident Investigate cause Update environmental training of personnel (if appropriate) Report incident to DAWE Undertake remediation works (if appropriate, following consultation with DAWE).	Not more than 65.4 ha of Black Cockatoo foraging habitat cleared
Clearing of 13 trees with a DBH ≥ 500 mm which contain a potentially suitable nesting hollow(s)	Number of trees with a DBH ≥ 500 mm which contain a potentially suitable nesting hollow(s) cleared	Record environmental incident Investigate cause Update environmental training of personnel (if appropriate) Report incident to DAWE Undertake remediation works (if appropriate, following consultation with DAWE).	Not more than 13 large trees (DBH 500 mm) which contain a potentially suitable nesting hollow(s) cleared

6.2 Environmental maps and diagrams

- Appendix A contains figures showing the Proposal location and the locations of Black Cockatoo foraging / breeding habitats
- Figure 1 identifies the location of the Proposal
- Figure 2 identifies the modelled extent of Black Cockatoo foraging habitat within a 12 km radius of the Proposal
- Figure 3 and Figure 4 identify the modelled extent of Black Cockatoo foraging habitat within a 12 km radius of the Proposal overlain with the mapped extent of Black Cockatoo foraging habitat identified through environmental surveys (field survey) for the Proposal
- Figure 5 and Figure 6 identify the mapped locations of large trees (DBH ≥ 500 mm) identified through field surveys conducted for the Proposal. Large trees which contain a hollow potentially suitable for Black Cockatoo nesting are also identified.

6.3 Environmental monitoring

Main Roads has identified key monitoring actions to monitor the potential impacts of the Proposal to Black Cockatoo individuals and habitat during and post construction. These encompass monitoring of both direct and indirect impacts of the Proposal.

Monitoring will be undertaken by suitably qualified individuals for the methodology type specified. For example, the visual assessment of suitable nest hollows will be undertaken by a zoologist / environmental scientist. The proposed monitoring program for the Proposal is identified in Table 6-3.

Table 6-3 Proposed monitoring program

PERFORMANCE TARGET(S)	PARAMETER TO BE MONITORED	METHODOLOGY	FREQUENCY	RECORDING AND REPORTING
Avoid direct impacts to Black Cockatoos	Injury or death of Black Cockatoos	Visual inspection	Pre-clearing During construction: Post each clearing event and opportunistically Post construction: Not applicable	Injury or death of Black Cockatoos recorded by construction contractor and reported to Manager Environment within 24 hours of incident occurring Report annually to DAWE as part of annual compliance reporting
Reduce clearing of Black Cockatoo habitat to the extent practicable in final design Avoid clearing outside the approved footprint	Clearing area (ha) of Black Cockatoo foraging habitat	Field survey of cleared areas with comparison to approved clearing area and mapped Black Cockatoo habitat areas	During construction: Daily inspection of clearing area demarcation; weekly assessment against approved clearing areas Post construction: Not applicable	Area of Black Cockatoo habitat cleared recorded by construction contractor and reported to Manager Environment monthly Report annually to DAWE as part of annual compliance reporting
	Number of trees with a DBH \geq 500 mm containing a potentially suitable nesting hollow(s) cleared	Field survey of cleared areas with comparison to approved clearing area and known Black Cockatoo nest hollow locations	During construction: Daily inspection of clearing area demarcation; weekly assessment against approved clearing areas Post construction: Not applicable	Number of suitable DBH trees cleared recorded by construction contractor and reported to Manager Environment monthly Report annually to DAWE as part of annual compliance reporting
Preclude potential breeding within	Black Cockatoo access to potentially suitable nesting hollow(s)	Visual inspection	Pre-clearing and opportunistically	Number of potentially suitable nesting hollow(s) blocked prior to construction

PERFORMANCE TARGET(S)	PARAMETER TO BE MONITORED	METHODOLOGY	FREQUENCY	RECORDING AND REPORTING
Proposal Area prior to construction				recorded by construction contractor and reported to Manager Environment monthly
Rehabilitation provides suitable foraging habitat within 10 years of completion	Presence / absence and quality of foraging habitat available in rehabilitated areas	Field survey by suitably experienced personnel	Post construction: Bi-annually	Post construction: Bi-annually once rehabilitation works are completed

6.4 Corrective actions

Consistent with the DotE (2014) guideline, triggers and corrective actions have been considered in the event that monitoring / observation identifies that the management actions have not achieved the environmental objectives.

The purpose of the corrective actions is to provide an appropriate remedy to the environmental objectives not being met, and may include changes to equipment, processes and / or management measures. The degree to which the corrective actions will be implemented may depend upon various factors, such as the type and severity of the trigger, the location and condition of the surrounding environment, and the specific location / nature of the works being undertaken for the Proposal.

Changes to processes and / or management may require this AMP to be updated, with additional environmental training to be provided to site personnel.

Corrective actions may incorporate the identification, investigation and reporting of an environmental incident. Environmental incidents are to be reported to the Manager Environment (or delegate) by the person responsible for the incident or the first person to observe the incident. The type and severity of an environmental incident will be assessed in accordance with Main Roads' standard incident procedures. In the event that an environmental incident has resulted in a significant environmental impact to Black Cockatoo individuals or habitat, the environmental incident will be reported to DAWE (as identified within Section 4.1).

The proposed corrective actions for the Proposal are identified in Table 6-4.

Table 6-4 Corrective actions

ASPECT	TRIGGER	CORRECTIVE ACTION
Black Cockatoo breeding habitat (nesting)	Injured Black Cockatoo individual within area of Proposal with injury suspected to be a consequence of construction activity	Stop works (temporary) within 50 m of the injured individual. Engage a suitably experienced fauna handling specialist to remove individuals and transport the individual to a native fauna care facility Record environmental incident
	Live individual identified within hollow of a felled tree (despite pre-clearing fauna survey of hollows)	Stop works (temporary) within 50 m of the injured individual. Engage a suitably experienced fauna handling specialist to remove individuals and transport the individual to a native fauna care facility Record environmental incident Modify pre-clearing fauna survey methodology (if appropriate)
Black Cockatoo foraging / breeding habitat quality	Clearing of Black Cockatoo foraging / breeding habitat beyond area of the Proposal	Stop works (temporary) Record environmental incident Investigate cause

ASPECT	TRIGGER	CORRECTIVE ACTION
		Update environmental training of personnel (if appropriate) Report incident to DAWE Undertake remediation works (if appropriate, following consultation with DAWE)
Rehabilitation to establish suitable foraging habitat	Failure of rehabilitation	Investigate cause Refine species lists and rehabilitation methodologies (if appropriate) Update environmental training of personnel (if appropriate) Schedule repeat of rehabilitation works or supplementary infill planting in failed areas

7 AUDIT AND REVIEW

This AMP adopts an ‘adaptive management’ approach which seeks to embed a cycle of monitoring, reporting and implementing change, where required. Accordingly, it is intended that this AMP may be updated (as required) over the life of the Proposal to reflect changes in the monitoring and management practices, subject to the results of the monitoring to identify that the environmental objectives are being achieved. The AMP may also be revised to address learnings from the implementation of corrective actions, should this occur.

In addition, auditing and review schedules are necessary to embed a formal process to identify and consider any need to update the AMP in order to achieve improved environmental performance (which may not otherwise be triggered by management or monitoring outcomes).

7.1 Environmental auditing

This AMP will be audited annually by Main Roads during construction for the Proposal to ensure the implementation of the management and monitoring measures, and to confirm the management measures specified are achieving the environmental outcomes.

The proposed auditing schedule for this AMP is identified in Table 7-1.

Table 7-1 Environmental audit schedule

TIMING	ACTION	SCHEDULE
Pre-construction	Review of construction procedures to ensure AMP management / monitoring actions are incorporated within works procedures	Prior to construction (single event)
Construction	Inspections by site environmental personnel to identify compliance with AMP	Periodic (generally weekly)
	Independent ‘third-party’ audit for assessment of compliance with AMP	Annually (once per calendar year)
Post construction	Independent ‘third-party’ audit for assessment of compliance with AMP	Annually (once per calendar year for up to 3 years)

The results of the construction and post construction independent ‘third-party’ audit findings will be reported by Main Roads to DAWE as part of annual compliance reporting as outlined within Section 1.

7.2 Environmental review

Main Roads proposes to review this AMP annually in order to consider:

- the management and monitoring actions
- opportunities for an improvement in environmental performance (for example, changes to construction methodology or timing)

- identify a need to update this AMP to capture changes to the management and / or monitoring actions
- identify any general need to update this AMP (for example, to capture new information on Black Cockatoos knowledge or management).

Main Roads acknowledge that a revision to this AMP may trigger a need for additional approval by DAWE prior to implementing any changes to the specified management or monitoring actions.

The proposed AMP review schedule for the Proposal is identified in Table 7-2.

Table 7-2 AMP review schedule

TIMING	ACTION	SCHEDULE
Pre-construction, Construction and Post construction	Review of AMP management and monitoring actions Review of opportunities for an improvement in environmental performance Revise AMP (if appropriate) and seek approval of DAWE for revised AMP	Annually (once per calendar year)

7.3 Data management

Main Roads will maintain records on the implementation of this AMP in accordance with Main Roads' corporate standard document control procedures.

The retention of records held by Main Roads will be maintained and managed in accordance with the *Western Australian State Records Act 2000 (WA)*.

8 STAKEHOLDER CONSULTATION

8.1 Stakeholder consultation

Main Roads has consulted with a range of stakeholders on the Proposal. These consultations have assisted to inform the development of this AMP.

A list summary of the stakeholders consulted on the Proposal (for which the environmental impact and management of Black Cockatoos were discussed) is identified in Table 8-1.

Table 8-1 Stakeholder consultation

TYPE	STAKEHOLDER	CONSULTATION ISSUES
Community	BORR Southern Community Reference Group	<ul style="list-style-type: none"> • Proposal design to minimise impact to Black Cockatoo foraging / breeding habitat • Residual direct and potential indirect impacts to Black Cockatoo foraging / breeding habitat • Management and monitoring of Black Cockatoos • Environmental assessment processes relevant to Black Cockatoos
Government	<ul style="list-style-type: none"> • Commonwealth Department of Agriculture, Water and Environment • State Department of Water and Environment Regulation (EPA Services) • State Department of Biodiversity, Conservation and Attractions 	<ul style="list-style-type: none"> • Proposal design to minimise impact to Black Cockatoo foraging / breeding habitat • Residual direct and potential indirect impacts to Black Cockatoo foraging / breeding habitat • Preparation / implementation of an AMP for the management and monitoring of impacts to Black Cockatoos

8.2 External communications / concerns

Main Roads and /or its Contractors will maintain a register of communications (including any public concerns / complaints) for the Proposal. Records to be obtained for external communications will include:

- Contact details for the person making the complaint (name, address and phone number as a minimum)
- Date, time and relevant location (if specific to part of the Proposal)
- Details of the communication (with sufficient detail to enable investigation / response, if appropriate)

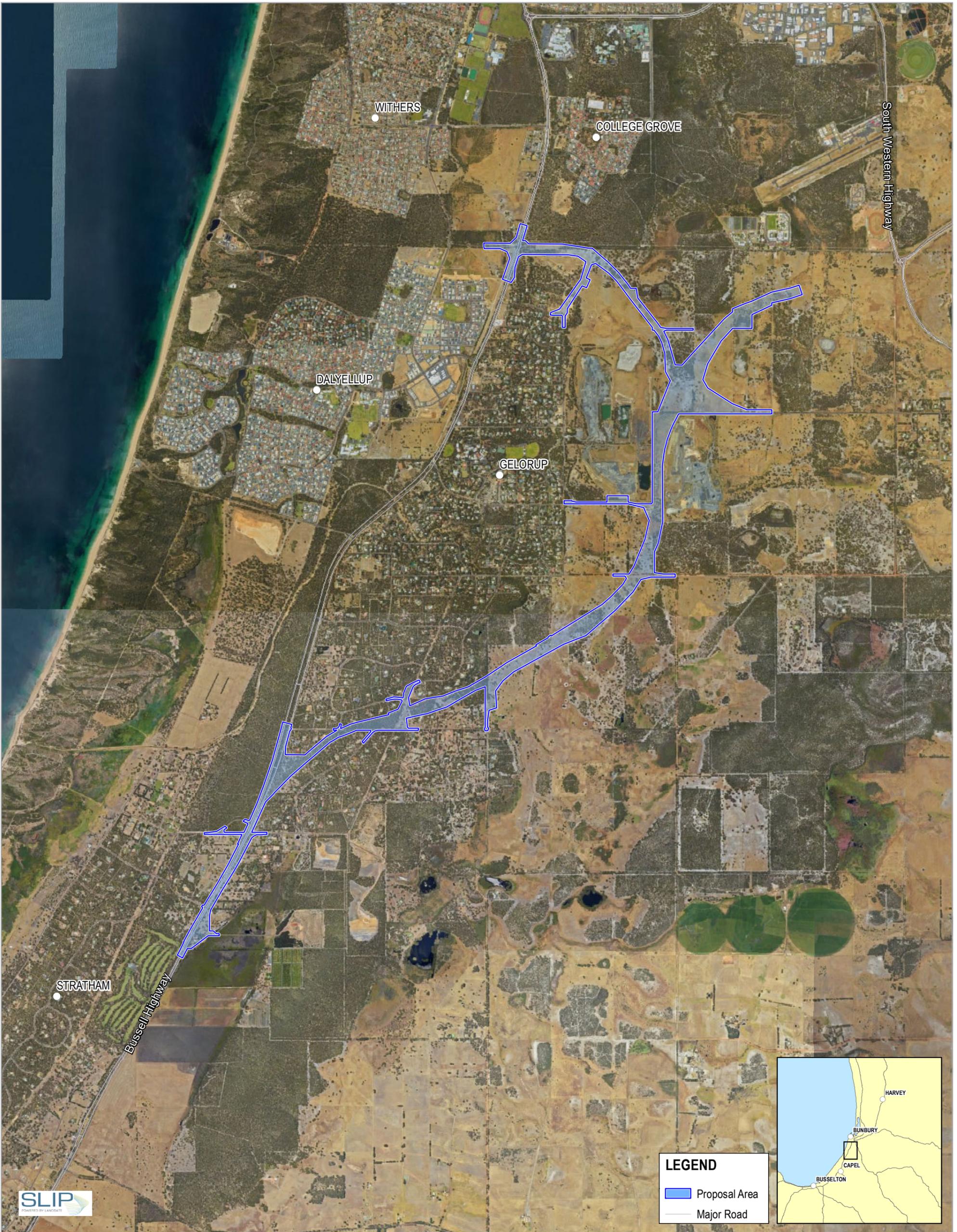
The retention of records held by Main Roads (including external communications) will be maintained and managed in accordance with the Western Australian *State Records Act 2000* (WA).

9 REFERENCES

- Biota. (2020). *Bunbury Outer Ring Road Southern Section Targeted Fauna Assessment*. Unpublished report prepared for BORR IPT on behalf of Main Roads Western Australia.
- BORR IPT. (2020a). *Bunbury Outer Ring Road Southern Section Environmental Management Plan - Conservation Significant Fauna*. Unpublished report for Main Roads Western Australia.
- BORR IPT. (2020b). *BORR Southern Section Additional Information for Preliminary Documentation – EPBC Ref: 2019/8543*. Unpublished report prepared for Main Roads Western Australia.
- BORR IPT. (2020c). *Bunbury Outer Ring Road Southern Section Vegetation and Flora Study*. Unpublished report prepared for Main Roads Western Australia.
- DAWE. (2020). *Additional Information Request for Preliminary Documentation (2019/8543)*. Department of Agriculture, Water and Environment.
- DEC. (2008). *Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Redtailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan*. Western Australia: Department of Environment and Conservation.
- DoEE. (2019). *Request for Additional Information Required for Assessment by Preliminary Documentation*. Department of the Environment and Energy.
- DotE. (2014). *Environmental Management Plan Guidelines*. . Department of the Environment. Canberra, Australia.
- DPaW. (2013). *Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan*. Perth, Western Australia: Department of Parks and Wildlife.
- DSEWPaC. (2012). *EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species: Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-Tailed Black Cockatoo*. Department of Sustainability Environment Water Population and Communities.
- Great Southern Bio Logic. (2020). *Phytophthora Dieback Survey Bunbury Outer Ring Road South*. Unpublished report prepared for BORR IPT.
- IUCN. (2012). *IUCN Red List Categories and Criteria, Version 3.1, Second Edition*. International Union for Conservation of Nature.

Appendix A Figures

Figure 1	Proposal Area
Figure 2	Black Cockatoo Foraging Habitat – Regional, 12 km Radius
Figure 3	Black Cockatoo Foraging Habitat – Survey Area
Figure 4	Black Cockatoo Foraging Habitat – Survey Area (sectional maps)
Figure 5	Black Cockatoo Large Trees (DBH \geq 500 mm) with Nest Hollows – Survey Area
Figure 6	Black Cockatoo Large Trees (DBH \geq 500 mm) with Nest Hollows – Survey Area (sectional maps)



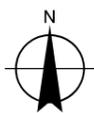
LEGEND

- Proposal Area
- Major Road



Paper Size ISO A3
 0 250 500 750 1,000
 Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 Perth Coastal Grid 1994



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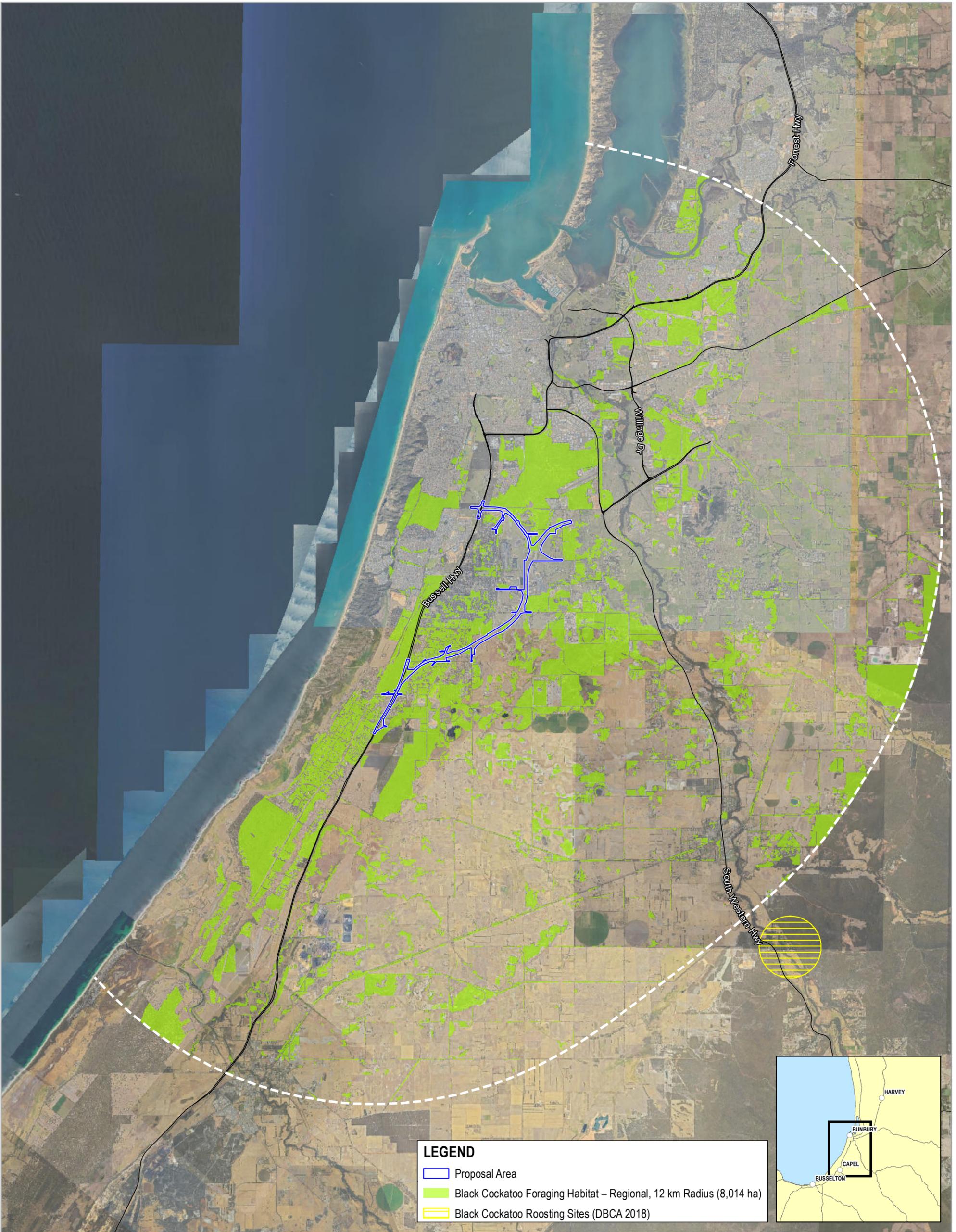
mainroads
 WESTERN AUSTRALIA
 SUNBURY OUTER RING ROAD | PLANNING AND DEVELOPMENT

Main Roads Western Australia
 Bunbury Outer Ring Road Southern Section

Proposal Area

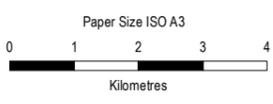
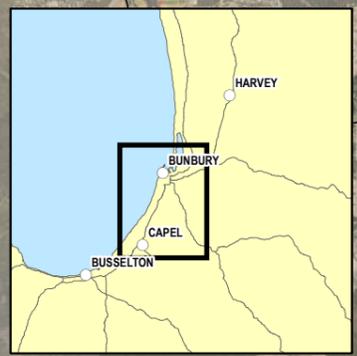
Project No. 61-37041
 Revision No. 0
 Date 4/06/2020

FIGURE 1



LEGEND

- Proposal Area
- Black Cockatoo Foraging Habitat – Regional, 12 km Radius (8,014 ha)
- Black Cockatoo Roosting Sites (DBCA 2018)



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994

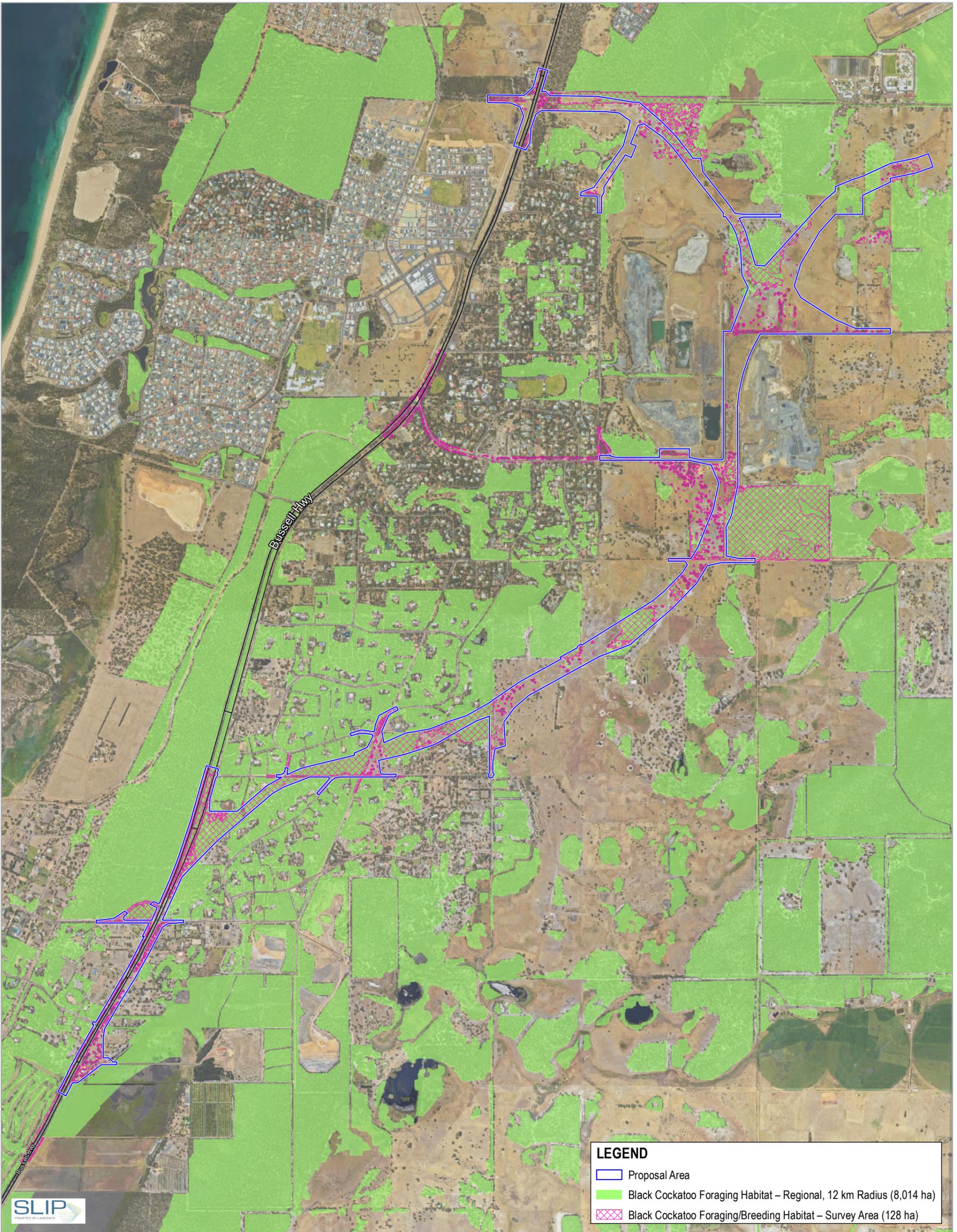


Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

Black Cockatoo Foraging Habitat and Roosting Sites within 12 km of the Proposal Area

Project No. 61-37041
Revision No. 2
Date 2/10/2020

FIGURE 9



LEGEND

- Proposal Area
- Black Cockatoo Foraging Habitat – Regional, 12 km Radius (8,014 ha)
- Black Cockatoo Foraging/Breeding Habitat – Survey Area (128 ha)



Paper Size ISO A3
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Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 Perth Coastal Grid 1994

Main Roads Western Australia
 Bunbury Outer Ring Road Southern Section

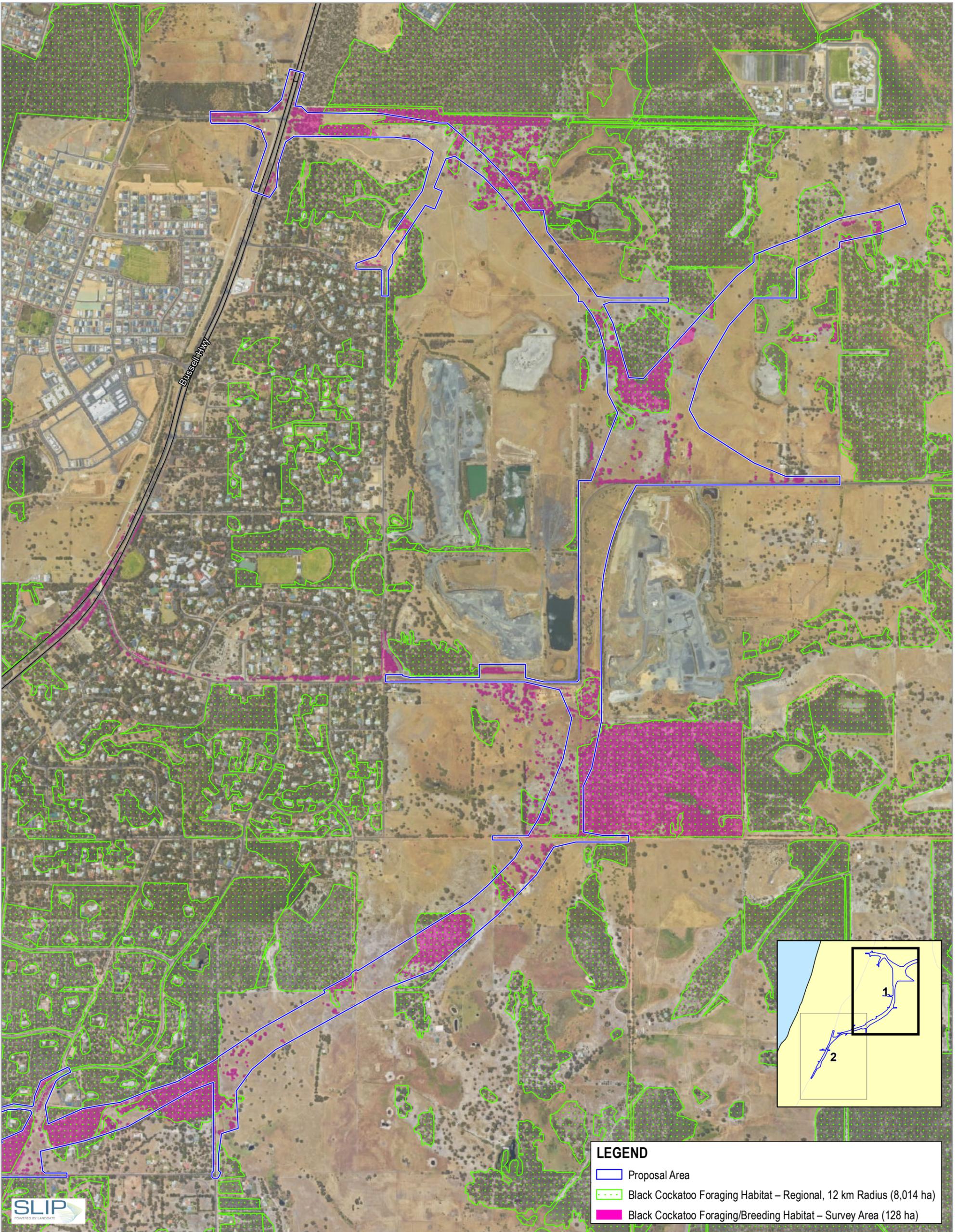
Project No. 61-37041
 Revision No. 0
 Date 4/06/2020

Black Cockatoo Foraging Habitat – Survey Area

FIGURE 3

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 Print date: 04 Jun 2020 - 11:10

Data source: Geoscience Australia: GeoData Topo 250k Series III - 2006; OBCA: Black Cockatoo Foraging Habitat - 2019; Landgate: Roads - 20180501; Imagery - WA Now accessed 20200604; BORR: Proposal Area - 20191212; Environmental Survey Area - 20200214; Biota: Black Cockatoo Foraging/Breeding Habitat - 20200220. Created by: slei



LEGEND

- Proposal Area
- Black Cockatoo Foraging Habitat – Regional, 12 km Radius (8,014 ha)
- Black Cockatoo Foraging/Breeding Habitat – Survey Area (128 ha)



Paper Size ISO A3
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 Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

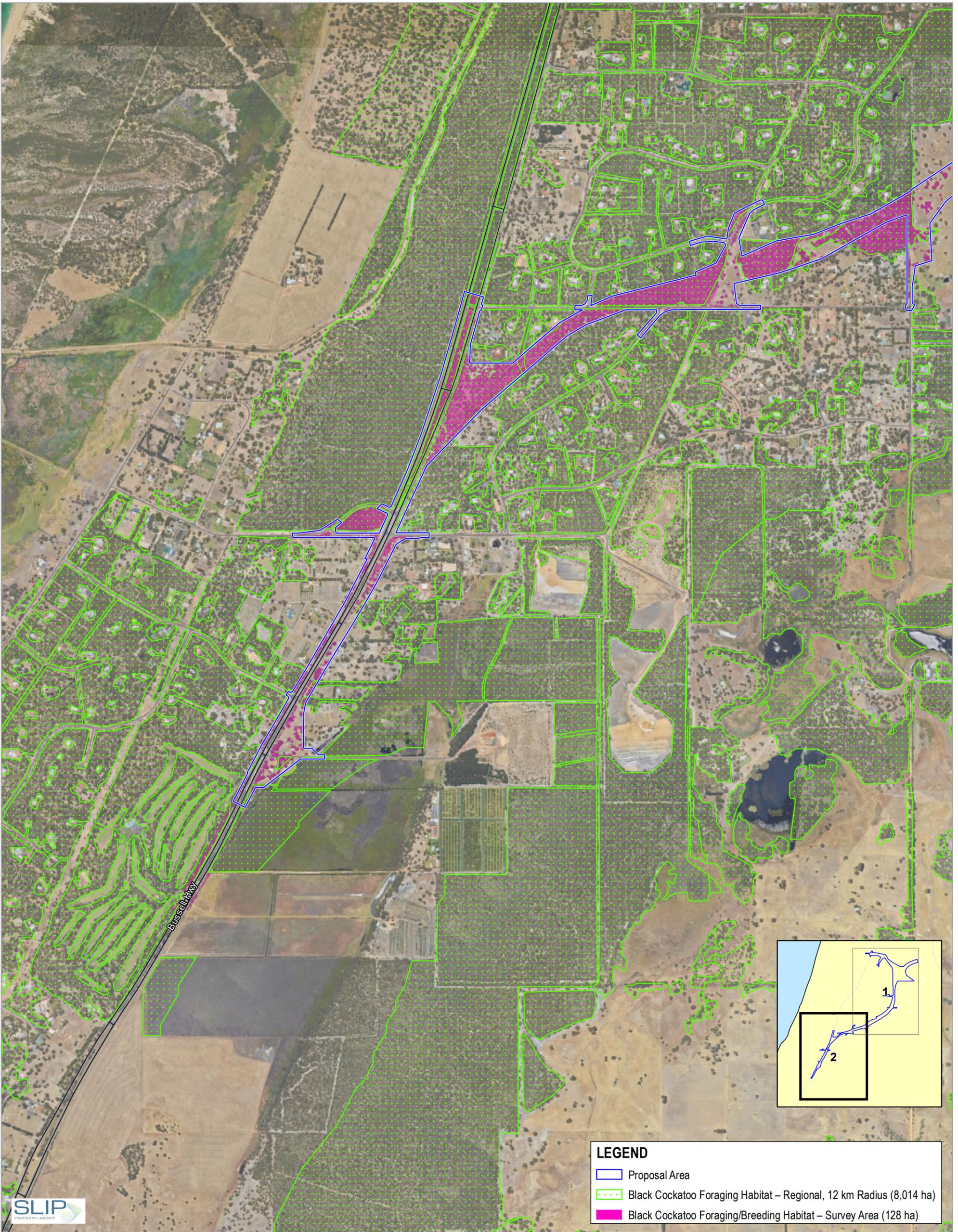
Black Cockatoo Foraging Habitat – Survey Area (sectional maps)

Project No. 61-37041
 Revision No. 0
 Date 4/06/2020

FIGURE 4

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Data source: Geoscience Australia: GeoData Topo 250k Series III - 2006; OBCA: Black Cockatoo Foraging Habitat - 2019; Landgate: Roads - 20180501; Imagery - WA Now accessed 20200604; BORR: Proposal Area - 20191212; Environmental Survey Area - 20200214; Biota: Black Cockatoo Foraging/Breeding Habitat - 20200220. Created by: slel



LEGEND	
	Proposal Area
	Black Cockatoo Foraging Habitat – Regional, 12 km Radius (8,014 ha)
	Black Cockatoo Foraging/Breeding Habitat – Survey Area (128 ha)



Paper Size ISO A3
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 Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
 Bunbury Outer Ring Road Southern Section

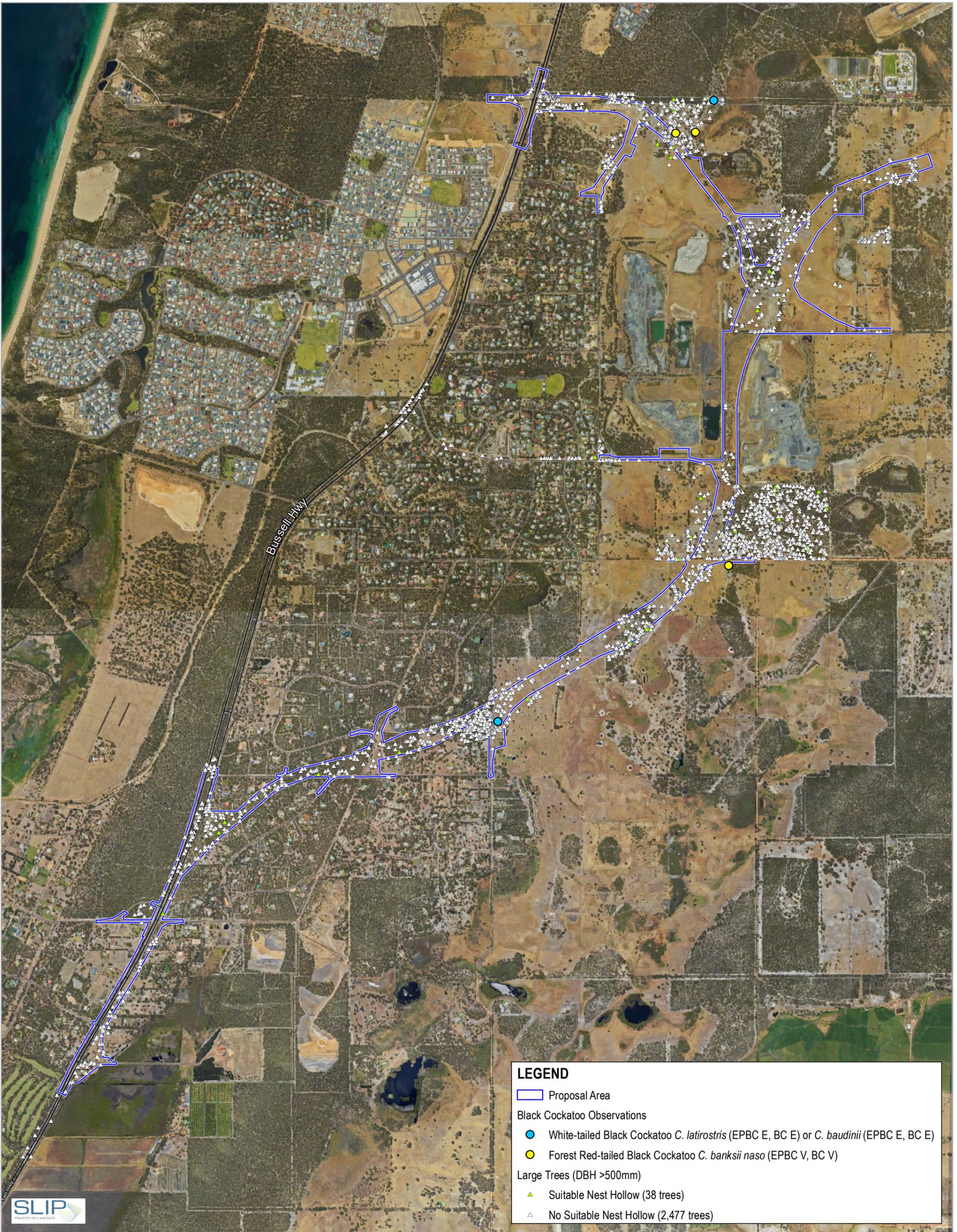
Project No. 61-37041
 Revision No. 0
 Date 4/06/2020

Black Cockatoo Foraging Habitat –
 Survey Area (sectional maps)

FIGURE 4

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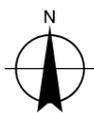


LEGEND

- Proposal Area
- Black Cockatoo Observations
 - White-tailed Black Cockatoo *C. latirostris* (EPBC E, BC E) or *C. baudinii* (EPBC E, BC E)
 - Forest Red-tailed Black Cockatoo *C. banksii naso* (EPBC V, BC V)
- Large Trees (DBH > 500mm)
 - ▲ Suitable Nest Hollow (38 trees)
 - ▲ No Suitable Nest Hollow (2,477 trees)



Paper Size ISO A3
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Metres



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994

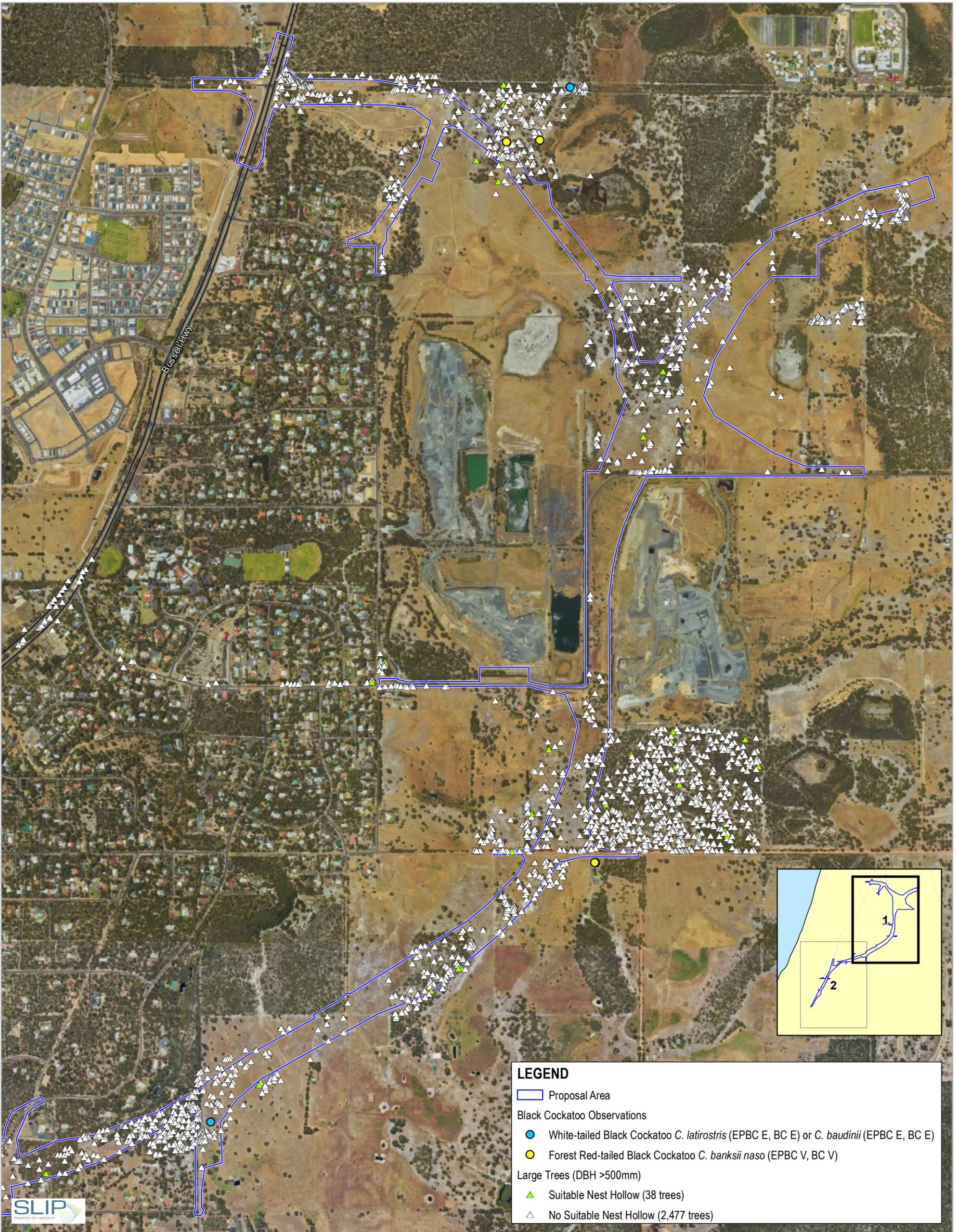


Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

Project No. 61-37041
Revision No. 1
Date 30/07/2020

**Black Cockatoo Large Trees (DBH ≥ 500 mm)
with Nest Hollows – Survey Area**

FIGURE 5



LEGEND

- Proposal Area
- Black Cockatoo Observations
 - White-tailed Black Cockatoo *C. latirostris* (EPBC E, BC E) or *C. baudinii* (EPBC E, BC E)
 - Forest Red-tailed Black Cockatoo *C. banksii naso* (EPBC V, BC V)
- Large Trees (DBH >500mm)
 - ▲ Suitable Nest Hollow (38 trees)
 - ▲ No Suitable Nest Hollow (2,477 trees)



Paper Size ISO A3
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 Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 Perth Coastal Grid 1994



**Main Roads Western Australia
 Bunbury Outer Ring Road Southern Section**

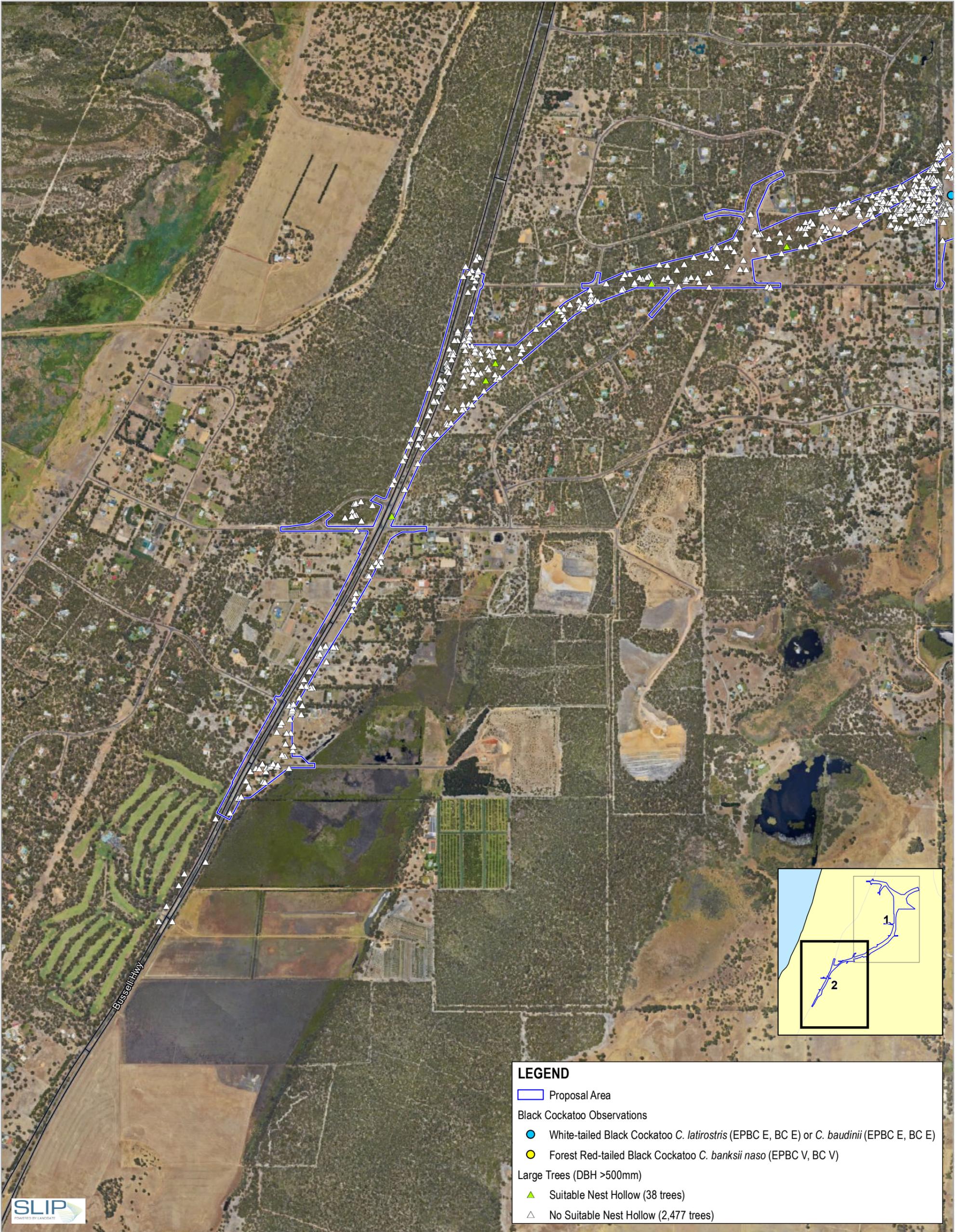
**Black Cockatoo Large Trees (DBH ≥ 500 mm)
 with Nest Hollows**

Project No. 61-37041
 Revision No. 1
 Date 30/07/2020

FIGURE 6

G:\6137041\19_0_GIS\Map\Working\BORR\South_ARIFigures\Black Cockatoo AMP\6137041_06_BORR\South\BCTrees_Rev1.mxd
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Data source: Geoscience Australia: GeoData Topo 250k Series III - 2006; Landgate: Roads - 20180501; Imagery - WA Now accessed 20200730; BORR: Proposal Area - 20191212; Environmental Survey Area - 20200214; Biota: Black Cockatoo records, Large trees (DBH>500mm). Created by: slei

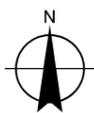


LEGEND

- Proposal Area
- Black Cockatoo Observations
 - White-tailed Black Cockatoo *C. latirostris* (EPBC E, BC E) or *C. baudinii* (EPBC E, BC E)
 - Forest Red-tailed Black Cockatoo *C. banksii naso* (EPBC V, BC V)
- Large Trees (DBH >500mm)
 - ▲ Suitable Nest Hollow (38 trees)
 - ▲ No Suitable Nest Hollow (2,477 trees)



Paper Size ISO A3
 0 100 200 300 400
 Metres



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
 Bunbury Outer Ring Road Southern Section

**Black Cockatoo Large Trees (DBH ≥ 500 mm)
 with Nest Hollows**

Project No. 61-37041
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 Date 30/07/2020

Page 2 of 2

FIGURE 6

Appendix B Annual Compliance Report Template



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WESTERN AUSTRALIA

*We're working for
Western Australia.*

EPBC 2019/8471

Annual Compliance Report

Bunbury Outer Ring Road
Northern and Central Sections
Month/Year

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1. Introduction

Main Roads Western Australia (Main Roads) is proposing to construct and operate the Northern and Central sections of the Bunbury Outer Ring Road (BORR) project. BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port, improve road user safety and facilitate proposed development to the east of the City of Bunbury. BORR provides an effective bypass of Bunbury for inter-regional traffic. The proposed BORR comprises three sections:

- 'BORR Northern Section' – Forrest Highway to Boyanup-Picton Road
- 'BORR Central Section' – Boyanup-Picton Road to South Western Highway (an existing four km section which was completed in May 2013, along with a three km extension of Willinge Drive southwards to South Western Highway)
- 'BORR Southern Section' – South Western Highway (near Bunbury Airport) to Bussell Highway.

The proposed BORR Project occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. Construction of the BORR Project is anticipated to commence in year 2021 and continue for a period of up to approximately three years.

1.1 Approval under the Environment Protection and Biodiversity Conservation Act 1999

The Project was referred to the then Department of the Environment and Energy (now Department of Agriculture, Water and Environment; DAWE) for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as the Project was deemed to potentially impact significantly on the following listed threatened species and communities:

- Western Ringtail Possum (*Pseudocheirus occidentalis*) (WRP) (Critically endangered)
- Black-stripe Minnow (*Galaxiella nigrostriata*) (BSM) (Endangered)
- Carter's Freshwater Mussel (*Westralunio carteri*) (CFM) (Vulnerable)
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable)
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) (Endangered)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (Endangered)
- Banksia Woodlands of the Swan Coastal Plain ecological community (Endangered) (Banksia Woodlands TEC)
- Clay Pans of the Swan Coastal Plain (Critically Endangered) (Clay Pans TEC)
- *Corymbia calophylla* - *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain (Endangered) (Corymbia Woodlands TEC).

The Project was determined by DAWE to be a 'Controlled Action' and was assessed through Preliminary Documentation with a request for further information to assist in the assessment of the Proposal. The DAWE issued approval of the Project on Day/Month/Year (EPBC 2019/8471) and included a number of conditions that Main Roads Western Australia (Main Roads) is required to fulfil.

1.2 Purpose of this Report

Construction of the Project commenced on Day/Month/Year. This compliance report has been produced as required by Condition X of EPBC approval 2013/7091. Table 1 of this report outlines the compliance with each approval condition over the past 12 month period, Day/Month/Year to Day/Month/Year. The clearing area of TEC vegetation is shown in Figure 1 and that of conservation significant fauna habitat in Figure 2.

2. Compliance

Table 1: Year - Year compliance with EPBC Approval 2019/8471

Condition Number	Condition Description	Status

Figure 1 Total Clearing of TEC vegetation from Project Area

Figure 2 Total clearing of conservation significant fauna habitat from Project Area

3. Attachments

Attachment	Title
Attachment 1	
Attachment 2	
Attachment 3	
Attachment 4	
Attachment 5	
Attachment 6	
Attachment 7	

Attachment 1:

Attachment 2:

Attachment 3:

Attachment 4:

Attachment 5:

Attachment 6:

Attachment 7:



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