



PHOENIX

ENVIRONMENTAL SCIENCES

Black Cockatoo Artificial Hollow Monitoring at Austin Bay for the Mitchell Freeway Southbound Project

Prepared for Main Roads WA

January 2024

Final



Black Cockatoo Artificial Hollow Monitoring at Austin Bay for the Mitchell Freeway Southbound Project.

Prepared for Main Roads WA

Version history

| Authors | Reviewer | Version | Version number | Date submitted | Submitted to |
|-----------------------|------------|----------------------------------|----------------|----------------|----------------------------|
| B. Quick and A. Jacks | Anna Jacks | Draft for client comments | 0.1 | 08-Jan-24 | E. Johnston and C. Collett |
| A. Jacks | | Final, client comments addressed | 1.0 | 25-Jan-24 | E. Johnston and C. Collett |

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1 INTRODUCTION

The Smart Freeways Mitchell Freeway Southbound Project includes the installation of a Principal Shared Pathway (PSP) and noise walls along the eastern side of the Mitchell Freeway at various sections between Ocean Reef Road and Hepburn Avenue. The project was assessed as a Controlled Action under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and received conditional approval on 5 October 2021 (EPBC 2020/8833) (Appendix 1). Main Roads also obtained a Clearing Permit for the project (CPS 9225/1).

Two suitable nesting hollows/black cockatoo habitat trees were located within the project development envelope. In accordance with EPBC 202/8833 Condition 3c and CPS 9225 Condition 8e, Main Roads must install at least three artificial nesting hollows for each suitable nesting hollow/black cockatoo habitat tree cleared. Landcare installed 6 artificial hollows on 6 February on behalf of Main Roads WA within the Austin Bay Native Reserve, approximately 12 km south of Mandurah, WA in February 2023 (Figure 1; Table 1).

In accordance with EPBC 2020/8833 Condition 3d & 3e Main Roads must ensure that each artificial nesting hollow is:

1. Monitored and maintained in accordance with the artificial nesting hollow maintenance guidelines (Appendix 2) for ten years from installation, with maintenance actions undertaken before the commencement of each breeding season.
2. Inspected at least twice each year, and at least four weeks apart, by a suitably qualified field ecologists during the breeding season for 10 years from the installation of the artificial nesting hollow to record any evidence of use by the black cockatoos.

In accordance with condition 8 (g) of CPS 9225 Main Road must ensure that the artificial nest hollows are:

1. Monitored and maintained in accordance with the DPaW Fauna Notes - How to monitor and maintain artificial hollows for Carnaby's Cockatoo (2015), for a period of at least 10 years.

Austin Bay is located within the range of both Carnaby's Cockatoo (*Zanda latirostris*) (EN), Baudin's Cockatoo (*Calyptorhynchus baudinii*) (EN), and Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (VU). On the Swan Coastal Plain, Carnaby's Cockatoo breeds between July and December (DAWE 2022). Red-tailed Black Cockatoo may breed opportunistically at any time of the year, however their primary breeding period occurs between April to June and August to October, and the breeding period for Baudin's Cockatoo is August to January (DAWE 2022).

1.1 SCOPE OF WORK

The scope of work entails the following:

- monitoring of 6 artificial nesting hollows at Austin Bay (Figure 1; Table 1; Appendix 1) between July 2023 and December 2023
- between July 2023 and December 2023, a minimum of five monitoring events must be undertaken.
- these inspections must be in accordance with DPaW Fauna Notes - How to monitor and maintain artificial hollows for Carnaby's cockatoo guideline (2015)
- during inspections, identify any artificial nesting hollow maintenance needs in accordance with DPaW (2015)
- within 2 days of maintenance needs being identified, notify Main Roads via email of the hollow Identification number for each hollow requiring maintenance and the maintenance requirements for each hollow.

- within five weeks of completion of the final monitoring event of all artificial nesting hollows, provide to Main Roads a two separate monitoring reports.
 - The report for Lake Clifton must provide all records required by Conditions 6b (i) and (ii) of EPBC 2019/8608
 - The report for Austin Lakes must provide all records required by Conditions 3 (d) & (f) of EPBC 2020/8833 and Condition 11.3.(e)-(i) of CPS 9225.
- provision of a report be suitable for publication on the Main Roads website for public accessibility, and provision to the WA Department of Biodiversity, Conservation and Attractions (DBCA) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).

2 METHODS

The Black Cockatoo Nest monitoring was conducted in accordance with *How to monitor and maintain artificial hollows for Carnaby's cockatoo* (DPaW 2015). Each artificial hollow was visited 5 times between July and December 2023 (Table 1).

Prior to the surveys, site locations were loaded onto field tablets. Data was collected electronically using a customised data collection template and include:

- site code
- signs of use as per DPaW Fauna Notes - How to monitor and maintain artificial hollows for Carnaby's cockatoo guideline (2015) –
 - birds prospecting hollows
 - fresh chewings
 - birds perching, birds entering/existing hollows
 - birds flushed from hollows
 - gender of observed birds
 - chick calls
 - eggs observed (inc. status if possible – incubated or abandoned)
 - chick/s observed, chick/s fledged
 - other indicators, e.g. gender mix of flocks, evidence of nesting at base of trees
- condition of hollow, current suitability for use, and maintenance requirements.

The base of each tree which hosts an artificial nest box was knocked or scratched if no birds already at the top of the hollow. If a female was not flushed from knocking, then pole camera was used to inspect the hollow. The following categories were recorded:

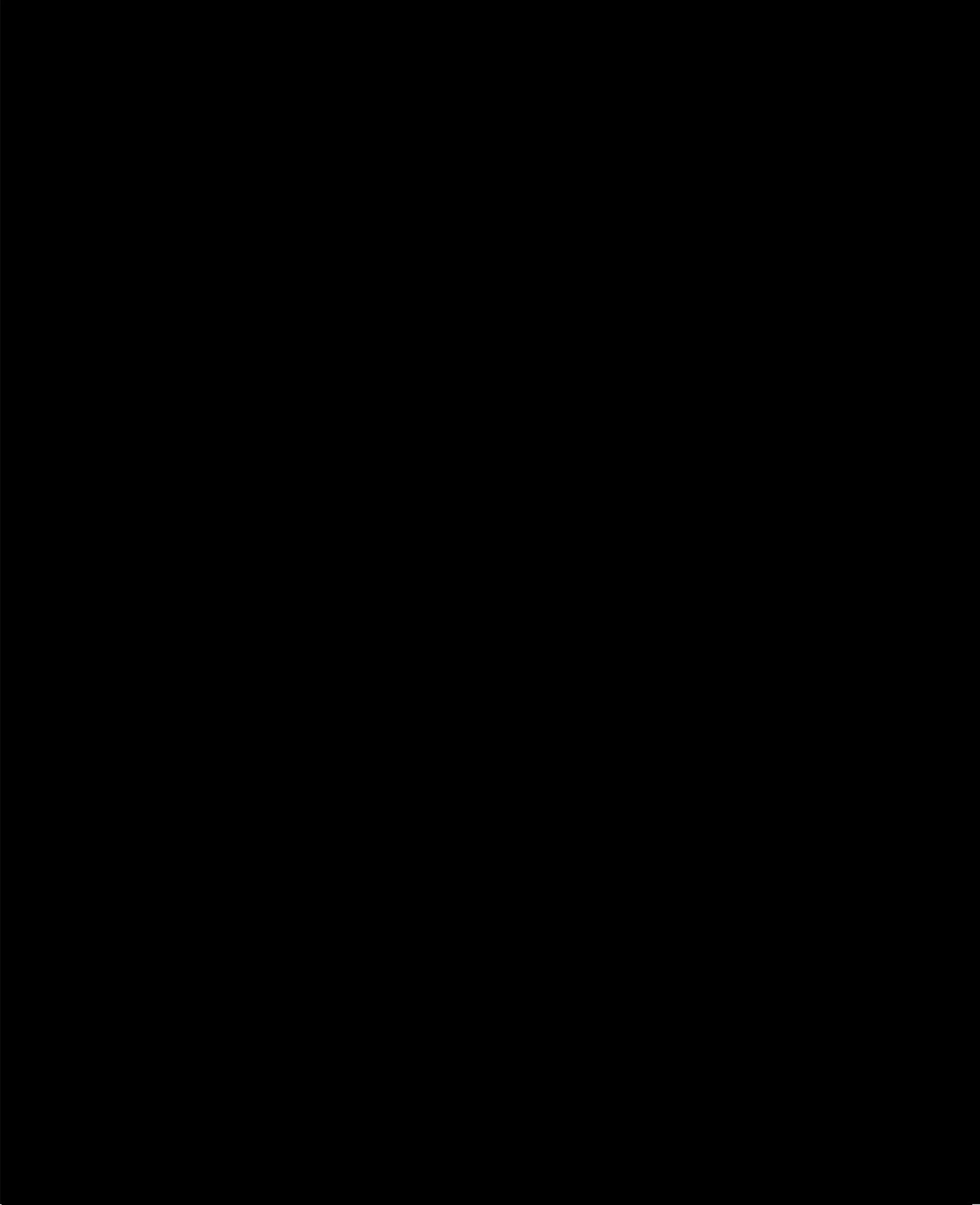
- *evidence of nesting activity* will be noted where fresh chewing is present on the sacrificial post and/or birds are seen prospecting hollows.
- *a confirmed breeding event* will be noted where eggs are seen in the hollow and/or other clear evidence observed that a chick is present (i.e. female seen at the hollow entrance when brooding eggs, and/or parents seen preparing to feed chick in the hollow).

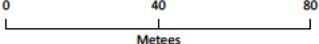
Maintenance checks of artificial hollows were assessed at each hollow:

- condition of chewing posts
- condition of attachment points
- condition of hollow bases
- stability of tree or pole used to mount the artificial nesting hollow.

Table 1 Artificial nesting hollow locations and survey dates

| Site code | Latitude | Longitude | Date installed | Date visited | | | | |
|-----------|----------|-----------|------------------|--------------|--------|--------|--------|--------|
| | | | | 31 July | 24 Aug | 26 Sep | 27 Oct | 24 Nov |
| 1033 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1074 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1083 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1084 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1085 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1100 | ██████ | ██████ | 06 February 2023 | ✓ | ✓ | ✓ | ✓ | ✓ |



| | | | |
|---|--|---|-----------------|
|  | Main Roads WA - Mitchell Freeway Extension Project- Austin Bay black cockatoo |  | Figure 1 |
| | Project No 1597 Date 11-Jan-24 Drawn by AJ Map author AJ | | |
|  | | | |
| 1:2,000 (at A4) GCS GDA 1994 | | | |
| <small>All information within this map is current as of 11-Jan-24. This product is subject to COPYRIGHT and is property of Phoenix Environmental Sciences (Phoenix). While Phoenix has taken care to ensure the accuracy of this product, Phoenix make no representations or warranties about its accuracy, completeness or suitability for any particular purpose.</small> | | | |



3 RESULTS AND DISCUSSION

Black cockatoos were not recorded using any of the artificial nesting hollows at any date during the survey (Table 2). Several other bird species were noted at the site during all visits, particularly galahs and Australian Ringneck, however no other species were observed using the artificial nesting hollows. Galahs were observed at another natural hollow at the site.

Table 2 Survey results

| Site code | 31 July | 24 Aug | 26 Sep | 27 Oct | 24 Nov | Condition of hollow | Requires maintenance |
|-----------|-------------|-------------|-------------|-------------|-------------|---------------------|----------------------|
| 1033 | No evidence | Good | No |
| 1074 | No evidence | Good | No |
| 1083 | No evidence | Good | No |
| 1084 | No evidence | Good | No |
| 1085 | No evidence | Good | No |
| 1100 | No evidence | Good | No |

REFERENCES

- DAWE. 2022. *Referral guideline for 3 WA threatened black cockatoo species Carnaby's Cockatoo (Zanda latirostris), Baudin's Cockatoo (Zanda baudinii) and the Forest Red-tailed Black-cockatoo (Calyptorhynchus banksii naso)*. Department of Agriculture, Water and the Environment, Canberra. Available at: <https://www.dcceew.gov.au/environment/epbc/publications/referral-guideline-3-wa-threatened-black-cockatoo-species-2022>
- DPaW. 2015. *How to monitor and maintain artificial hollows for Carnaby's cockatoo*. Department of Parks and Wildlife, WA.

Appendix 1 Mitchell Freeway Southbound EPBC 2020/8833 Approval Condition



APPROVAL

Mitchell Freeway Principal Shared Path Gaps Project Ocean Reef Road to Hepburn Avenue, WA, (EPBC 2020/8833)

This decision is made under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the EPBC Act). Note that section 134(1A) of the EPBC Act applies to this approval, which provides in general terms that if the approval holder authorises another person to undertake any part of the action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such condition.

Details

| | |
|---|---|
| Person to whom the approval is granted (approval holder) | Main Roads |
| ACN or ABN of approval holder | 50 860 676 021 |
| Action | To construct and upgrade a shared path and noise walls along Mitchell Freeway between Ocean Reef Road and Hepburn Avenue in the northeast of Perth, WA [See EPBC Act referral EPBC 2020/8833] |

Approval decision

My decision on whether or not to approve the taking of the action for the purposes of the controlling provision for the action is as follows.

Controlling Provisions

| Listed Threatened Species and Communities | |
|--|---------|
| Section 18 | Approve |
| Section 18A | Approve |

Period for which the approval has effect

This approval has effect until 4 August 2036

Decision-maker

| | |
|---------------------------------|--|
| <i>Name and position</i> | Kylie Calhoun Assistant Secretary Environment Assessments West (WA, SA, NT) Branch |
|---------------------------------|--|

Signature



Date of decision 5 October 2021

Conditions of approval

This approval is subject to the conditions under the EPBC Act as set out in ANNEXURE A.

ANNEXURE A – CONDITIONS OF APPROVAL

Part A – Conditions specific to the action

Avoidance and mitigation

1. For the protection of **black cockatoos** and **Tuart TEC**, when undertaking the action, the approval holder must not **clear**:
 - a. more than 3.02 ha of **foraging and potential breeding habitat** for **black cockatoos** within the **development envelope**.
 - b. more than two **suitable nesting hollows** within the **development envelope**.
 - c. more than 12.16 ha of **Tuart TEC** within the **development envelope**.

2. To mitigate impacts to nesting **black cockatoos**, the approval holder must, within 72 hours prior to **clearing** the two **suitable nesting hollows**, investigate these hollows to determine if they are currently utilised for nesting by **black cockatoos**. The investigation must be undertaken by a **suitably qualified field ecologist**. If any **black cockatoos** are utilising any hollow in any tree, the approval holder must:
 - a. clearly identify and mark the tree in which **black cockatoos** are identified utilising any hollow; and
 - b. not **clear** any tree containing a currently utilised **suitable nesting hollow** or any vegetation within a ten metre radius of any such tree branch must not be cleared during the current **breeding season** as determined by a **suitably qualified field ecologist**.

Offsets

3. To offset the loss of **suitable nesting hollows** within the **development envelope**, the approval holder must:
 - a. within 48 hours following **clearing** of **suitable nesting hollows**, notify the **Department** in writing of the number of **cleared suitable nesting hollows** for **black cockatoos**.
 - b. within 30 days following **completion of the action**, notify the **Department** in writing if no **suitable nesting hollows** for **black cockatoos** were **cleared**.
 - c. install, in accordance with the **artificial nesting hollow installation guidelines**, at least three **artificial nesting hollows** for each **suitable nesting hollow cleared**, prior to the next **breeding season**.
 - c. install the **artificial nesting hollows** in a location approved in writing by **DBCA**.
 - d. implement the **artificial nesting hollows** and ensure that each installed **artificial nesting hollow** is monitored and maintained in accordance with the **artificial nesting hollow maintenance guidelines** for ten years from installation, with maintenance actions undertaken before the commencement of each **breeding season**.
 - e. not install **artificial nesting hollows** in a manner that requires additional **clearing** of **foraging and potential breeding habitat** for **black cockatoos** or within 10 metres of the edge of the road seals or buildings, to reduce the risk of vehicle strike and human disturbance.
 - f. ensure that each installed **artificial nesting hollow** is inspected at least twice each year, and at least four weeks apart, by a **suitably qualified field ecologist** during the **breeding season** for ten years from installation of the **artificial nesting hollow** to record any evidence of use by **black cockatoos**.

- g. continue to maintain the **artificial nesting hollows** until a **suitably qualified field ecologist** verifies in writing that at least one **artificial nesting hollow** has shown evidence of **black cockatoo nesting** for three consecutive years.
4. If, after nine years from **commencement of the action**, the approval holder is unable to provide the verification by a **suitably qualified field ecologist** required under Condition 3.e., the approval holder must, within ten years after **commencement of the action**:
 - a. submit to the **Minister** for approval a proposal for an offset that meets the requirements of the **Environmental Offsets Policy** and will compensate for the permanent loss of the two **suitable nesting hollows**. If the Minister approves the proposal, the proposal must be implemented.
 - b. submit to the **Department** a detailed assessment of the factors that caused the failure to achieve **black cockatoo** nesting in any **artificial nesting hollow** for three consecutive years.
 5. All data, enquiries and findings of the monitoring and investigation required by Condition 3 must be published on the proponent's website to contribute to potential research into the use of **artificial nesting hollows** by **black cockatoos**. These must be published within 60 days of a **suitably qualified field ecologist** providing verification as required under Condition 3 or within 25 **business days** after submitting the assessment report required under Condition 4.b.
 6. To offset the residual significant impacts on **black cockatoos** and **Tuart TEC**, prior to the **commencement of the action** the approval holder must provide the **Department** with:
 - a. written evidence that an area of no less than 31.9 ha within the **Lake Clifton Offset property** has been allocated as an offset for this particular action; and
 - b. a description and map clearly specifying the location, boundaries, offset attributes and **shapefiles** (including latitude and longitude coordinates) of the 31.9 ha area within the **Lake Clifton Offset property**.

Part B – Standard administrative conditions

Notification of date of commencement of the action

7. The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action**.
8. If the **commencement of the action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the action** without the prior written agreement of the **Minister**.

Compliance records

9. The approval holder must maintain accurate and complete **compliance records**.
10. If the **Department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **Department** within the timeframe specified in the request.

Note: **Compliance records** may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the **Department's** website or through the general media.

Annual compliance reporting

11. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or otherwise in accordance with an annual date that has been agreed to in writing by the **Minister**. The approval holder must:
 - a. publish each **compliance report** on the **website** within 60 **business days** following the relevant 12 month period

- b. notify the **Department** by email that a **compliance report** has been published on the **website** and provide the weblink for the **compliance report** within 5 **business days** of the date of publication
- c. keep all **compliance reports** publicly available on the **website** until this approval expires
- d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**
- e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication.

Note: **Compliance reports** may be published on the **Department's** website.

Reporting non-compliance

- 12. The approval holder must notify the **Department** in writing of any: **incident**; non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than 2 **business days** after becoming aware of the **incident** or non-compliance. The notification must specify:
 - a. any condition which is or may be in breach
 - b. a short description of the **incident** and/or non-compliance; and
 - c. the location (including co-ordinates), date, and time of the **incident** and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.
- 13. The approval holder must provide to the **Department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 15 **business days** after becoming aware of the **incident** or non-compliance, specifying:
 - a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future
 - b. the potential impacts of the **incident** or non-compliance; and
 - c. the method and timing of any remedial action that will be undertaken by the approval holder.

Independent audit

- 14. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the **Minister**.
- 15. For each **independent audit**, the approval holder must:
 - a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department**
 - b. only commence the **independent audit** once the audit criteria have been approved in writing by the **Department**; and
 - c. submit an audit report to the **Department** within the timeframe specified in the approved audit criteria.
- 16. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.

Completion of the action

- 17. Within 30 days after the **completion of the action**, the approval holder must notify the **Department** in writing and provide **completion data**.

Part C - Definitions

In these conditions, except where contrary intention is expressed, the following definitions are used:

Artificial nesting hollow/s means deliberately positioned artificial or repurposed natural structures suitable for **nesting** usage by **black cockatoos** constructed in accordance with the **Artificial nesting hollow installation guidelines**

Artificial nesting hollow installation guidelines means the WA Department of Parks and Wildlife- Fauna Notes – *How to design and place artificial hollows for Carnaby’s cockatoos* (28 April 2015) available at https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/carnabys_artificial_hollows_-_design_and_place_2015.pdf.

Artificial nesting hollow maintenance guidelines means the WA Department of Parks and Wildlife – Fauna Notes – *How to monitor and maintain artificial hollows for Carnaby’s cockatoo* (28 April 2015) available from: https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/carnabys_artificial_hollows_-_monitor_and_maintain_2015.pdf.

Black Cockatoos means **EPBC Act** listed threatened species Carnaby’s Black Cockatoo (*Calyptorhynchus latirostris*) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*).

Breeding season means the period of 1 March to 31 December in any year, during which **black cockatoos** undertake nesting.

Business day/s means a day that is not a Saturday, a Sunday or a public holiday in Western Australia.

Clear/Cleared/Clearing means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation (but not including weeds – see the *Australian weeds strategy 2017 to 2027* for further guidance): available from <http://www.agriculture.gov.au/pests-diseases-weeds/pest-animals-and-weeds/review-aus-pest-animal-weed-strategy/aus-weeds-strategy>

Commence/Commencement of the action means the first instance of any specified activity associated with the action including **clearing** and **construction**. **Commencement of the action** does not include minor physical disturbance necessary to:

- i. undertake pre-clearance surveys or monitoring programs
- ii. install signage and /or temporary fencing to prevent unapproved use of the project area
- iii. protect environmental and property assets from fire, weeds and pests, including installation of temporary fencing, and use of existing surface access tracks; or
- iv. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no impact on the **protected matters**.

Completion data means an environmental report and spatial data clearly detailing how the conditions of this approval have been met. The **Department’s** preferred spatial data format is **shapefile**.

Completion of the action means the date on which all specified activities associated with the action have permanently ceased.

Compliance records means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder’s possession or that are within the approval holder’s power to obtain lawfully.

Compliance report/s means written reports:

- i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans**

- ii. consistent with the **Department's Annual Compliance Report Guidelines** (2014): found at <https://www.environment.gov.au/epbc/publications/annual-compliance-report-guidelines>
- iii. include a **shapefile** of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period
- iv. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

DBCA means the Western Australia Department of Biodiversity, Conservation and Attractions.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

Development envelope means the area labelled "Development Envelope" and bound by the red line on the map at Attachment A.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Environmental Offsets Policy means the Australian Government Department of Sustainability, Environment, Water and Communities (2012) *EPBC Act environmental offsets policy*: available from <https://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>.

Foraging and potential breeding habitat means as defined in the *EPBC Act Referral Guidelines for three species of Western Australian black cockatoos: Carnaby's cockatoo* (endangered) (*Calyptorhynchus latirostris*), *Baudin's cockatoo* (vulnerable) (*Calyptorhynchus baudinii*) and *Forest red-tailed black cockatoo* (vulnerable) (*Calyptorhynchus banksii naso*) (October 2012).

Incident means any event which has the potential to, or does, impact on one or more **protected matter(s)** other than as authorised under this approval.

Independent audit/s: means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2019): available from: <http://www.environment.gov.au/epbc/publications/independent-audit-report-guidelines>.

Lake Clifton Offset Property means the area labelled "Proposed offset area" and enclosed by a yellow line and crosshatched in yellow designated "Proposed offset area" on the map at Attachment B.

Minister means the Australian Government Minister administering the **EPBC Act**, including any delegate thereof.

Plan/s means any of the documents required to be prepared, approved by the **Minister**, implemented by the approval holder and published on the **website** in accordance with these conditions (includes action management plans and/or strategies).

Protected matter/s means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Sensitive ecological data means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0*.

Shapefile/s means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx', '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes.

Suitably qualified field ecologist means a person who has professional qualifications and at least three (3) years of work experience designing and implementing surveys for **black cockatoos** using relevant protocols, standards, methods and/or literature. If the person does not have appropriate professional qualifications, the person must have at least five (5) years of work experience designing and implementing surveys for **black cockatoos**.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

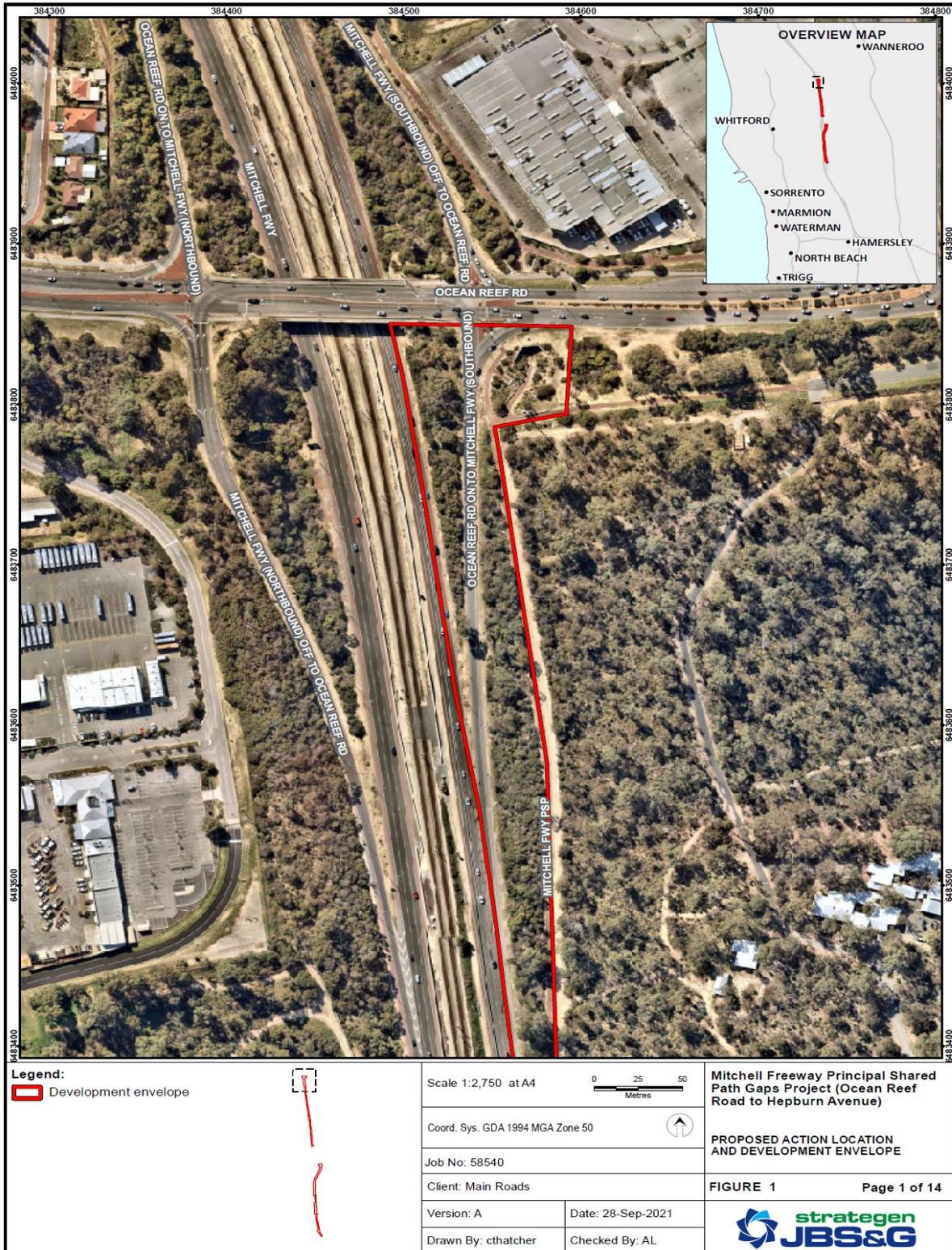
Suitable nesting hollow/s means any hollow that appears to be deep enough and with an opening large enough to be used by **black cockatoos** for nesting.

Tuart TEC means the EPBC Act Listed Tuart Woodlands of the Swan Coastal Plain Threatened Ecological Community.

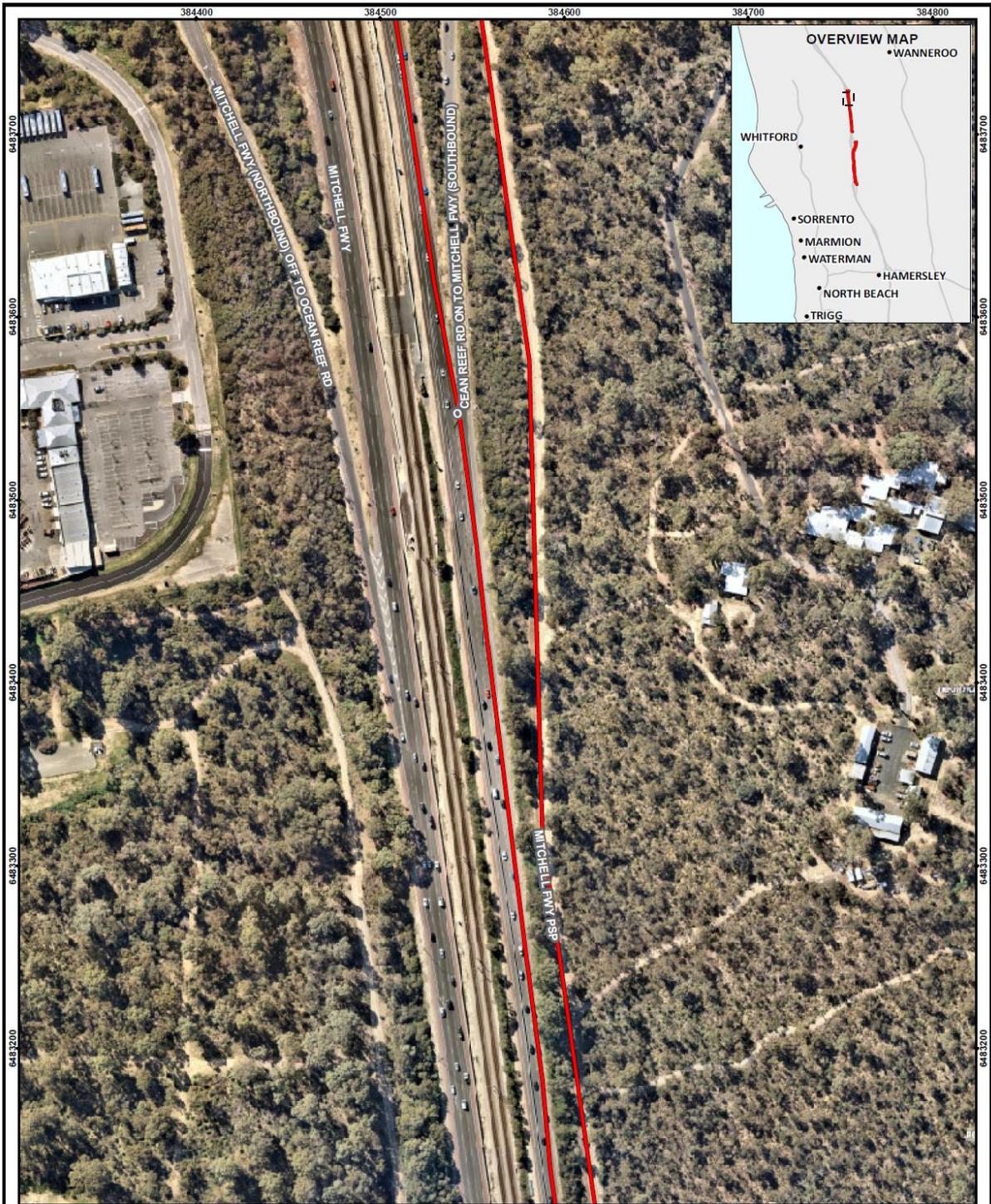
Website means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

ATTACHMENTS

Attachment A – Development Envelope



File Name: W:\Projects\1)\Open\Main Roads\58540 Mitchell Freeway Widening\GIS\Map\Task_PSP_Task_7\58540_01_MB_PA_DevEnv.mxd
 Image Reference: www.nearmap.com@ - Imagery Date: August 2021.

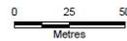


Legend:

 Development envelope



Scale 1:2,750 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

Checked By: AL

Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

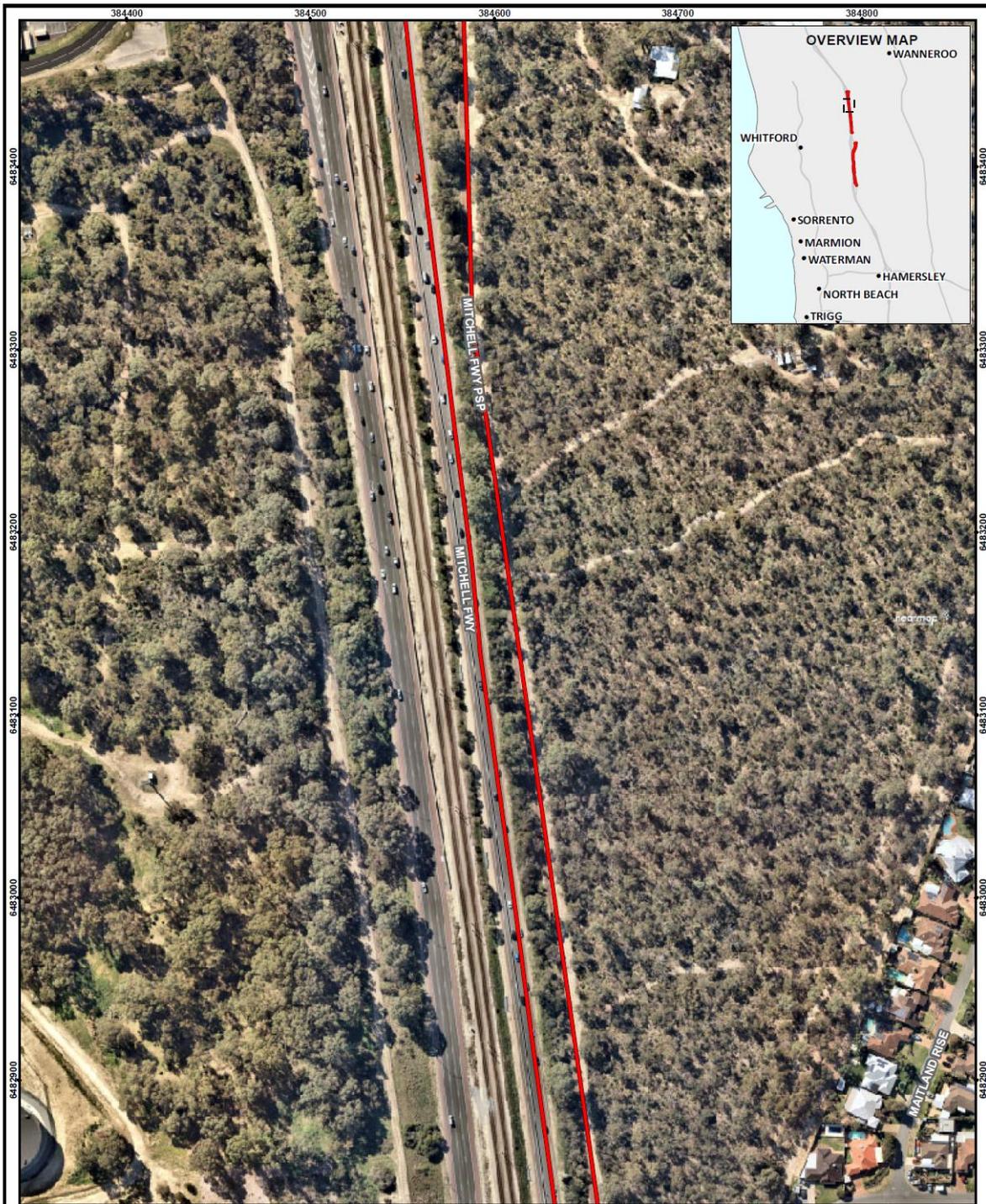
PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

Page 2 of 14



File Name: W:\Projects\1\Open\Main Roads\58540 Mitchell Freeway Widening\GIS\Map\PSP_Task_7\58540_01_MB_PA_DevEnv.mxd
Image Reference: www.nearmap.com© - Imagery Date: August 2021.

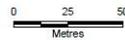


Legend:

 Development envelope



Scale 1:2,750 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

Checked By: AL

Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

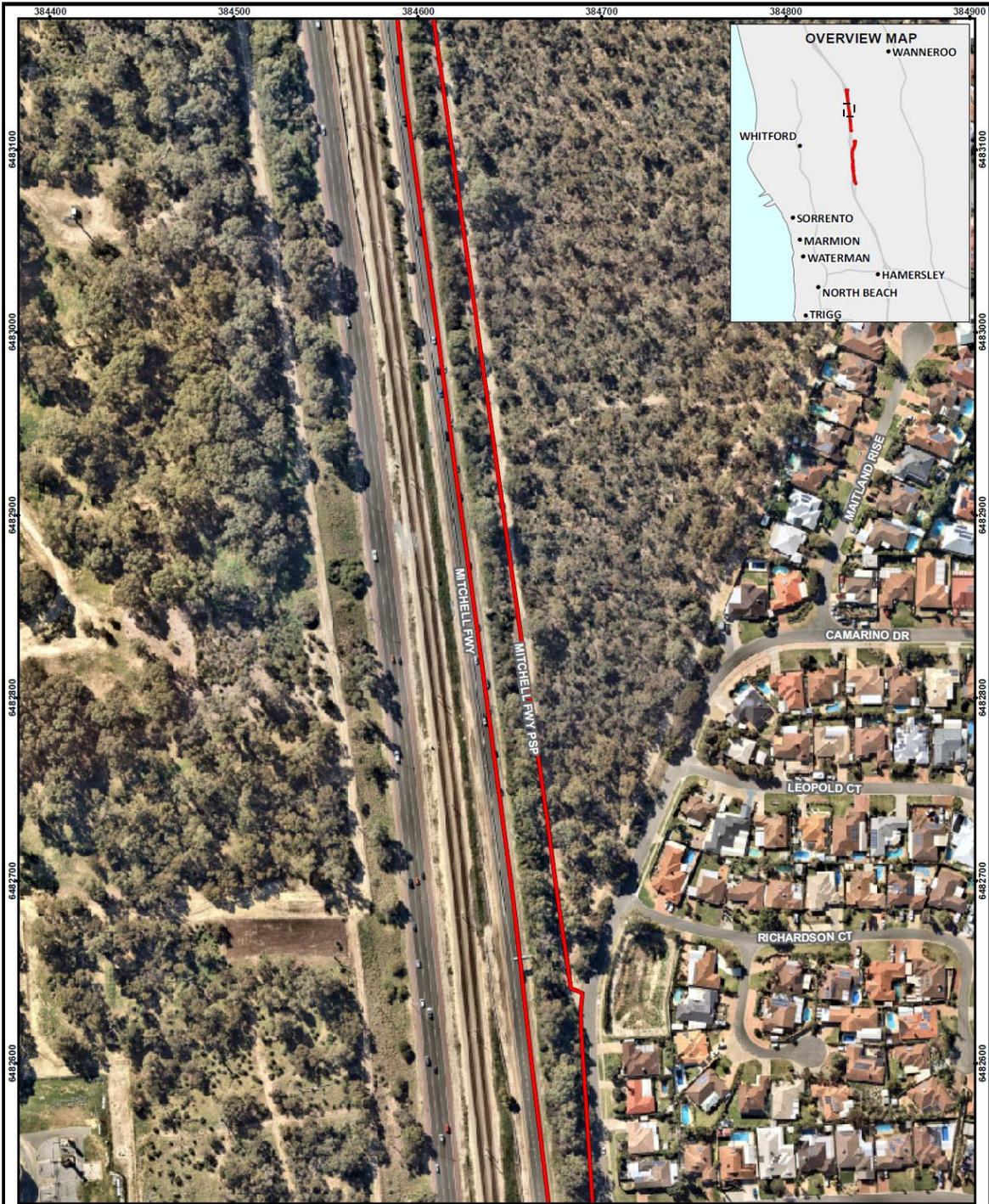
PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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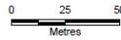
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Legend:
 Development envelope



Scale 1:2,750 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

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Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

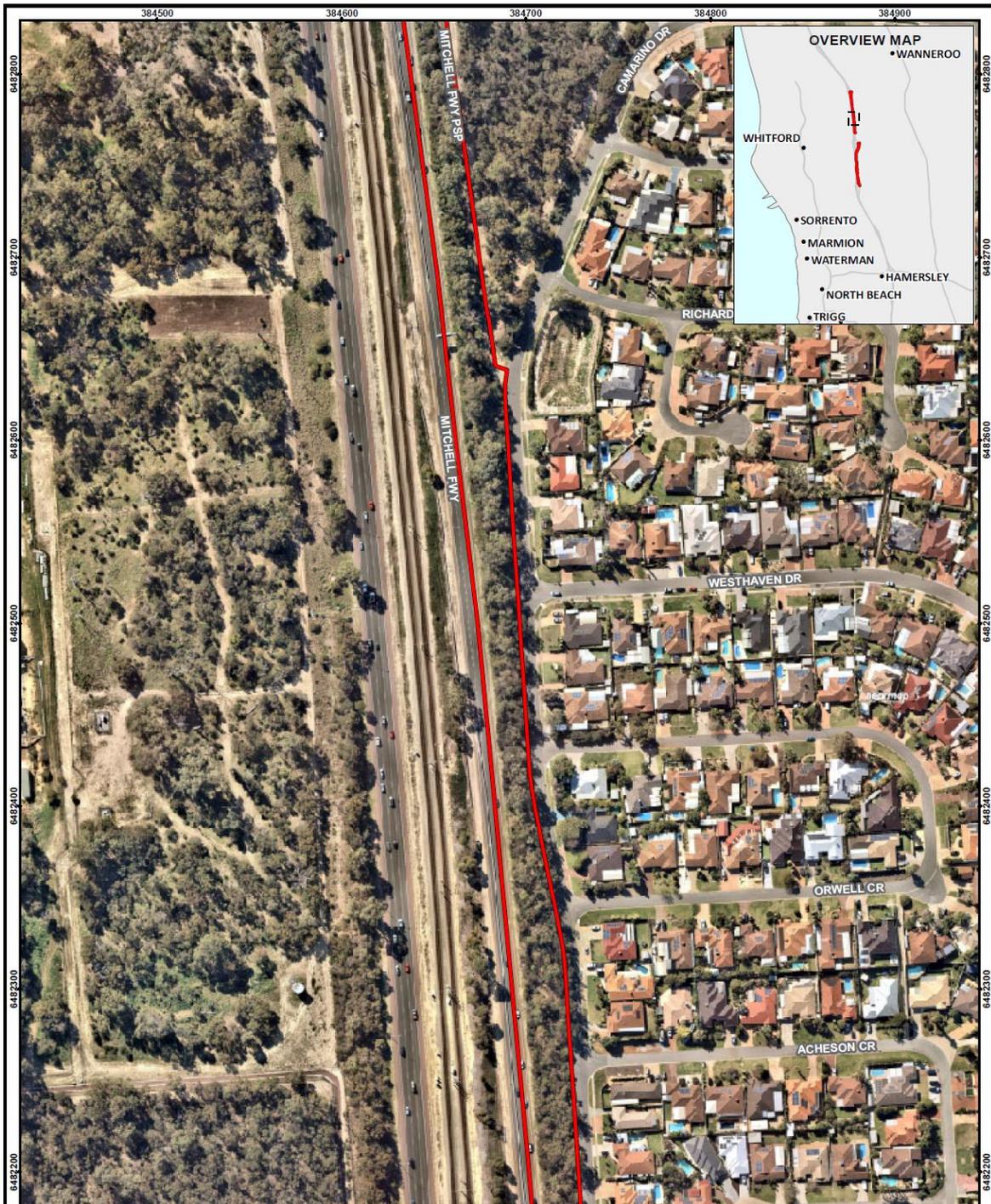
PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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| Legend: Development envelope | Scale 1:2,750 at A4 | Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue) PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE FIGURE 1 Page 5 of 14 |
| | Coord. Sys. GDA 1994 MGA Zone 50 | |
| Job No: 58540 Client: Main Roads Version: A Drawn By: cthatcher | Date: 28-Sep-2021 Checked By: AL | |

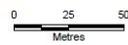
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Legend:
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Scale 1:2,750 at A4



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Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

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Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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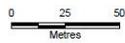


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Scale 1:2,750 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

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Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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| Scale 1:2,750 at A4 | | |
| Coord. Sys. GDA 1994 MGA Zone 50 | | |
| Job No: 58540 | | |
| Client: Main Roads | | |
| Version: A | Date: 28-Sep-2021 | |
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Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1 Page 8 of 14



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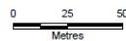


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Job No: 58540

Client: Main Roads

Version: A

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Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

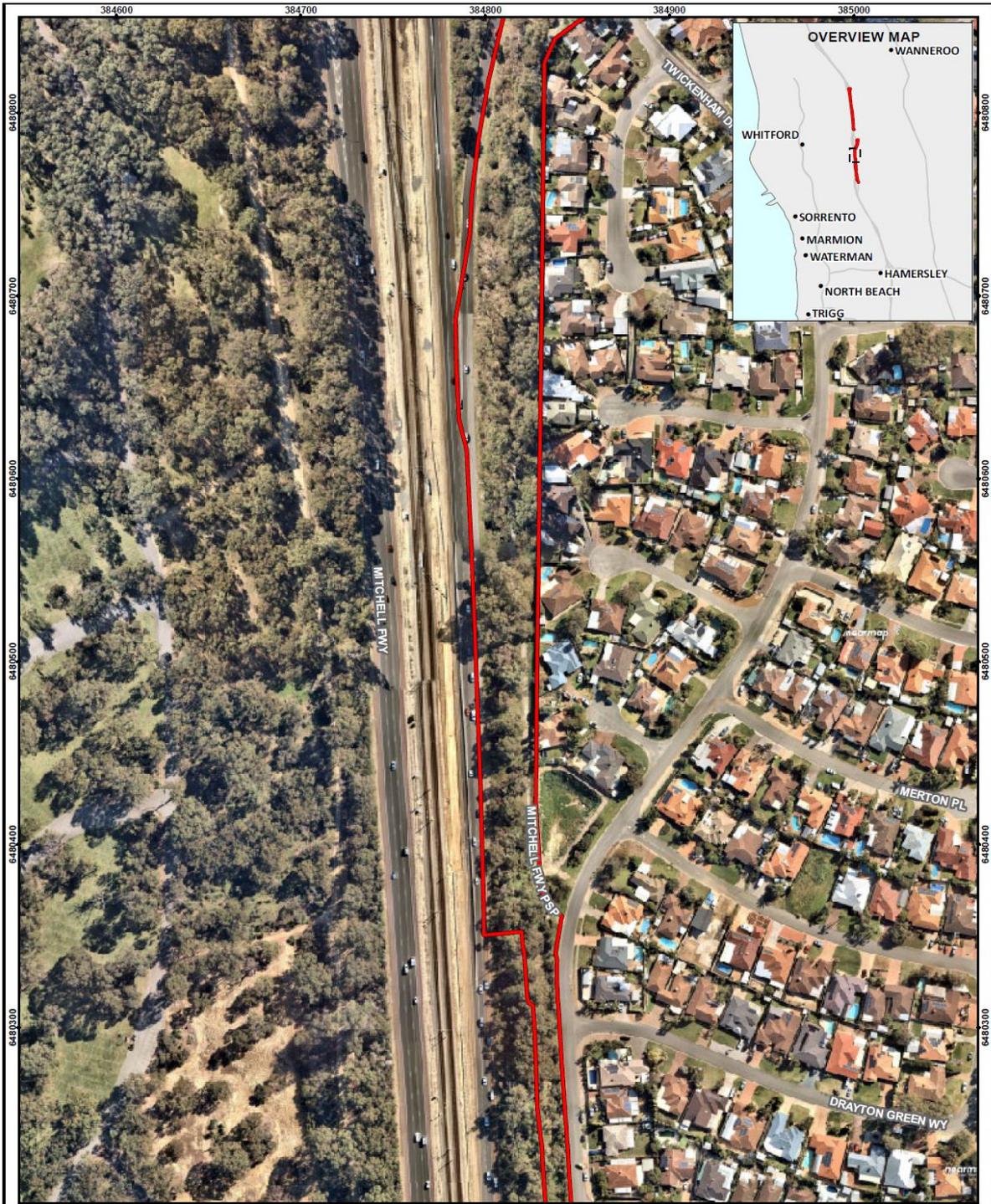
PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

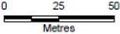
FIGURE 1

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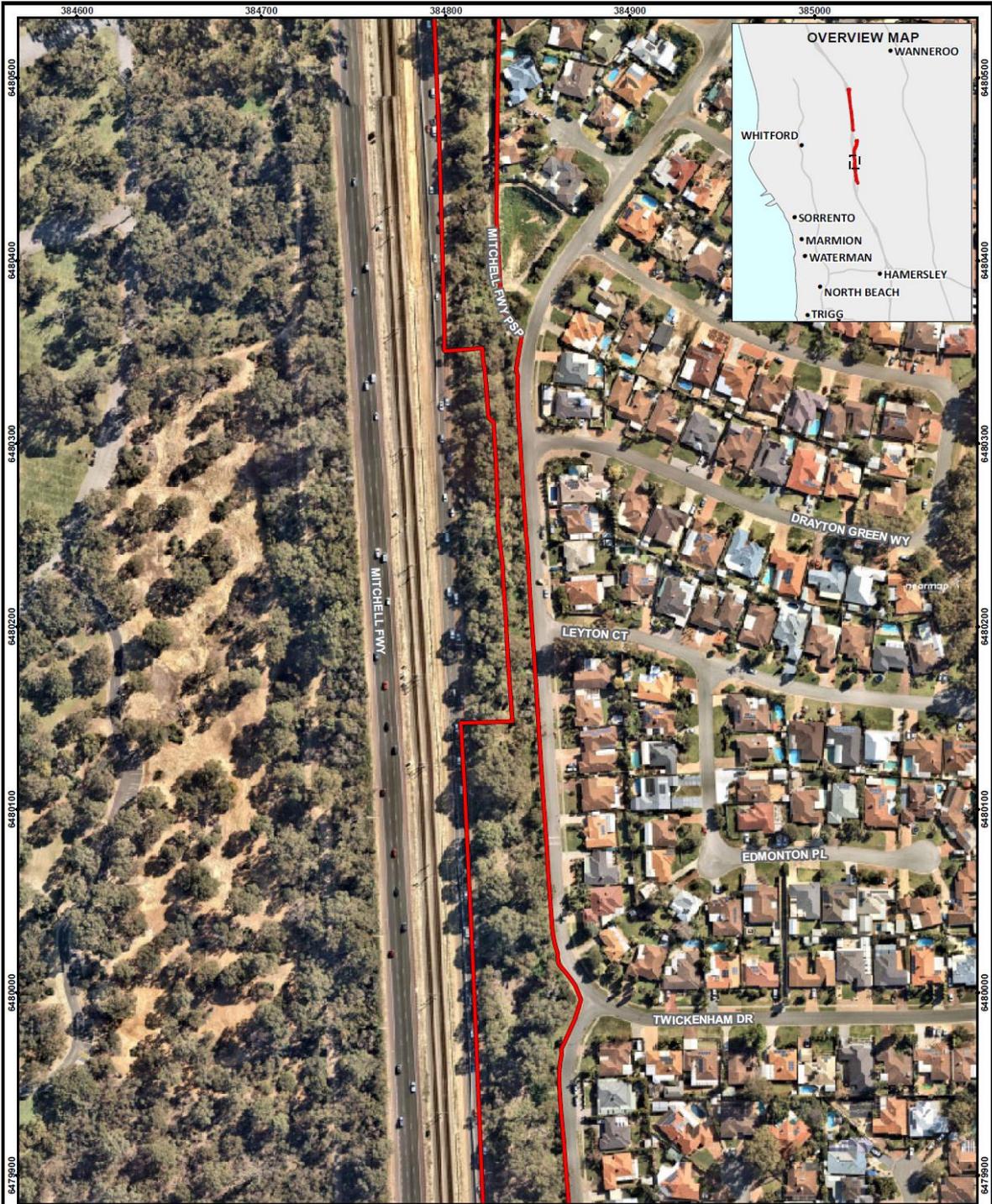


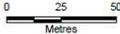
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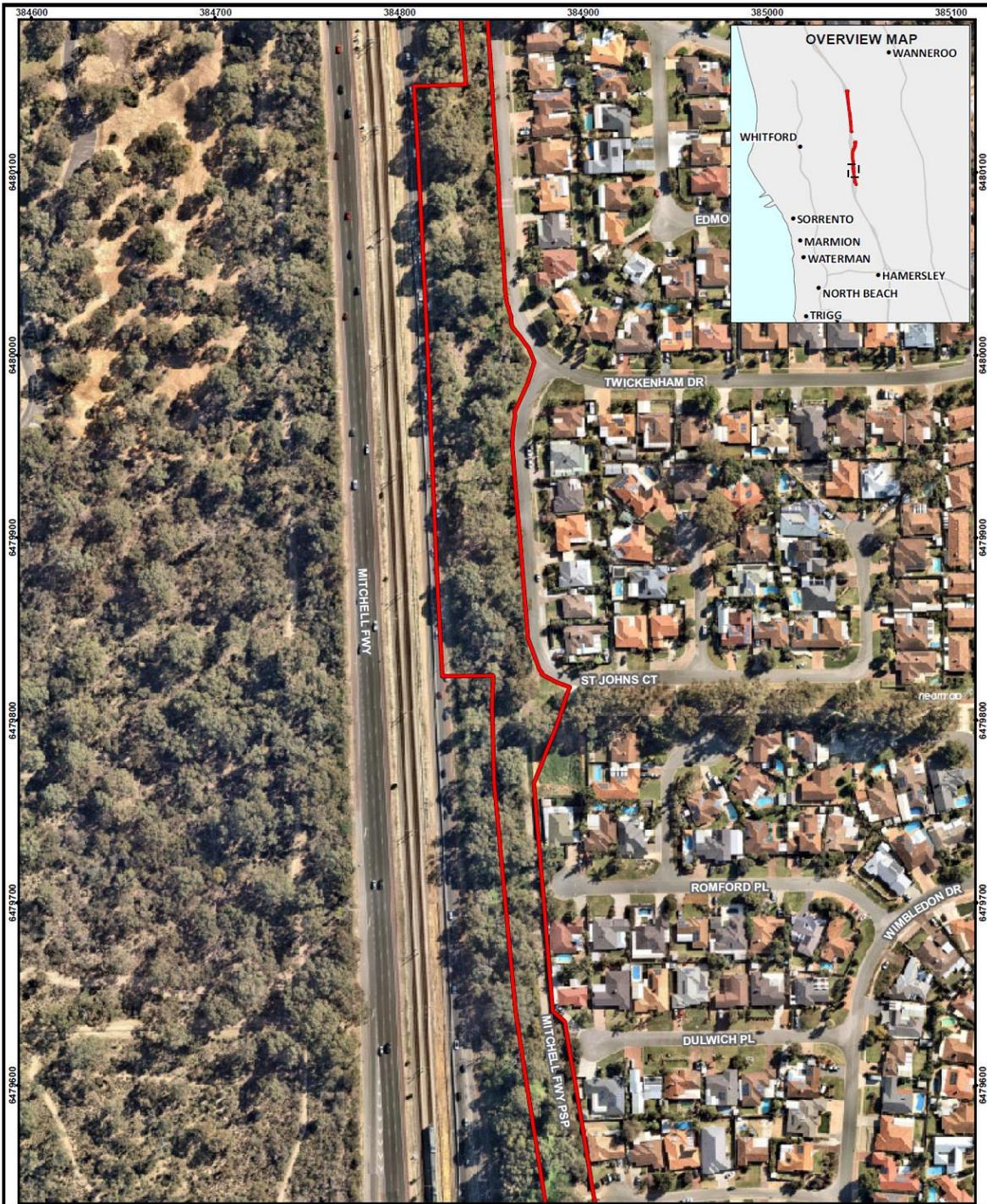
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| | Coord. Sys. GDA 1994 MGA Zone 50 |  | | FIGURE 1 Page 10 of 14  |
| | Job No: 58540 | Client: Main Roads | Version: A | |
| | Drawn By: cthatcher | Checked By: AL | | |

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| | Coord. Sys. GDA 1994 MGA Zone 50 |  | |
| | Job No: 58540 | Client: Main Roads | FIGURE 1 Page 11 of 14 |
| | Version: A | Date: 28-Sep-2021 |  |
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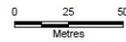


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Scale 1:2,750 at A4



Coord. Sys. GDA 1984 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: cthatcher

Checked By: AL

Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue)

PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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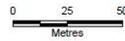
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Scale 1:2,750 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58540

Client: Main Roads

Version: A

Date: 28-Sep-2021

Drawn By: ctatcher

Checked By: AL

Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Heppburn Avenue)

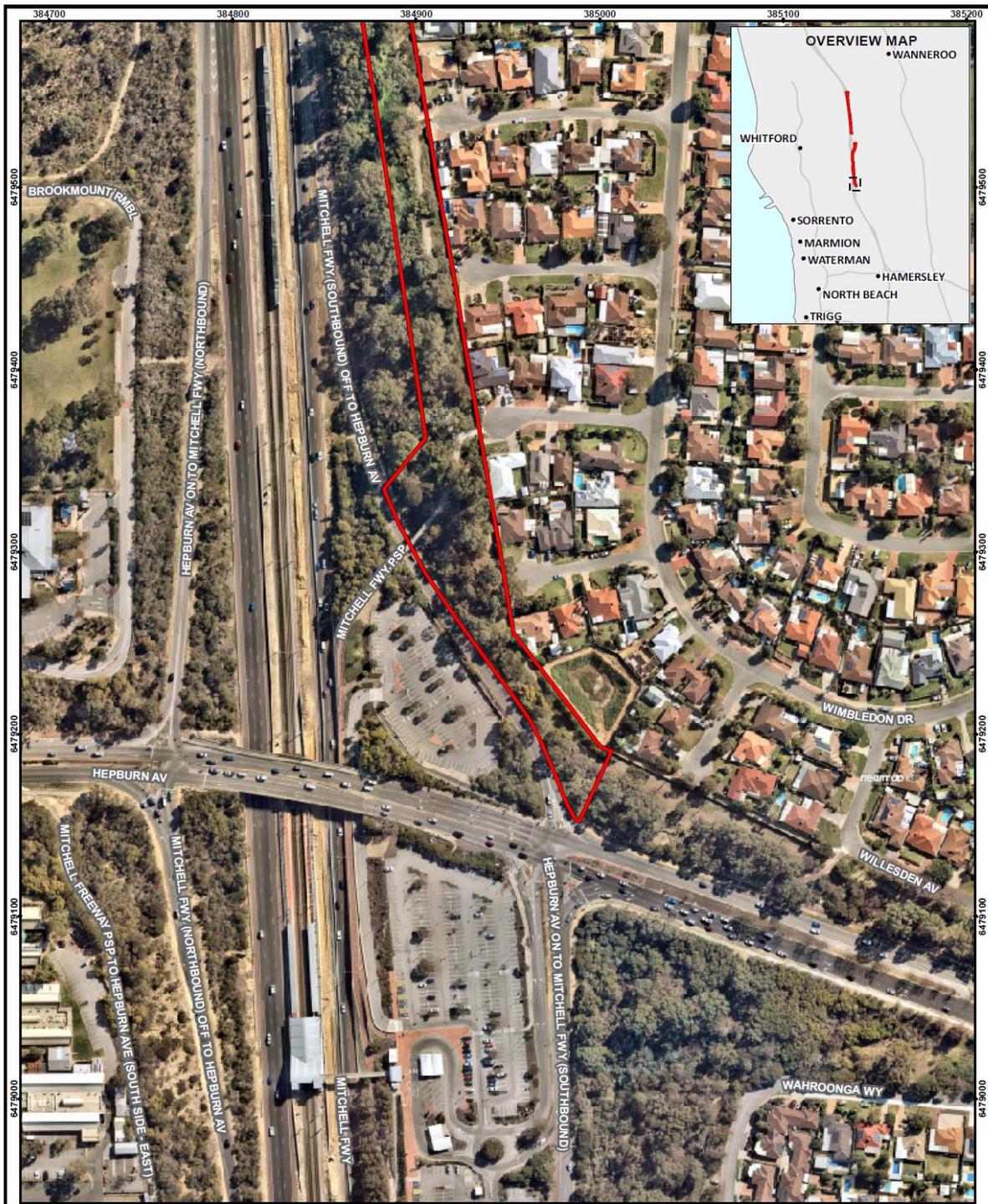
PROPOSED ACTION LOCATION AND DEVELOPMENT ENVELOPE

FIGURE 1

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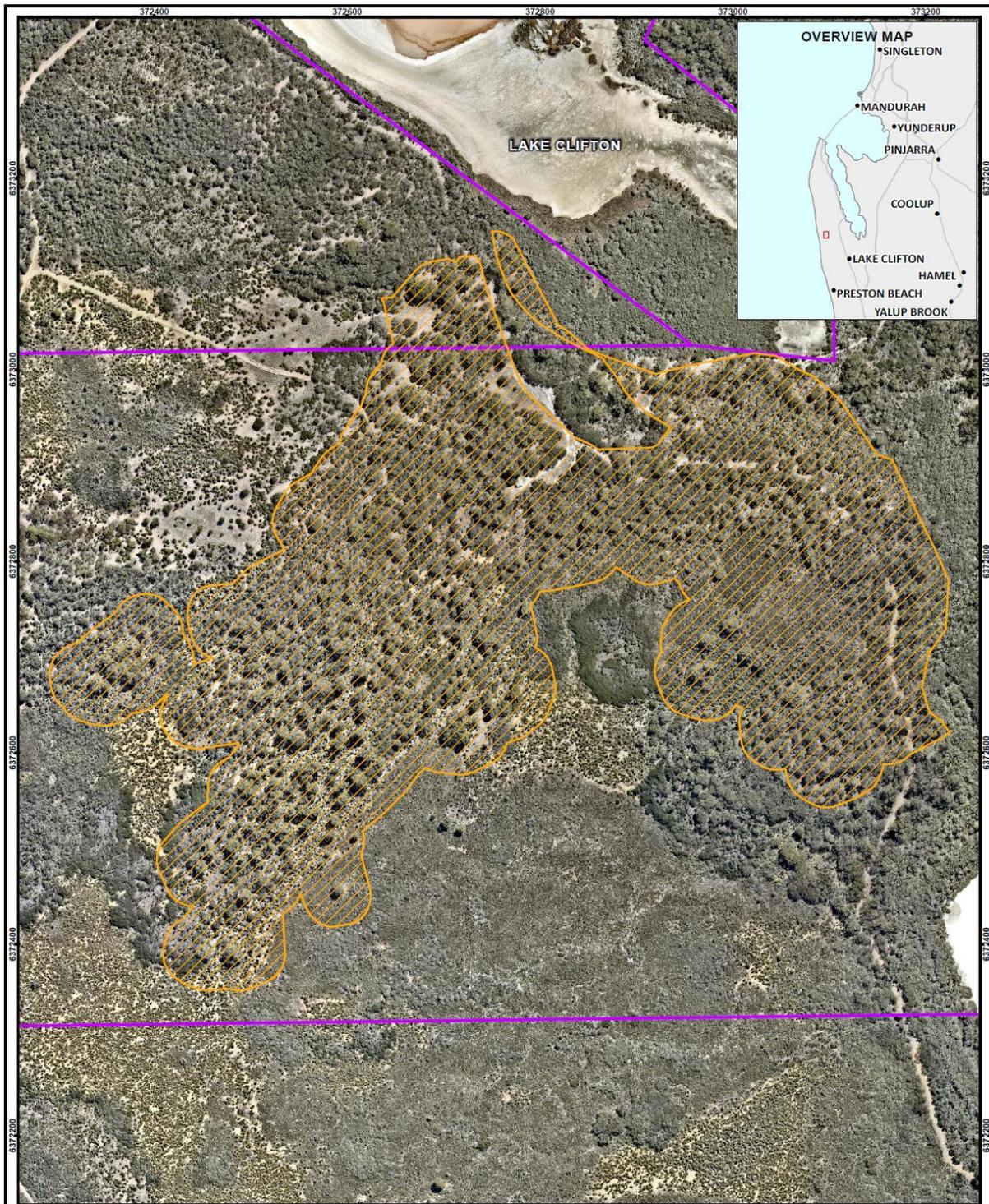
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| | Coord. Sys. GDA 1994 MGA Zone 50 | |
| | Job No: 58540 Client: Main Roads | FIGURE 1 Page 14 of 14 |
| | Version: A Drawn By: cthatcher | Date: 28-Sep-2021 Checked By: AL |

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Attachment B – Lake Clifton Offset Property



| | | | |
|---|-------------------------------------|--------------------------------------|---|
| Legend: Lake Clifton site Proposed offset area | | Scale 1:5,250 at A4 | Mitchell Freeway Principal Shared Path Gaps Project (Ocean Reef Road to Hepburn Avenue) PROPOSED OFFSET SITE |
| | | Coord. Sys. GDA 1994 MGA Zone 50 | |
| Job No: 58540 Client: Main Roads | | FIGURE 11 | |
| Version: A Drawn By: cthatcher | Date: 22-Sep-2021 Checked By: AL | | |

File Name: W:\Projects\1\Open\Main Roads\58540 Mitchell Freeway Widening\GIS\Maps\PSP_Task_7\58540_11_Ppsd_Offset.mxd
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