Appendix E - AECOM (2025) Refined Black Cockatoo Assessment

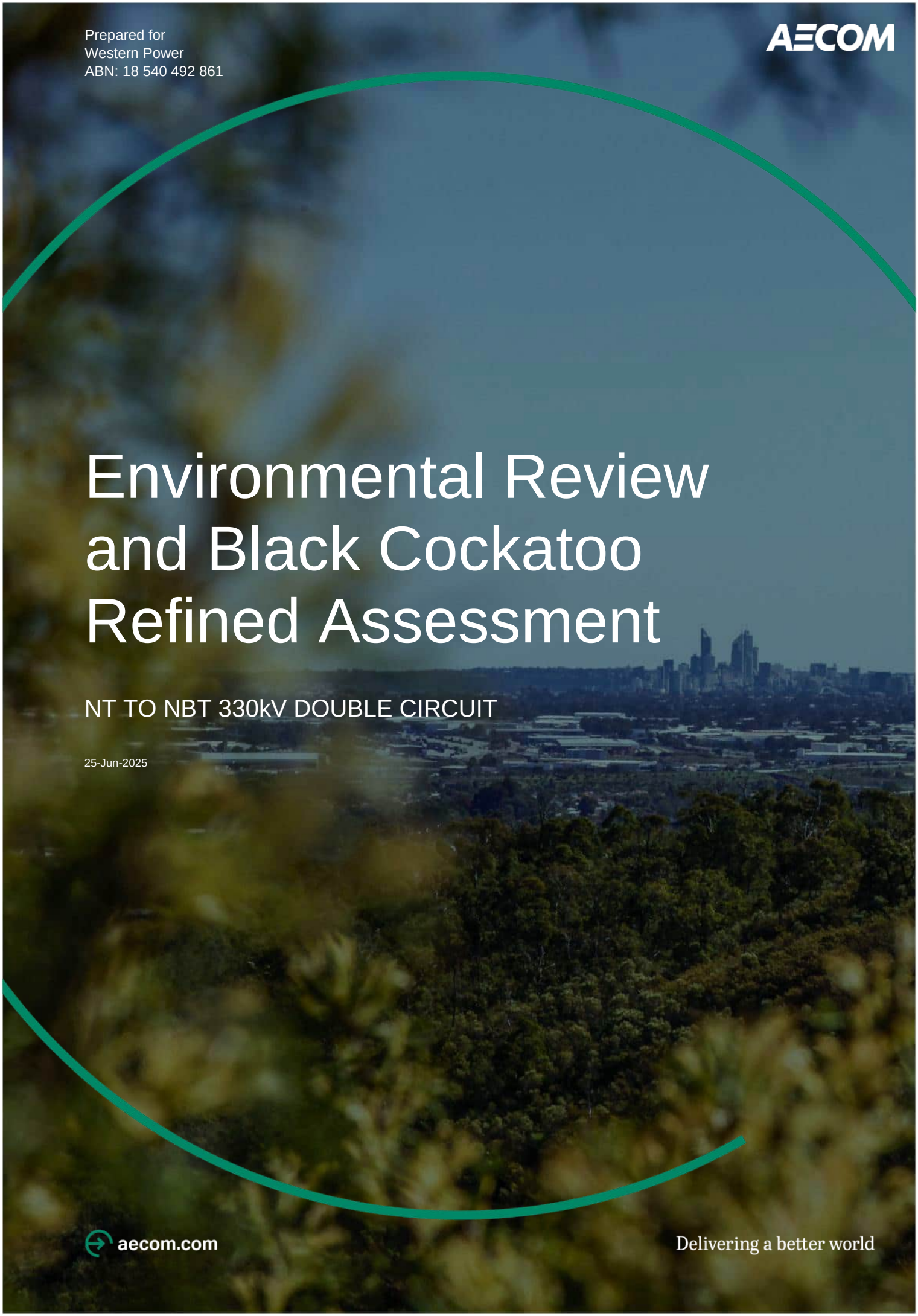
Prepared for
Western Power
ABN: 18 540 492 861

AECOM

Environmental Review and Black Cockatoo Refined Assessment

NT TO NBT 330kV DOUBLE CIRCUIT

25-Jun-2025



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Environmental Review and Black Cockatoo Refined Assessment

NT TO NBT 330kV DOUBLE CIRCUIT

Client: Western Power

ABN: 18 540 492 861

Prepared by

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25-Jun-2025

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Quality Information

Document	Environmental Review and Black Cockatoo Refined Assessment
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Date	25-Jun-2025
Originator	Deborah Robinson, Hannah Spanswick
Checker/s	Tania Liaghati
Verifier/s	Jamie Shaw

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Rev	Revision Date	Details	Approved	
			Name/Position	Signature
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0	25-Jun-2025	Final	Tania Liaghati Technical Director - Impact Assessment and Permitting	

Table of Contents

List of Plates

List of Tables

List of Figures

Executive Summary

Western Power has engaged AECOM Australia Pty Ltd (AECOM) to assess the ecological values within a planned transmission line corridor spanning approximately 29 km between Northern Terminal in Malaga and Neerabup Terminal in Pinjar. The survey covered an area of approximately 603.20 hectares (ha) and falls within the local government areas of the City of Swan and the City of Wanneroo. This report presents the findings of a comprehensive environmental survey focused on Black Cockatoo habitat, conducted to support ecological assessments and inform conservation planning.

The primary objective of this study was to evaluate the presence, condition, and ecological significance of Black Cockatoo habitat within the designated survey area. Key components included a desktop review, field surveys, and habitat assessments targeting breeding, roosting, and foraging behaviours. In addition, a brief environmental review was undertaken to address knowledge gaps arising from the updated development envelope (DE).

The survey was conducted in accordance with current environmental guidelines and included both desktop and field-based assessments. A refined survey methodology was applied, which involved ecological review, habitat tree assessments, and targeted habitat surveys. Specific attention was given to the presence of suitable black cockatoo habitat.

All three species of black cockatoos were recorded within the survey area. Carnaby's Cockatoo (*Zanda latirostris*) and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) were both seen and heard, with additional foraging evidence recorded. Baudin's Cockatoo (*Zanda baudinii*) was identified exclusively through foraging signs.

Two trees containing a total of three hollows were assessed as having suitable characteristics to support black cockatoo nesting. One of these hollows, located in a stag with a diameter at breast height (DBH) of 980 mm, was previously active and received a Black Cockatoo Evaluation (BCE) score of 2.

Approximately 169.73 hectares (28.14%) of the survey area is considered to have potential to support black cockatoo breeding habitat.

Pine plantations represent the dominant exotic foraging habitat for Carnaby's Cockatoo and covers 167.38 ha of the survey area. Primary foraging habitat for all three black cockatoo species is also supported by Eucalyptus Woodland (70.90 ha), with additional suitable foraging habitat for Carnaby's and Baudin's Cockatoos found in Banksia Woodlands (71.48 ha).

No roosting activity or roosting sites were recorded during the surveys. However, the entire survey area lies within 6 km of known water sources and contains tall trees, indicating that opportunistic roosting is likely to occur across approximately 217.76 ha (36.10%).

Six of the 20 vegetation communities recorded are listed (or partly included) as Threatened or Priority Ecological Communities at the state or federal level, covering a combined area of 65.63 ha (10.88%).

Ten distinct fauna habitats were identified within the linear corridor area (535.74 ha, 88.82%), including four native and six modified habitat types. This includes three refined categories of Pine Plantation habitat based on age and fire history.

Survey limitations included seasonal constraints, site accessibility, and potential under-detection of cryptic nesting sites. These limitations are acknowledged and addressed in the methodology section.

1.0 Introduction

In support of the Western Australia's state decarbonisation goal and aligned with Western Power's corporate strategy, the Clean Energy Link Project – North (CEL-N) was initiated as part of the North Region Strategy to conduct scoping phase activities for future developments.

Western Power has engaged AECOM Australia Pty Ltd (AECOM) to assess the ecological values present in a planned transmission line installation spanning approximately 29 km between Northern Terminal in Malaga and Neerabup Terminal in Pinjar. The project area falls within the local government jurisdictions of the City of Swan and the City of Wanneroo.

As part of the environmental assessment process, Western Power commissioned flora, vegetation, and fauna assessments in Spring 2023, followed by an Environmental Impact Assessment (EIA) in February 2024. These assessments included surveys and evaluations of black cockatoo species within the project area. The project was subsequently referred to both the Western Australian Environmental Protection Agency (the EPA) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for regulatory review. Additionally, this survey report has been prepared to support proposed amendments under Section 43A of the *Environmental Protection Act 1986* and the variation request under the EPBC Act. It provides updated ecological data to assist EPA and DCCEEW in their ongoing assessment of the proposal.

Following these referrals, both agencies have requested additional information to inform an assessment of the presence and potential impacts on threatened black cockatoo species, specifically Carnaby's cockatoo (*Zanda latirostris*), Baudin's cockatoo (*Zanda baudinii*), and the Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). The requested updates, as outlined in Attachment A, pertain to the species' breeding, roosting, and foraging habitats within the project area.

To address these requirements, a refined targeted black cockatoo survey was undertaken. This report outlines the scope, methodology and results of a refined survey, aiming to quantify the abundance and distribution of ecological values, and to support Western Power's regulatory obligations.

In addition, this report builds upon flora, vegetation, and fauna mapping undertaken during the 2023–2025 survey period, incorporating both newly collected data and areas previously surveyed. Several of the locations assessed in earlier phases were revisited as part of this refined survey to validate and enhance the existing dataset. The report presents a comprehensive and updated overview of the project area, integrating both recorded and inferred data (see Table 1 and Figure 2). Ground-truthing was conducted to verify inferred mapping, and habitat naming conventions were standardised to ensure consistency and accuracy across all datasets.

Table 1 Summary of Field Surveys

Report /Survey Title	Survey Duration	Scope Summary	Area of previous surveys assessed in 2025 survey (ha)	Report Date
NREP 1-NT-NBT 330kV Line Flora, Vegetation and Fauna Assessment (referred to as 2022 survey)	• 5, 8 and 9 September • 5, 6, and 7 October • 8 November 2022	Targeted Black Cockatoo Assessment of roosting, breeding and foraging habitat. Basic flora, fauna and vegetation assessment	28.91	17 February 2023
Clean Energy Link Swan Coastal Plain Flora, Vegetation and Fauna Assessment (referred to as 2023 survey)	• 16-20th October 2023 • 6-17th November 2023		554.71	12 March 2024

Report /Survey Title	Survey Duration	Scope Summary	Area of previous surveys assessed in 2025 survey (ha)	Report Date
Interpolated data	N/A	Inferred data due to design changes after the 2023 survey	14.02	N/A
Refined Black Cockatoo Assessment (current report)	27th February 2025	Refined Assessment of hollows, breeding and foraging habitat	5.56 (included ground-truthing of interpolated data)	23 May 2025

1.1 Survey Area

The survey area is located approximately 12 km north of the Perth CBD, situated on the Swan Coastal Plain. It represents a linear corridor extending from Malaga to Pinjar, including two terminal locations, Neerabup Terminal and East Wanneroo (10.08 ha) and Northern Terminal (18.83 ha). It is comprised of the 2023 and 2024 Biological Survey areas. Due to the realignment of the Development Envelope, the survey area was extended to include additional sections along the transmission corridor to ensure coverage of the newly incorporated areas (Figure 1).

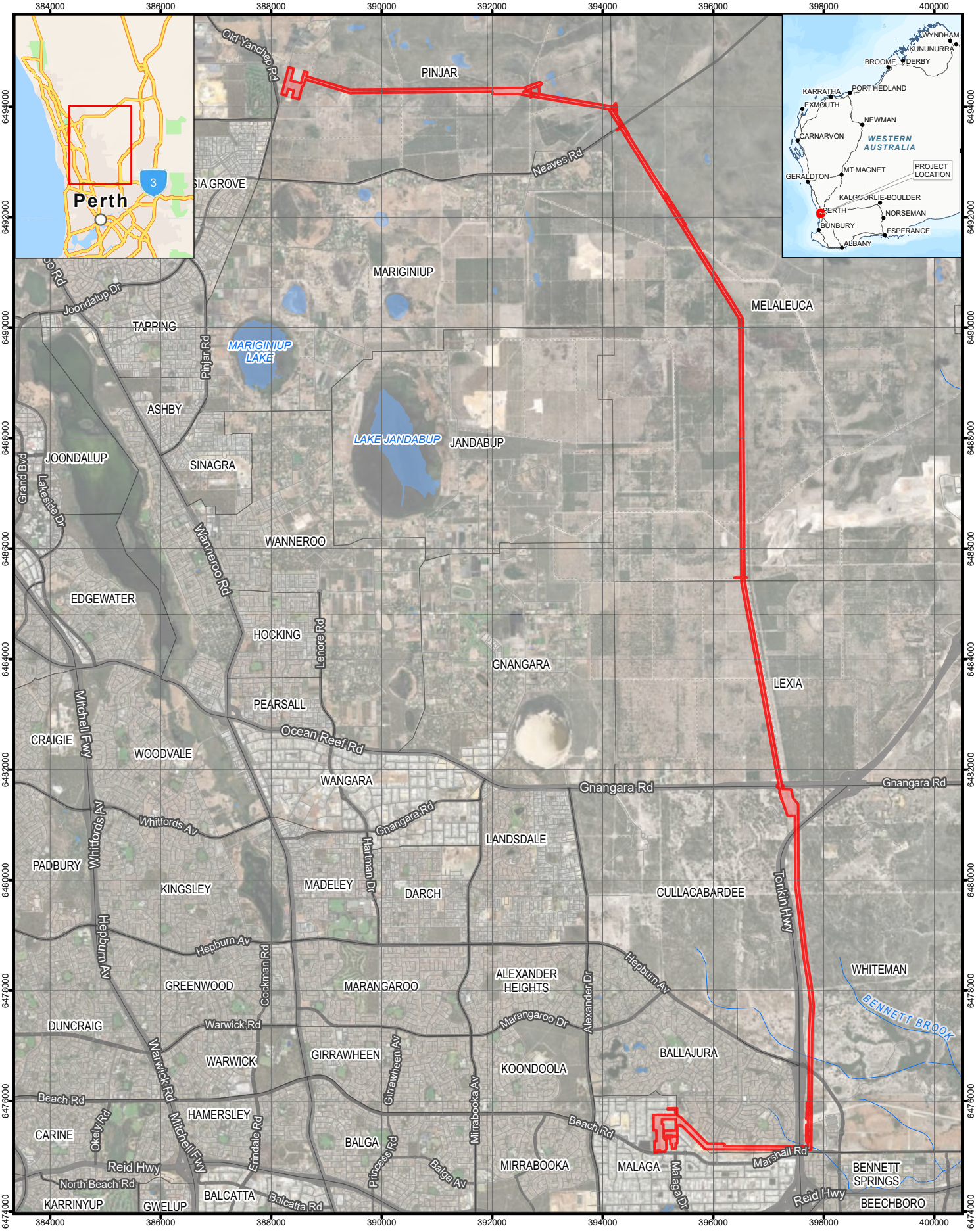
1.2 Objectives

The purpose of the refined black cockatoo assessment was to provide an assessment of the ecological values for significant black cockatoo species, with a focus on their breeding, roosting, and foraging habitats, in response to requests for additional information from the EPA and DCCEEW for Western Power.

A refined Black Cockatoo survey was undertaken involving a detailed and targeted ecological assessment conducted to evaluate the presence, quality, and extent of habitat used by threatened Black Cockatoo species, specifically Carnaby's, Baudin's, and Forest Red-tailed Black Cockatoos. This built on the basic habitat assessment and targeted black cockatoo surveys completed for portions of the survey area. Specifically, it included reinspection of all potential hollow bearing trees identified from the ground utilising drone imagery and expert input from Mike Bamford to ascertain their suitability and/or use by the species. Additional inspections were also completed to clarify the presence and value of non-native foraging, plant disease, known and potential roosting trees.

In addition, a brief environmental review was undertaken to address knowledge gaps for both flora, vegetation and fauna habitat data associated with the amended development envelope (DE). This review focused on identifying any new or previously unassessed ecological values within the revised boundary. The review also sought to reconcile inconsistencies between earlier assessments and the current spatial extent of the project area, thereby contributing to a more accurate and informed environmental evaluation (Figure 2).

Fieldwork was completed in compliance with all relevant legislation and guidance:



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DATA SOURCES Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010)
Service Layer Credits: World Navigation Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community,World Imagery: Earthstar Geographics,World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community,WMS: ,World Hillshade: Esri, USGS

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Development Envelope

Survey Area

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Figure 1

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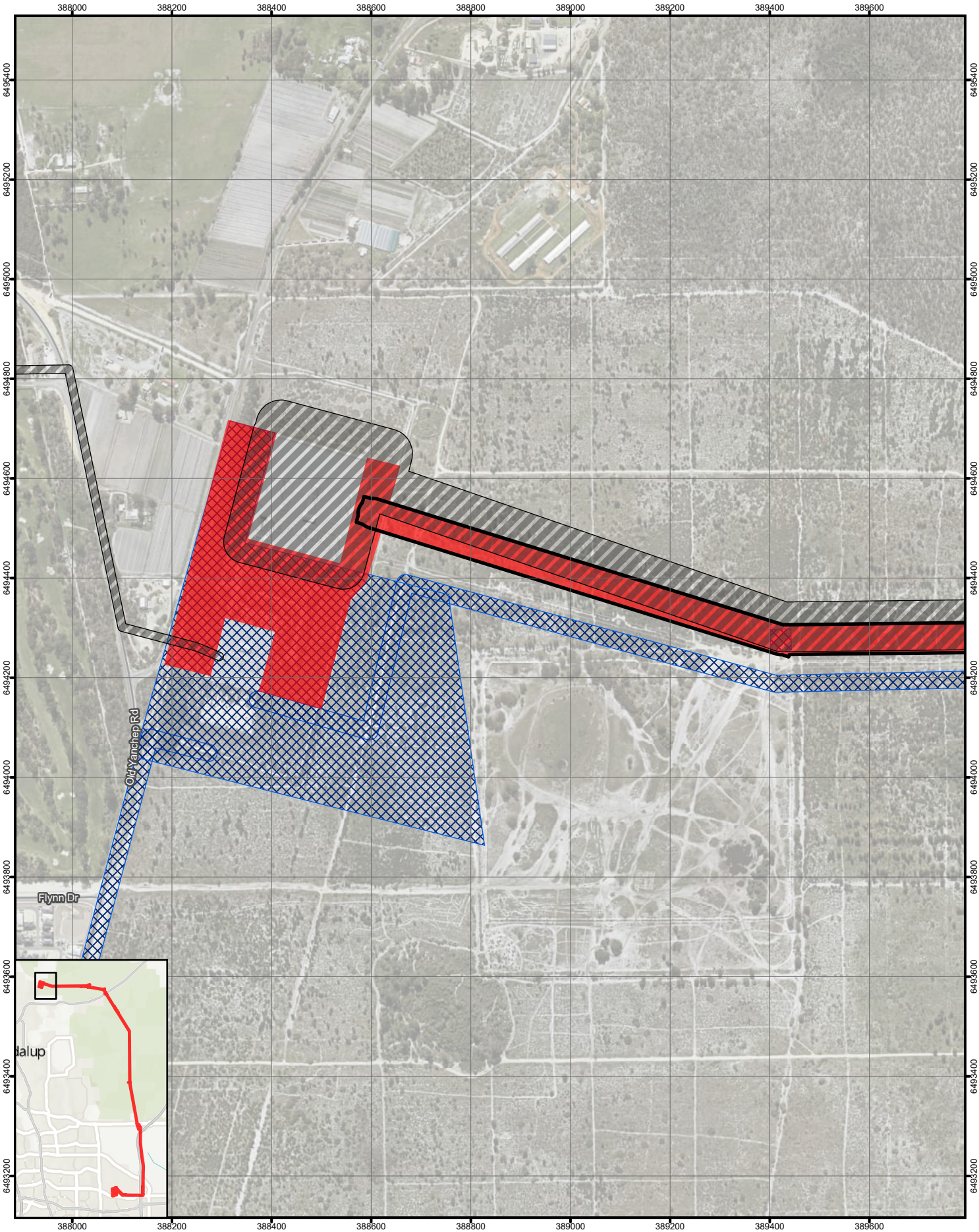

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- EIA Boundary
- Biological Survey (AECOM, 2023)
- Biological Survey NREP SCP (AECOM, 2024)

Previous Survey and Report Boundaries

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Figure 2.1

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Previous Survey and Report Boundaries

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Figure 2.2

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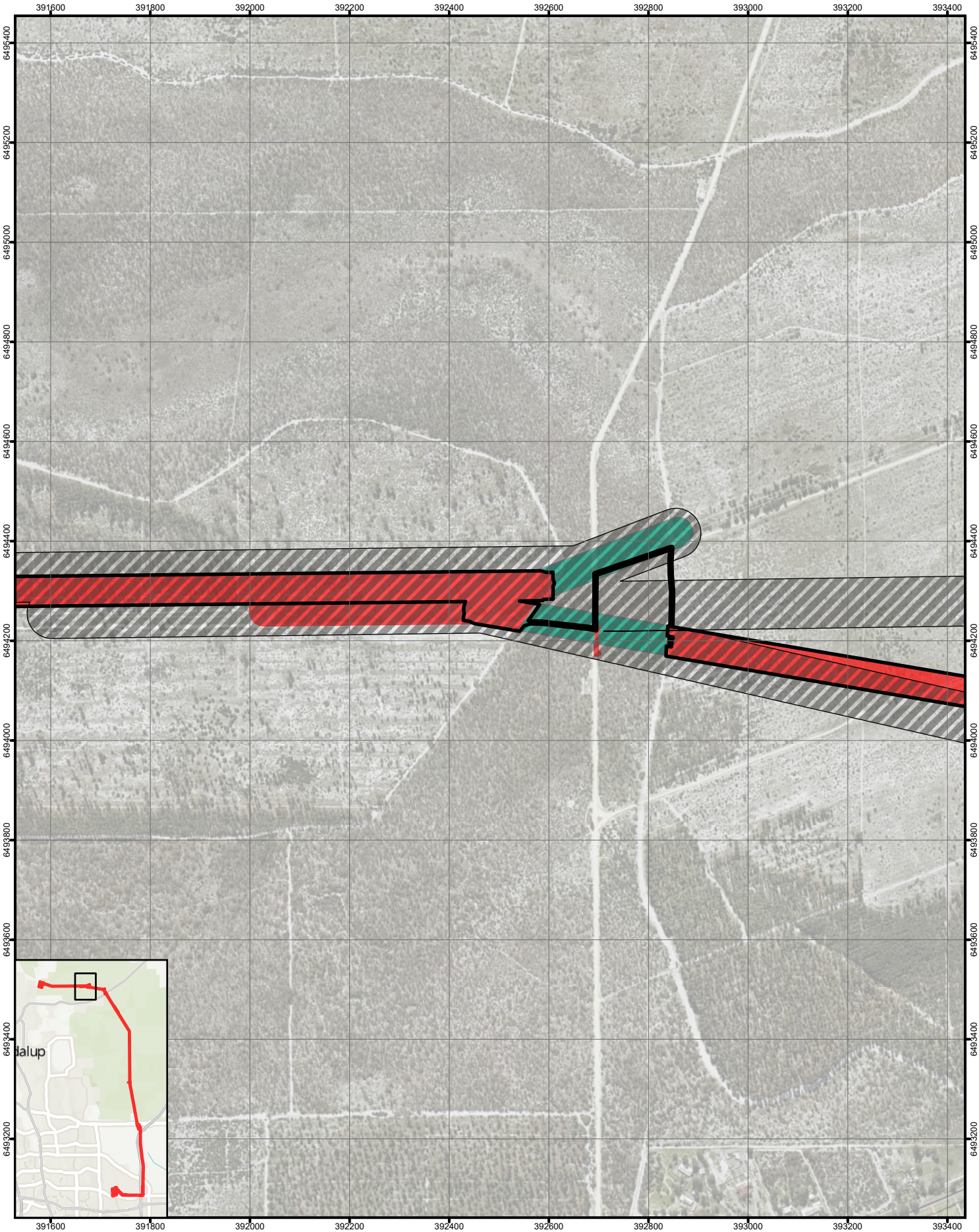

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Previous Survey and Report Boundaries

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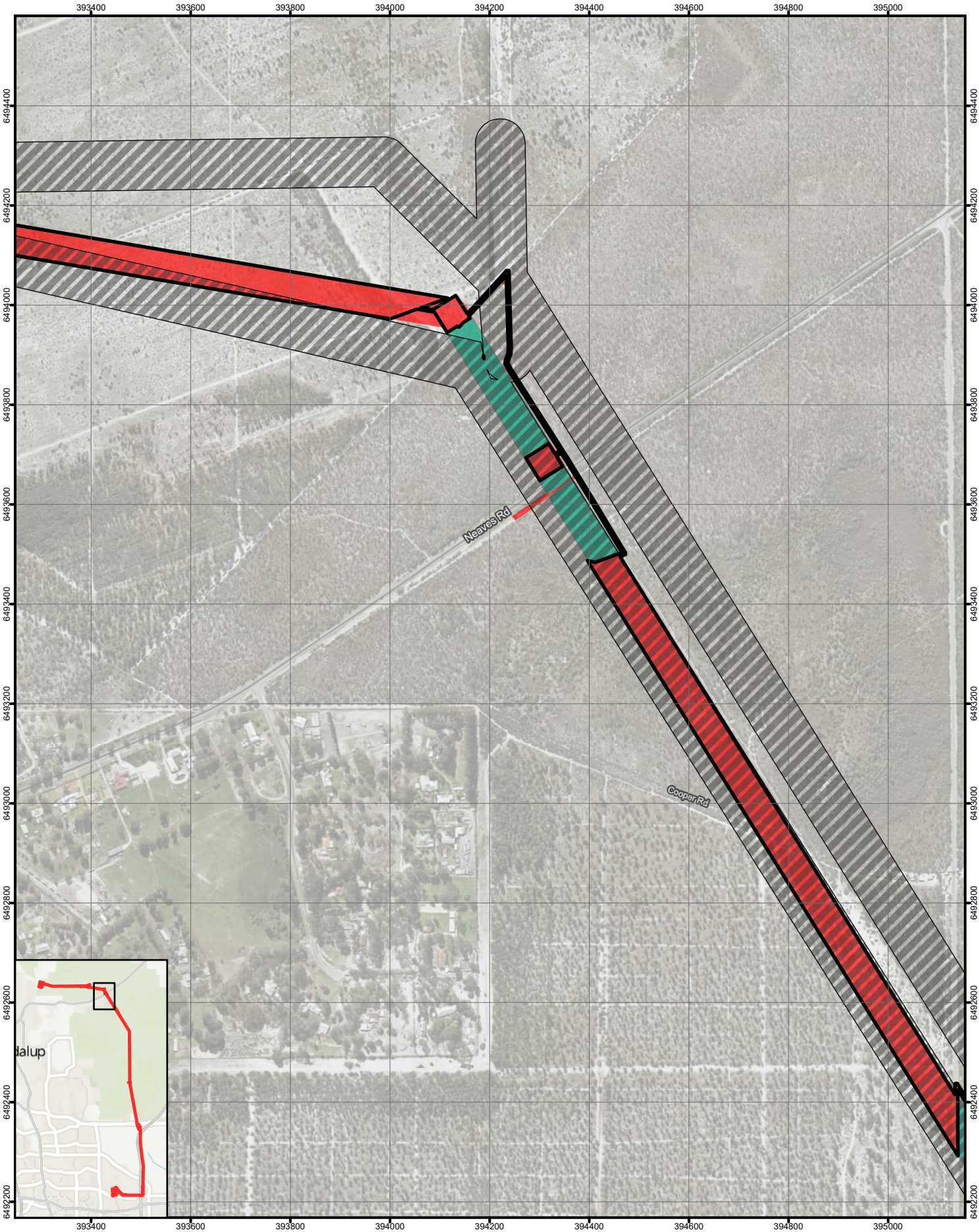

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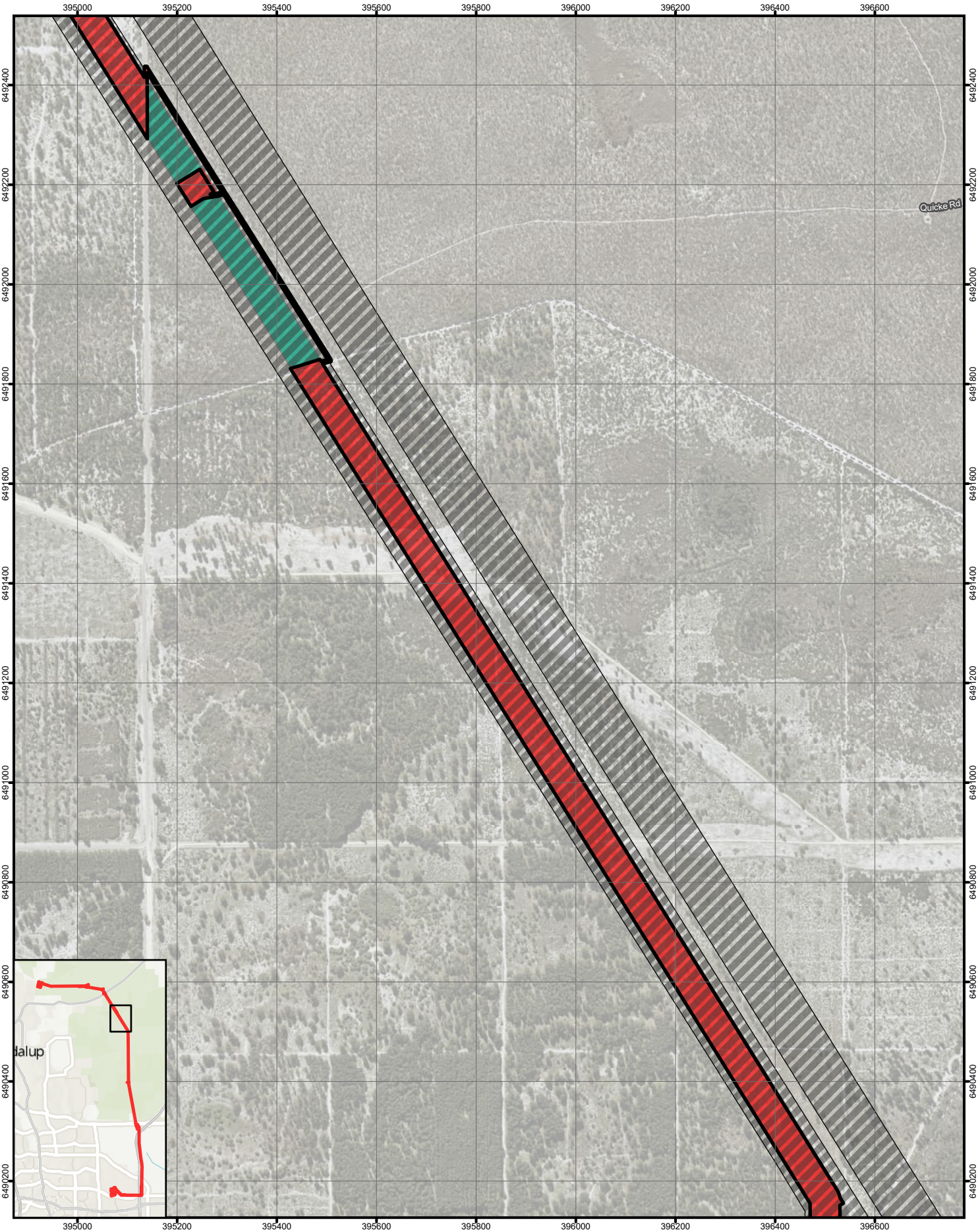

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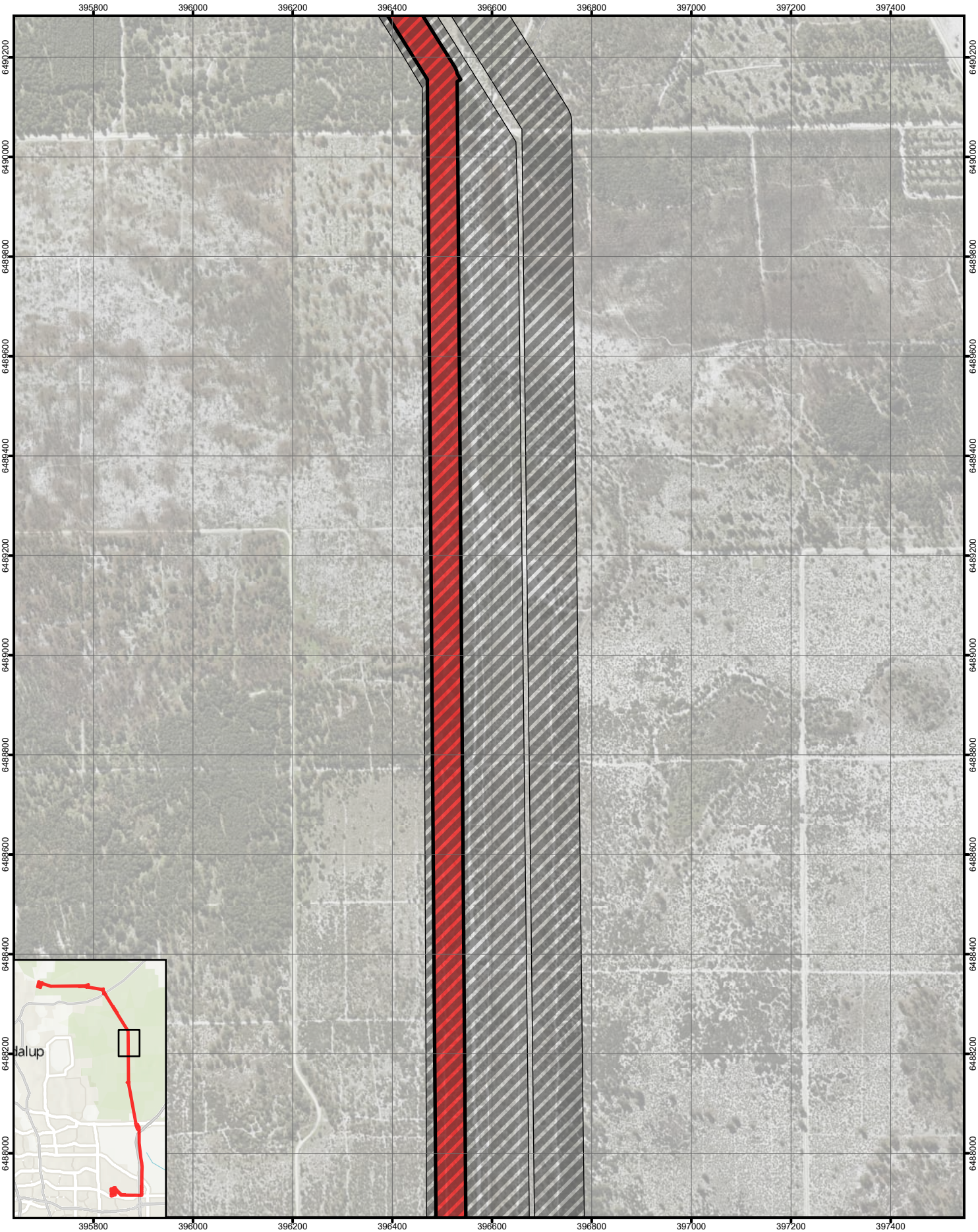

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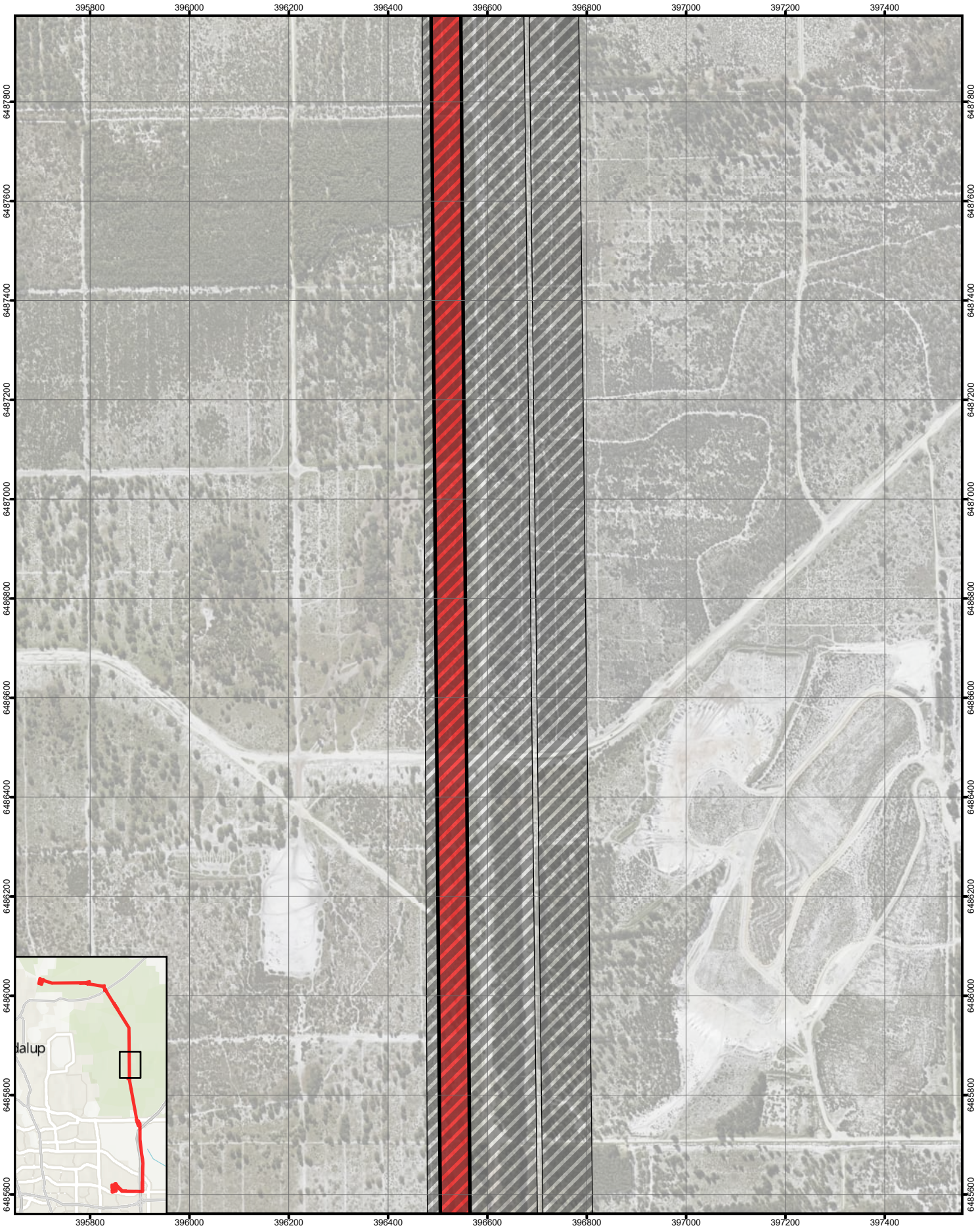

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Figure 2.7

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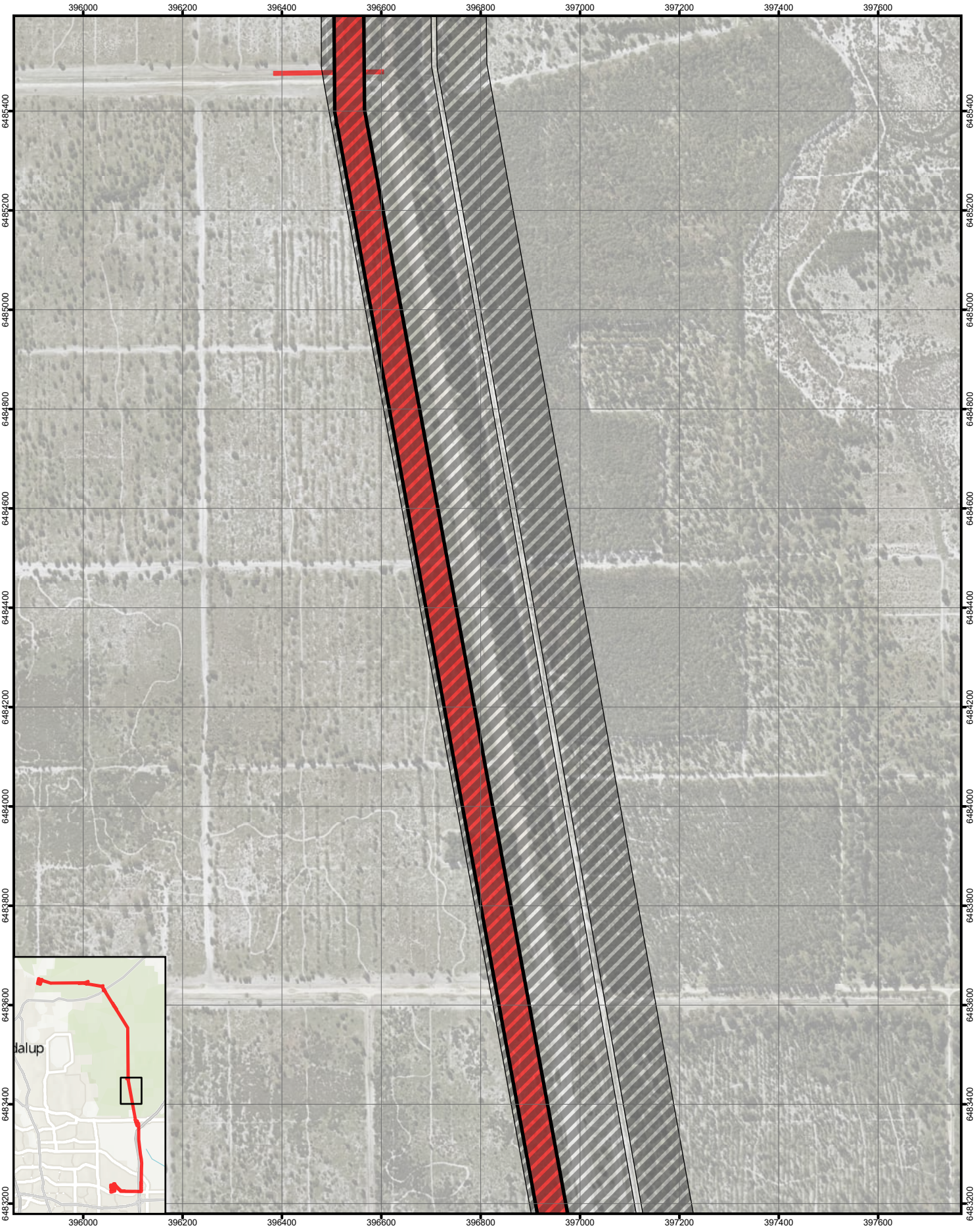

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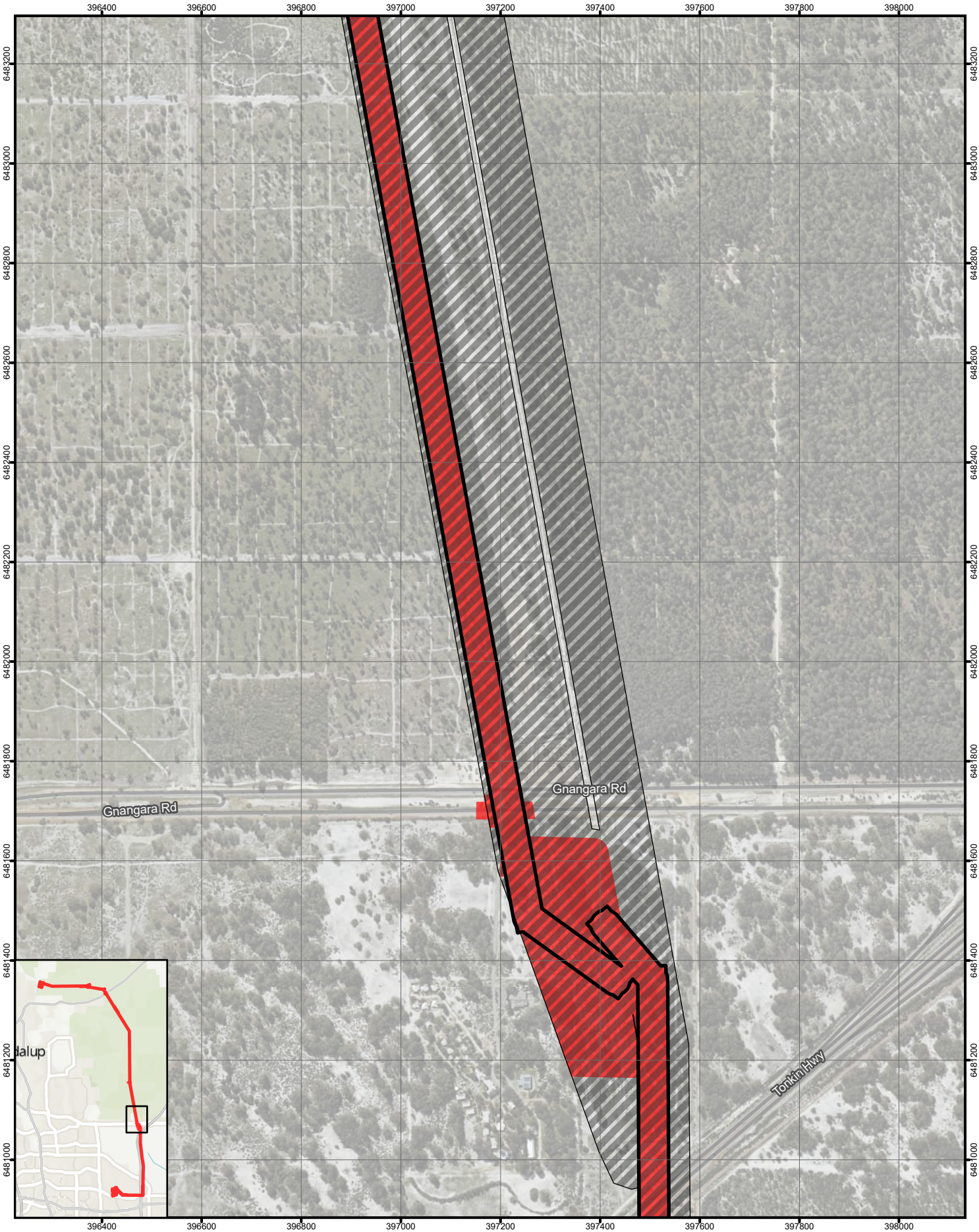

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Figure 2.9

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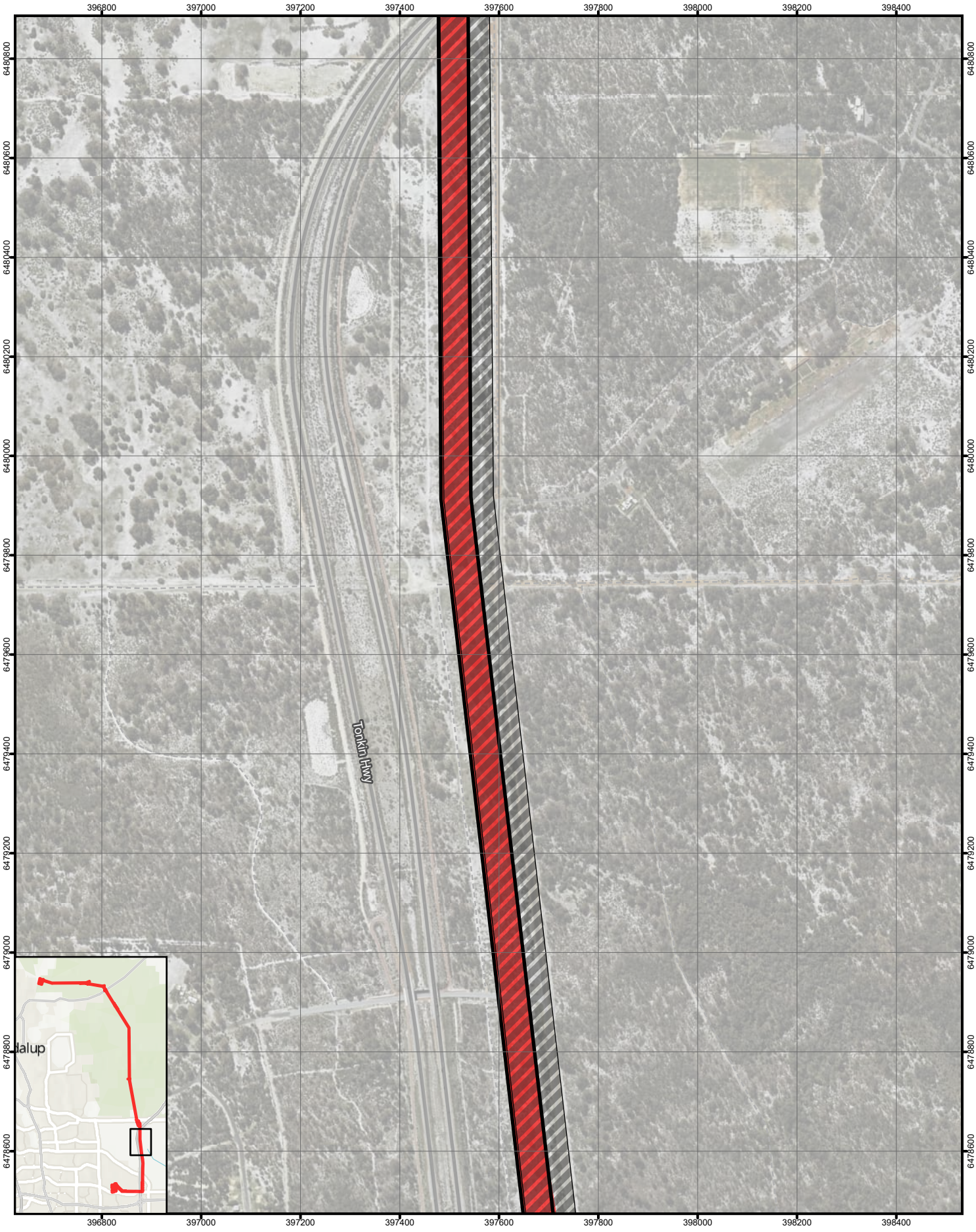

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Figure 2.10

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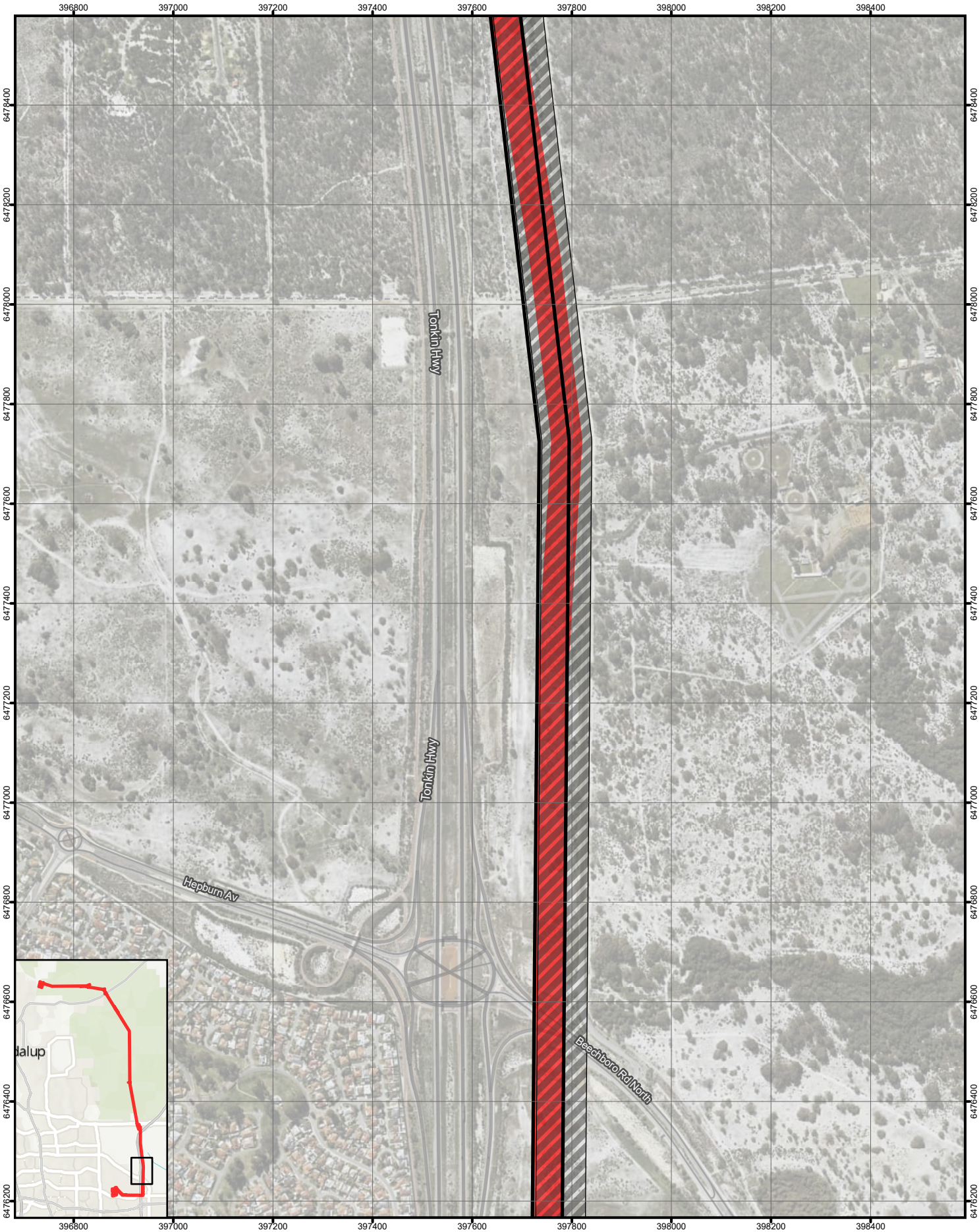

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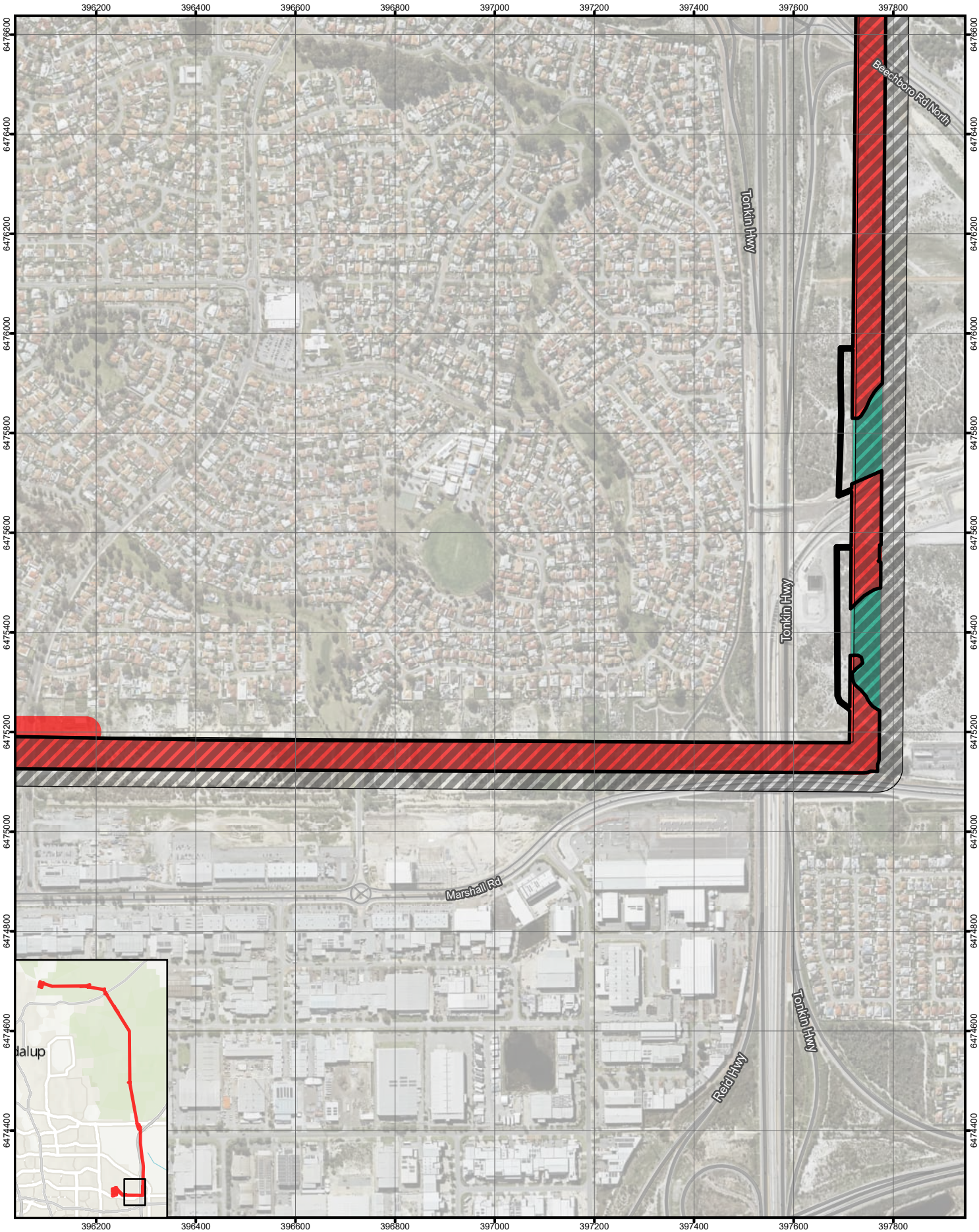

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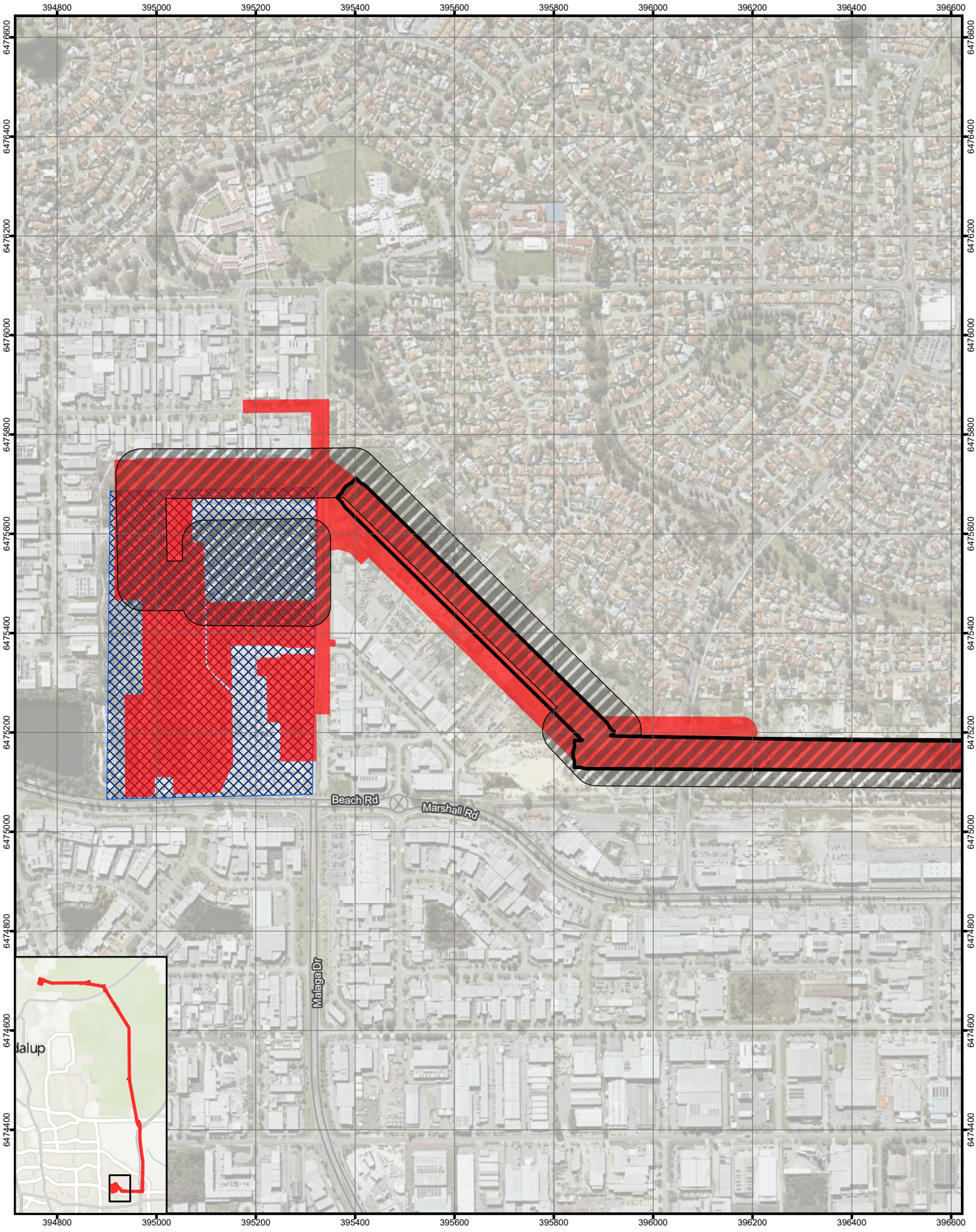

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LEGEND

- Development Envelope (Clearing)
- EIA Boundary
- Biological Survey (AECOM, 2023)
- Biological Survey NREP SCP (AECOM, 2024)

Previous Survey and Report Boundaries

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 2.13

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1.3 Black Cockatoo Desktop Review

1.3.1 Climate

The survey area is located within the City of Swan and City of Wanneroo, both of which experience a Mediterranean climate, defined by hot dry summers and mild wet winters. Rainfall occurs predominantly during the winter months with some occurrences of summer storms.

For the 2022 survey, rainfall and temperature data were obtained from Perth Metro WA (station number 009225) Bureau of Meteorology, located approximately 12 km north of the survey area. The long-term rainfall and temperature data is compared against the September 2021 to August 2022 data in Figure 3 (BoM 2025).

The 2022 survey occurred over multiple days in early September, early October and early November 2022, following a year of above average rainfall, with a total of 799 mm compared to the long-term average of 719.6 mm (79.4 mm more). Rainfall was particularly low between December and March and June months; however, six out 12 months exceeded the long-term average. Maximum temperatures were higher than average for seven out of the 12 months preceding the survey, particularly across the summer months (December to February). Minimum temperatures also deviated from the long-term average, with seven months experiencing lower than average minimum temperatures (BoM, 2025).

Rainfall and temperature data for the October - November 2023 survey, were sourced from Perth Metro WA (station number 009225) Bureau of Meteorology, located approximately 12km north of the survey area. The long-term rainfall and temperature data is compared against the October 2022 to September 2023 data in Figure 3 (BoM, 2025).

The 2023 survey was undertaken across multiple days in mid-October and mid-November 2023, following a year of below average rainfall, with a total of 645.2 mm compared to the long-term average of 719.6 mm (74.4 mm less). The rainfall in June was nearly double the long-term average, whereas the summer months recorded significantly lower rainfall compared to the long-term average. Maximum temperatures were higher than average for three out of the 12 months preceding the survey. Minimum temperatures also deviated from the long-term average, with eight months experiencing lower than average minimum temperatures.

Rainfall and temperature data for the 2024 survey, were sourced from Perth Metro WA (station number 009225) Bureau of Meteorology, located approximately 12km north of the survey area. The long-term rainfall and temperature data is compared against the February 2024 to January 2025 data in Figure 3 (BoM 2025).

The 2024 survey was undertaken on the 27th of February 2025, following a year of below average rainfall, with a total of 617.2 mm compared to the long-term average of 719.6 mm (102.4 mm less). In the 12 months leading up to the survey, ten months recorded rainfall below the long-term average. Maximum temperatures were higher than average for 11 out of the 12 months preceding the survey. Minimum temperatures also deviated from the long-term average, with all months preceding the survey having higher minimum temperatures.

Climatic data from the past three survey years demonstrate a clear trend toward warmer and drier conditions, marked by elevated maximum temperatures and increasingly consistent rainfall deficits. These climatic changes are likely to have direct and indirect effects on Black Cockatoo populations. Increased temperatures can intensify heat stress, especially during breeding seasons, potentially reducing reproductive success (Saunders, Mawson, Dawson, & Pickup, 2024). Higher temperatures may also exacerbate habitat degradation, including the drying of vegetation and reduction in food availability, such as native seeds and flowering plants. Additionally, more frequent and prolonged dry periods may impact the health and regeneration of hollow-bearing trees critical for nesting.

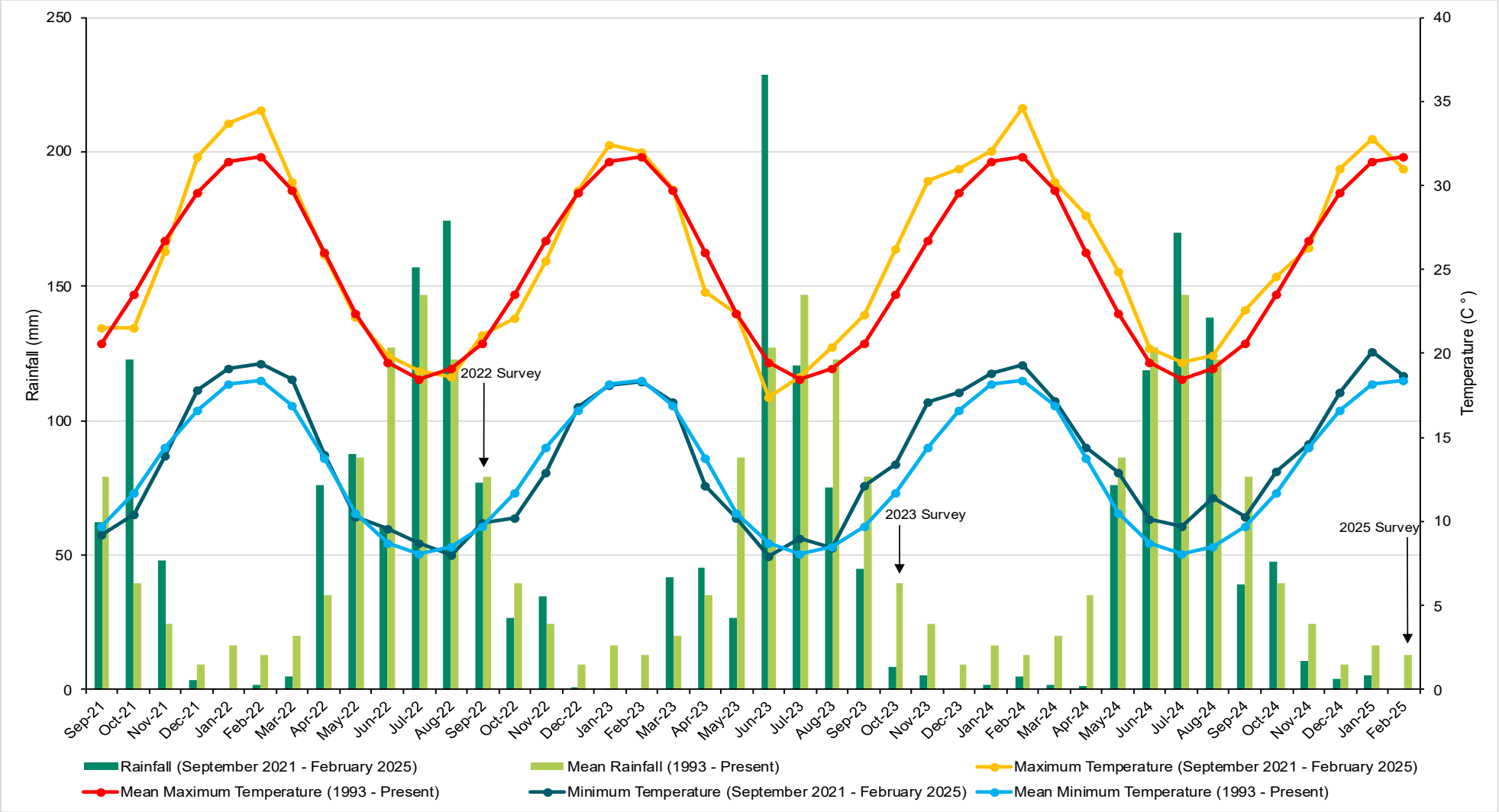


Figure 3 Rainfall and temperature data from Perth Metro from September 2021 to February 2025 (Station Number 9225)

1.3.2 Breeding Habitat

The survey area is not located within any mapped, confirmed, or unconfirmed breeding site for Black Cockatoos. The nearest mapped breeding site is approximately 7 km west of the survey area (DBCA-063). The closest confirmed breeding site for Carnaby's Cockatoo (*Zanda latirostris*) within the Swan Coastal Plain is approximately 5.2 km to the northeast (DBCA-054), while the nearest unconfirmed site is located approximately 700 m to the southeast (DBCA-055) (Figure 4).

DBCA data indicates 17 white-tailed black cockatoo breeding sites located within 20 km of the survey area, the closest approximately 16 km to the south east of the survey area.

1.3.3 Foraging Habitat

A total of 72.85 ha of the survey area has been mapped as requiring investigation as feeding habitat for the Carnaby's Cockatoos (*Zanda latirostris*) within the Swan Coastal Plain (DBCA-057) (DBCA, 2018), (Figure 4).

1.3.4 Roosting Habitat

The survey area intersects with the buffer zones of three confirmed night roosting sites used by Carnaby's Cockatoo (*Zanda latirostris)* (DBCA-050). No unconfirmed roost sites for the Carnaby's Cockatoo are intersected (one is not included within the DBCA-050 dataset). The closest unconfirmed roost site is located approximately 1 km to the east (DBCA-051). The entire survey area is mapped within the 6 km buffer of both the confirmed and unconfirmed roosting sites for the Carnaby's Cockatoo (DBCA-052, DBCA-053) (DBCA, 2018), (Figure 4).

The survey area intersects with the 1 km buffer zones of four additional confirmed black cockatoo roosting sites. These are displayed on Figure 5 and listed in Table 2.

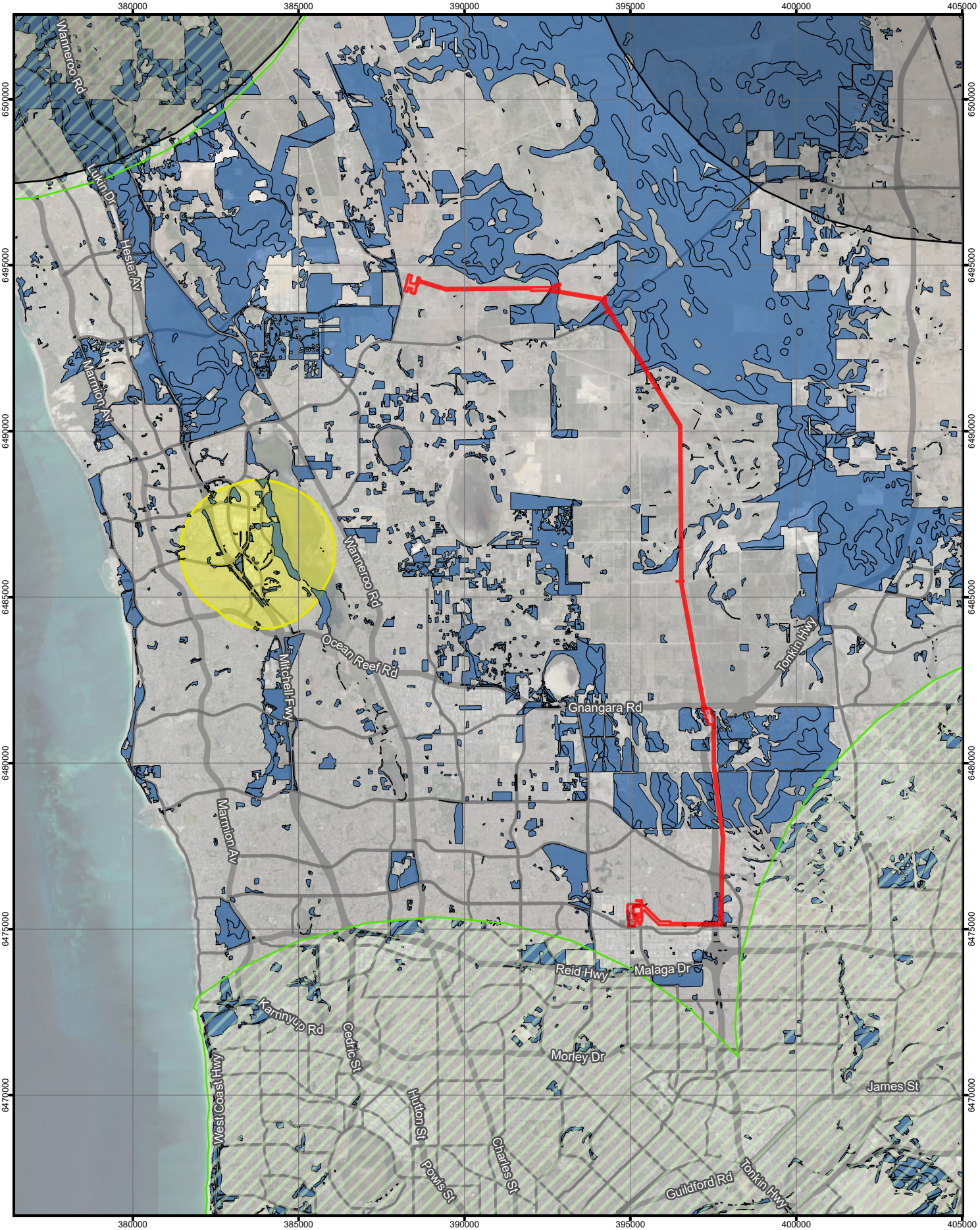
DBCA data indicates 71 black cockatoo roosting sites are located within 20 km of the survey area, the closest approximately 250 m to the south west of the northern most terminal.

Table 2 Black Cockatoo Mapped Roosting and Breeding Sites within 20 km of the survey area (DBCA)

Dataset number	Dataset Name	Number of sites within 20km
DBCA-050	Carnaby's Cockatoo Confirmed Roost Sites (DBCA, 2018)	38
DBCA-051	Carnaby's Cockatoo Unconfirmed Roost Sites (DBCA, 2018)	24
DBCA-064	Black Cockatoo Roosting Sites - Buffered (1 km) (DBCA, 2019)	63
DBCA-063	Black Cockatoo Breeding Sites - Buffered (4 km) (DBCA, 2019)	2
DBCA-054	Carnaby's Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA, 2018)	4
DBCA-055	Carnaby's Cockatoo Unconfirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA, 2018)	4
DBCA Database request	All black cockatoo roosting sites	71
DBCA Database request	All white-tailed black cockatoo breeding sites	17

1.3.5 Dieback

The survey area intersects with 8.29 ha (1.37%) of mapped Phytophthora Dieback (*Phytophthora cinnamomi*) infested locations (DBCA, 2024) (DBCA, 2024). These areas are in the northern section near Neaves Road and Wandoo Road and a southern section near Marshall Road and Tonkin Highway. The extent of areas within the survey boundary identified as dieback infested are illustrated on Figure 8.



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- Development Envelope
- Black Cockatoo Breeding Sites - Buffered (DBCA-063)
- Carnabys Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-054)
- Carnabys Cockatoo Unconfirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-055)
- Carnabys Cockatoo Areas requiring investigation as feeding habitat in the Swan Coastal Plain (SCP) IBRA Region (DBCA-057)

Desktop Breeding and Foraging Habitat

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure
4

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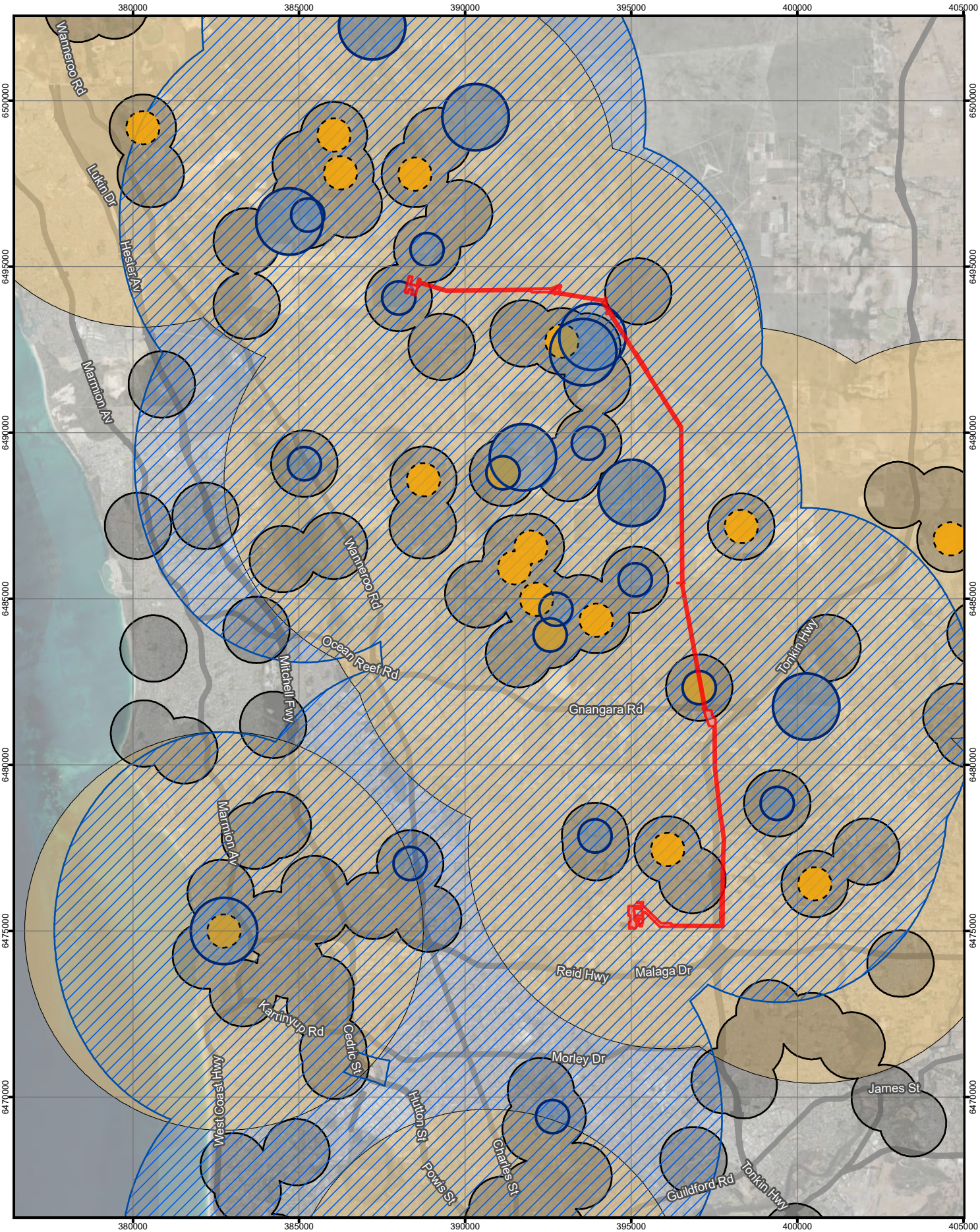

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LEGEND

- Development Envelope
- Black Cockatoo Roosting Sites - Buffered (DBCA-064)
- Carnabys Cockatoo Confirmed Roost Sites (DBCA-050)
- Carnabys Cockatoo Confirmed Roost Sites Buffered 6km (DBCA-052)
- Carnabys Cockatoo Unconfirmed Roost Sites (DBCA-051)
- Carnabys Cockatoo Unconfirmed Roost Sites Buffered 6km (DBCA-053)

Desktop Roosting Habitat

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 5

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2.0 Scope of Works

2.1 Refined Black Cockatoo Survey

In response to queries from the EPA and DCCEEW, refined Black Cockatoo surveys were undertaken to provide more accurate assessment of habitat quality and ecological significance within the project area.

2.2 Refined Hollow Assessments

All previously identified habitat trees within the defined survey area were reinspected using updated methods approved by subject matter expert Mike Bamford. This included drone imagery and reassessment of hollow suitability as per the Bamford Consulting Ecologist (2024) (BCE) method (Table 3) including dimensions, shape and form, as well as evidence of use.

2.2.1 Additional Black Cockatoo Habitat Inspections

Additional black cockatoo habitat inspections of vegetation within the survey area were conducted in conjunction with the refined hollow assessments to collect data addressing EPA and DCCEEW requests on foraging, roosting, and breeding habitats. These included:

- Collecting detailed information on non-native foraging habitats, including resolving inconsistencies in previously reported habitat extents and documenting the condition and distribution of mature and regrowth pine areas within the development footprint.
- Mapping indicators of plant disease (e.g., *Phytophthora* dieback) within cockatoo habitats to inform assessments of habitat quality.
- Verifying the presence and extent of known roosting habitats within a 6 km radius of the development area, based on field observations and guidance from subject matter experts.
- Ground-truthing vegetation types and habitat structures within the updated development envelope (DE).
- Evaluating known roosting sites that intersect with the development envelope.

3.0 Methodology

3.1 Ecological Review

The current survey area encompasses sections mapped during different surveys, as well as areas mapped based on inference (AECOM Australia, 2023, 2024). As a result, portions of the corridor were mapped more than once, often with differing classifications of habitat or vegetation units. This overlap has limited the ability to draw consistent conclusions about Black Cockatoo habitat suitability across the entire corridor. Furthermore, habitat suitability scores assigned by DAWE (2022) and Bamford (2024) differed between various sections of the survey area, adding to the complexity of interpretation.

In order to incorporate the results of the habitat review conducted as part of this scope, the mapping for the survey area was aligned to provide a consistent output for consideration. Specifically, this involved:

- Utilising the most current mapping available for the site from the 2023 surveys when it overlapped with the 2022 mapping
- Combining and aligning the vegetation and fauna habitat units from the 2023 and 2022 surveys
- Revising the inferred sections of the corridor using 2023 and 2022 mapping, supplemented with 2025 ground truthed data
- Updating and applying a consistent DAWE (2022) score across the entire survey area, along with assigning Bamford (2024) scores to each fauna habitat, incorporating new data collected during the 2025 survey.
- The two terminal locations situated within the corridor were treated differently in the 2022 and 2023 surveys, as they were only partially covered by each survey. This led to variations in data collection and interpretation between the two years.

The results of the review are presented in Section 4.0.

3.2 Targeted Black Cockatoo Habitat Survey

Refined habitat assessments were undertaken for all three conservation-significant Black Cockatoo species found in Western Australia: Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*). Although Baudin's Cockatoo typically occurs further south, its inclusion in this assessment was warranted due to the survey area's location at the westernmost extent of the species' known range. Additionally, data from the Department of Biodiversity, Conservation and Attractions (DBCA), along with other verified records, confirm previous occurrences of Baudin's Cockatoo within the vicinity of the survey area. As such, the species was considered in the survey scope to ensure a thorough evaluation of potential habitat suitability and presence across the site.

3.2.1 Breeding Habitat

All trees inspected from the ground, using binoculars during the 2022 survey were revisited and reevaluated on the 27 February 2025. This involved using a drone to determine the status of hollows and observations were made on size, use, condition and likelihood of being utilised by black cockatoos.

The survey was led by Hannah Spanswick with over five years of experience. The AECOM field team was accompanied by Mike Bamford, a subject matter expert in Black Cockatoo habitat and hollow assessment, who provided expert input on hollow suitability and rating.

The Bamford methodology for evaluating black-cockatoo nesting habitat was applied to determine the current nesting value of a site for black-cockatoos. This process involved evaluating each tree previously identified as a potential black cockatoo breeding tree and assigning it a suitability score (ranging from 1 to 5) based on its nesting potential (Table 3). The tool considered several factors including:

- Size of tree
- Structure of tree

- Angle of nesting chamber
- Size of nesting chamber
- Size of entrance.

Table 3 BCE breeding tree ranking system for the assessment of potential nest trees for black cockatoos

Rank	Description
1	Activity at hollow observed; adult (or immature) bird seen entering or emerging from hollow. Can also be used for a known nest tree active in the previous 12 months (although this should be noted in the description). Note that activity at a hollow does not absolutely mean that breeding is occurring unless a young bird in hollow is observed.
2	Hollow of suitable size visible with chew marks around entrance. Record if chew-marks are recent or old.
3	Potentially suitable hollow visible but no chew marks present at entrance; or potentially suitable hollow suspected to be present - as suggested by structure of tree, such as large, vertical trunk broken off at a height of >8m; but note that hollow height is contextual. Carnaby's Black-Cockatoo will nest in hollows <5m so in a Wheatbelt breeding site a lower criterion may be more appropriate.
4	Tree with large hollows or broken branches that might contain large hollows, but hollows or potential hollows are not vertical or near-vertical; thus a tree with or likely to have hollows of sufficient size but not to have hollows of the angle preferred by Black-Cockatoos. Also, a tree with hollows that might be large enough for a black-cockatoo, but in a trunk or branch of insufficient diameter to contain a hollow of preferred size. Trees with low but otherwise suitable hollows can also be assigned a rank or 4, depending on the context (e.g. south-west forest or Wheatbelt).
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.

An additional suitability ranking was given to each hollow, categorised under the following scheme based on field inspection:

- **Active hollow**: Exhibits fresh signs of chewing, either around the entrance or internally, generally linked to black cockatoo activity, indicating nesting behaviour, or cockatoos seen interacting with the hollow.
- **Previously active hollow**: Exhibits old evidence of chewing, either around the entrance or internally, generally linked to black cockatoo activity, indicating nesting behaviour.
- **Inactive hollow**: Appears suitable for black cockatoos to nest in, but no clear evidence of nesting has been observed. Chew marks are not always present on hollows that have been used for nesting.
- **Unsuitable hollow**: Initially considered appropriate for black cockatoo nesting based on preliminary assessments from the ground, but upon further study, does not meet the necessary criteria for nesting.
- **No hollow**: A tree found to have no hollows, possibly due to precautionary hollow assessments conducted from the ground, where a feature was tentatively identified as a hollow but did not meet the criteria upon reinspection.
- **Unable to confirm**: A tree that was either not located or not revisited. Some were inaccessible due to being on private property, while others could not be found or accurately identified at the given coordinates.

3.2.1.1 Previous Breeding Habitat methods

Potential breeding habitat was assessed during the 2023 and 2022 surveys by quantifying the number of trees that have the potential to form hollows (based on their diameter at breast height [DBH]), and those with potentially suitable hollows. Any hollow forming native *Eucalyptus* with a DBH > 500 mm was assessed and the GPS location was recoded.

Potential breeding trees are categorised as follows:

- Suitable nesting trees: Trees with suitable nesting hollows present, although no evidence of use. Note that any species of tree may develop suitable hollows for breeding.
- Suitable nest hollow: Any hollow with dimensions suitable for use for nesting by black cockatoos. Characteristics of hollows used by each species is available in the SPRAT (Species Profile and Threats) database. Suitable nest hollows are only found in live trees with a DBH of at least 500 mm. Usually this will be a natural hollow, but artificial hollows may also be suitable in some circumstances (for example, where the artificial hollow has been specifically designed for use by black cockatoos).
- Potential nesting trees: Trees that have a suitable DBH to develop a nest hollow, but do not currently have hollows. Trees suitable to develop a nest hollow in the future are 300-500 mm DBH. *Note: that many species of eucalypt may develop suitable hollows for breeding.*

Hollows are considered potentially suitable when the entrance hole is above a size of 10 cm in diameter and the hollow appears to continue inwards to reach a hollow with a base size greater than 30 cm. Tree hollow presence and suitability is assessed from ground level with the use of binoculars. Suitability and utilisation by black cockatoos cannot always be assessed adequately at ground level, and hence the precautionary principle is used where appropriate.

For all potential nesting trees data was limited to tree genus (*Eucalyptus* spp.) or identified as a stag. Where suitable nesting trees were observed, data including tree species, hollow dimensions, DBH and other significant features was recorded.

3.2.2 Foraging Habitat

Two foraging habitat scoring methods were applied including the DAWE (2022) scoring tool and the more detailed scoring tool by BCE (2024). Both tools consider native vegetation, proximity of known breeding, roosting and foraging habitat, and field observations such as foraging evidence.

3.2.2.1 DAWE Scoring Tool

The DAWE (2022) Referral Guideline scoring tool assigns one single foraging score to the entire survey area. Vegetation containing suitable foraging species is initially assigned a score of 10, with subsequent deductions applied based on specific detracting factors. Areas lacking suitable foraging species are considered to have no foraging value. As part of the vegetation and flora assessment, plan disease was evaluated, with all notable recorded. Where disease was found to affect more than 50% of the preferred food or plant species, deductions were applied to the foraging score to reflect habitat quality.

3.2.2.2 Bamford Scoring Tool

The Bamford (2024) scoring tool was applied, taking into account the presence of preferred foraging species (referred to as site condition), as well as updated site context and species stocking rates. This approach enables the differentiation of vegetation areas based on their current and future value as high-quality foraging habitat.

Any areas that score higher than ‘2’ will then be further assessed for site context and species stocking rate. Site context is a function of site size, availability of nearby habitat and the availability of nearby breeding areas (Table 4). For this assessment, ‘local area’ is defined as within a 15 km radius of survey area. This is greater than the maximum distance of 12 km known to be flown by Carnaby’s Cockatoo when feeding chicks in the nest (Bamford Consulting Ecologists, 2024).

Table 4 Site context weighting

Site Context Score	Percentage of the existing native vegetation within the 'local' area that the study site represents	
	'Local' breeding known/likely	'Local' breeding unlikely
3	>5%	>10%
2	1-5%	5-10%
1	0.1-1%	1-5%
0	<0.1%	<1%

Next, a species stocking rate score is applied. Species stocking rate is described as "the usage and/or density of a species at a particular site" in the offsets guide. Assignation of the species density score (0 or 1) is based on the Black-Cockatoo species being either abundant (score of 1) or not abundant (score of 0). The Bamford tool scoring is converted into categories as follows: a score of 0 indicates "None," 1 is "Negligible," 2 is "Low," 3 is "Low to Moderate," scores.

The Bamford tool scoring is transposed into one of the following categories:

- 0: None.
- 1: Negligible.
- 2: Low.
- 3: Low to Moderate.
- 4-6: Moderate.
- 7: Moderate to High.
- 8-10: High

Moderation can be applied to ensure the tool accurately reflects value. This includes consideration of context including proximity to breeding areas and nearby foraging habitat. Context and species density scores can also be reduced to 0, provided the vegetation composition, condition and structure score is 2 or below (Bamford Consulting Ecologists, 2024).

The 2025 refined assessment included a review of the fauna habitats of the 2023 and 2022 surveys to clarify the value of particularly non-native foraging present in the survey area. This involved delineating between the ages of the pine plantation and splitting that fauna habitat into three categories reflecting three different values provided to black cockatoos:

- Mature Pine (>10 but <30 years old)
- Juvenile Pine (<10 years old)
- Burnt Pine

3.2.2.3 Data Review

Foraging score based on the DAWE (2022) methodology was calculated for both the 2022 and 2023 survey areas, while a Bamford (2024) foraging score was calculated for the 2023 survey only. As part of the refined 2025 survey, both foraging scores were reviewed and updated to ensure consistency across the entire survey area and to incorporate new findings from the 2025 survey. These findings included evidence of foraging activity by Baudin's Cockatoo.

3.2.3 Roosting Habitat

Roosting habitat was assessed by considering preferred features such as water sources, tall trees, and specific tree species. A potential roosting tree is defined as a tall tree of any species within proximity to water. For the purposes of this assessment a tall tree was defined as any tree with a suitable DBH, (300-500 mm DBH) and close proximity was defined as 1 km – 6 km (Average roosting distance), with 12 km aligning with the known maximum roosting range (Kabat, 2012). A proximity map was established to identify suitable roosting habitat within the survey area. This was created utilising recorded mature suitable roosting trees intersected with proximity to water sources. Water sources have been categorised into natural and anthropogenic water sources. Natural water sources refer to major tributaries and rivers while anthropogenic consists of dams and other agricultural sources of water.

The current 2025 survey included specific consideration of the habitat and vegetation present within a 500 m radius of the known roost sites and collecting information to inform the potential impact on known roost sites within 6 km of the survey area.

3.3 Survey Limitations

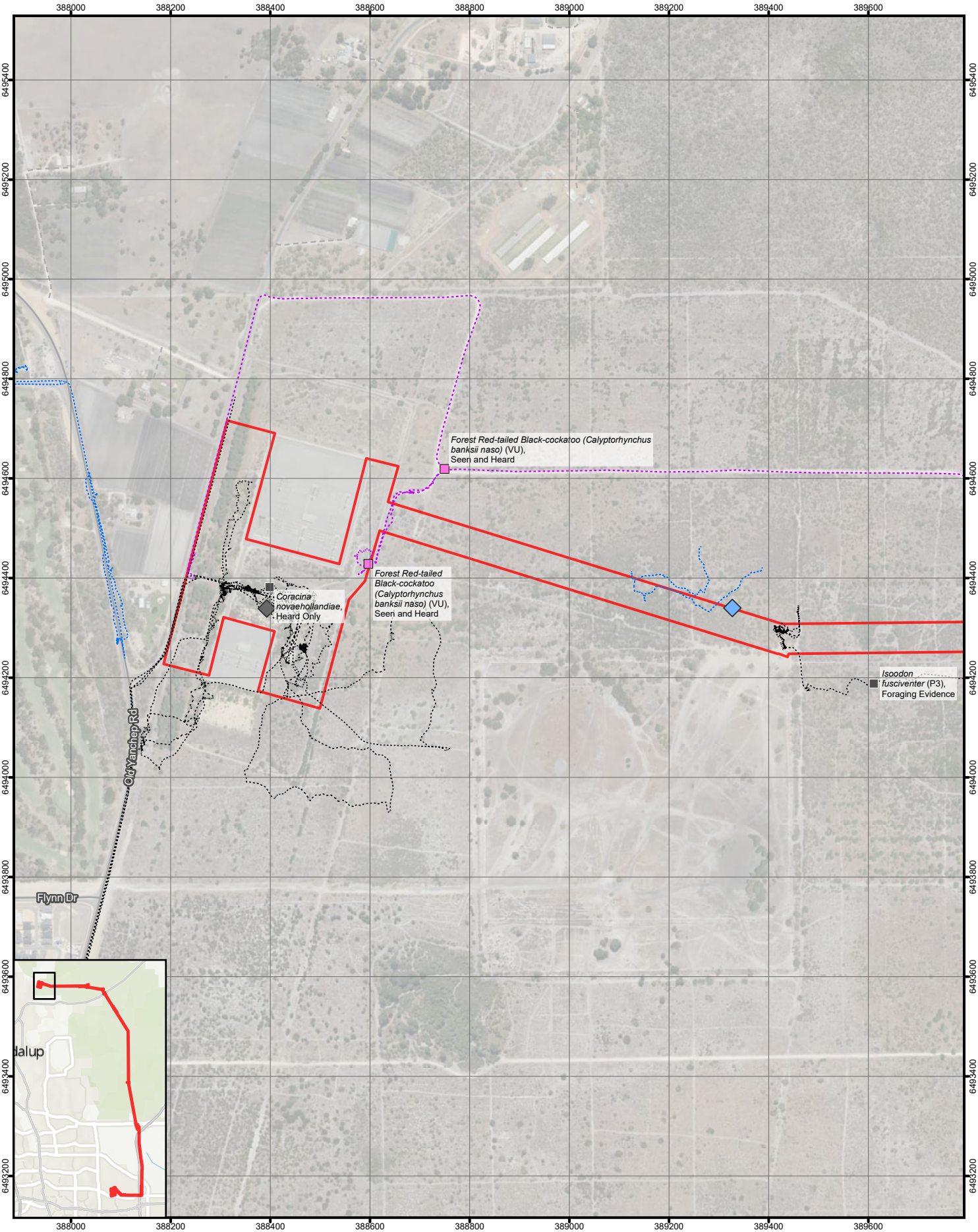
Limitations of the survey are discussed in Table 5. Further surveys are likely to be required to determine the value of the habitat contained within the inaccessible land parcels of the survey area.

Table 5 Survey Limitations

Limitation	Refined Black Cockatoo Assessment
Availability of contextual information on the region	**Moderate** Contextual information was sourced from DBCA database searches, which included both confirmed and unconfirmed Black Cockatoo breeding locations. Additional desktop information, including basic flora and fauna data, was drawn from previous ecological reports relevant to the project. At the time of reporting, updated DBCA data was not yet available; therefore, data obtained from the DBCA in October 2023 was used to inform this assessment.
Competency/experience of consultant conducting survey	**Nil** The survey was conducted by Zoologist Hannah Spanswick (5+ years' experience) with expert input by subject matter expert Mike Bamford
Proportion of flora/fauna identified, recorded and/or collected (based on sampling, timing and intensity)	**Minor** The survey effort was distributed effectively with each accessible tree visited.
Completion (is further work needed)	**Moderate** All of the trees marked for reassessment were able to be accessed apart from one located on private property, within a childcare centre. All private properties were inaccessible at the time of survey and data has been inferred from street views and surrounding accessible areas. Survey effort is depicted in Figure 6.
Remoteness and/or access issues	**Moderate** All private properties were inaccessible at the time of survey. Assumptions have been made about their value.
Timing, weather, season, cycle	**Nil** The survey occurred within the known active periods for all three of WA's Black Cockatoos.
Disturbances (e.g. fire, flood, accidental human intervention) which affected results of the survey	**Moderate** Fire was documented within the survey area. It was noted and included in the report results and has elicited an effect on the results presented.

3.4 Survey Effort

The results presented are taken from three survey deployments completed over three years. In addition, this report integrates previous flora, vegetation, and fauna mapping conducted during the 2023–2025 surveys. It includes both recorded and inferred data to present a coherent and updated description of the project area (see Table 1 and Figure 2). This process involved ground-truthing the inferred mapping and standardising habitat naming conventions. Survey effort was determined to be satisfactory for each scope. A breakdown of the survey effort completed for each deployment is presented in Figure 6.



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- Tracklogs (2024)
- Tracklogs (2025)
- Opportunistic Fauna Observation (2024)
- Opportunistic Fauna Observation (2025)
- Fauna Habitat Assessment Site (2023)
- Fauna Habitat Assessment Site (2024)

Survey Effort

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Figure 6.1

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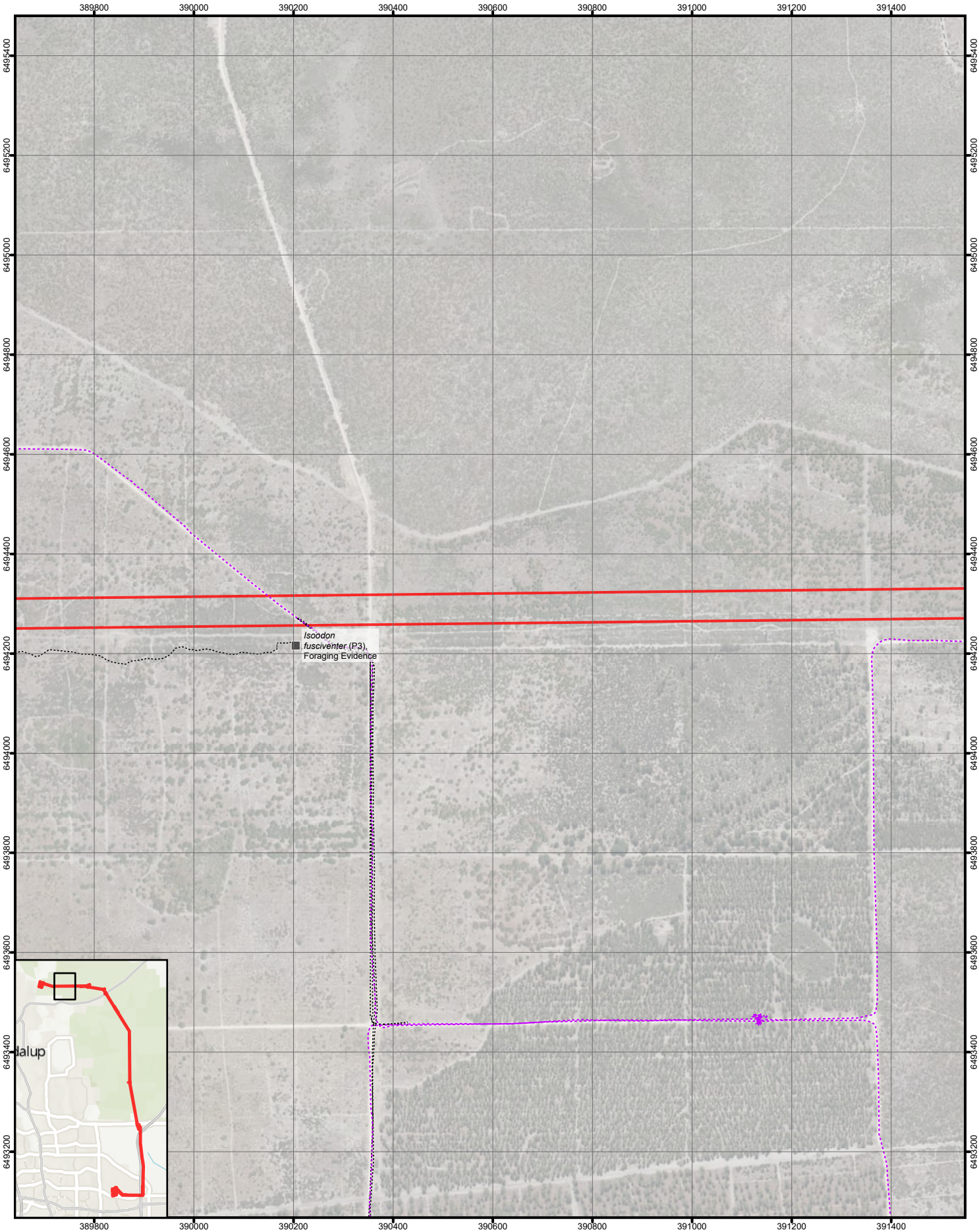

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- Tracklogs (2024)
- Tracklogs (2025)
- Opportunistic Fauna Observation (2024)

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Figure 6.2

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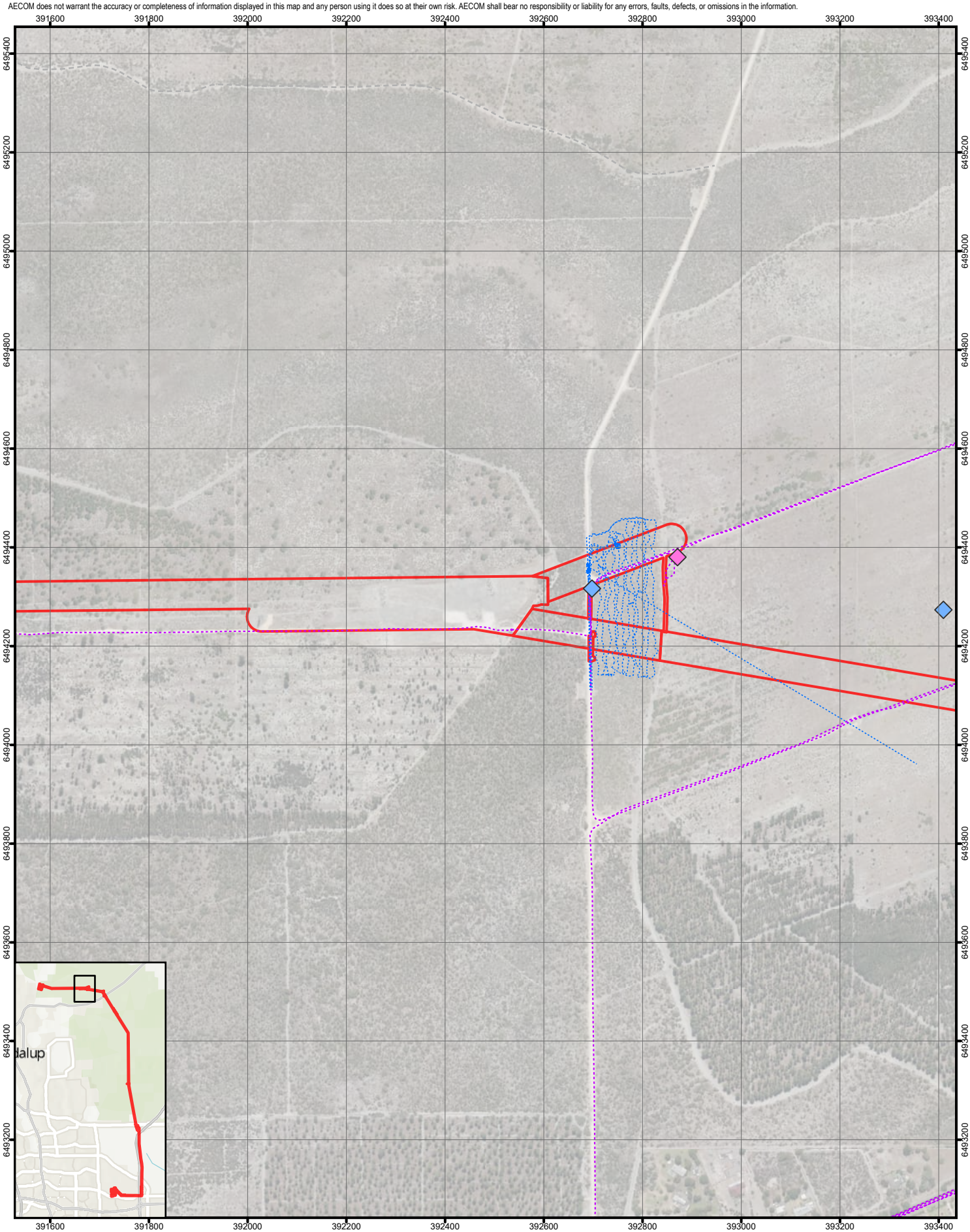

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Figure 6.3

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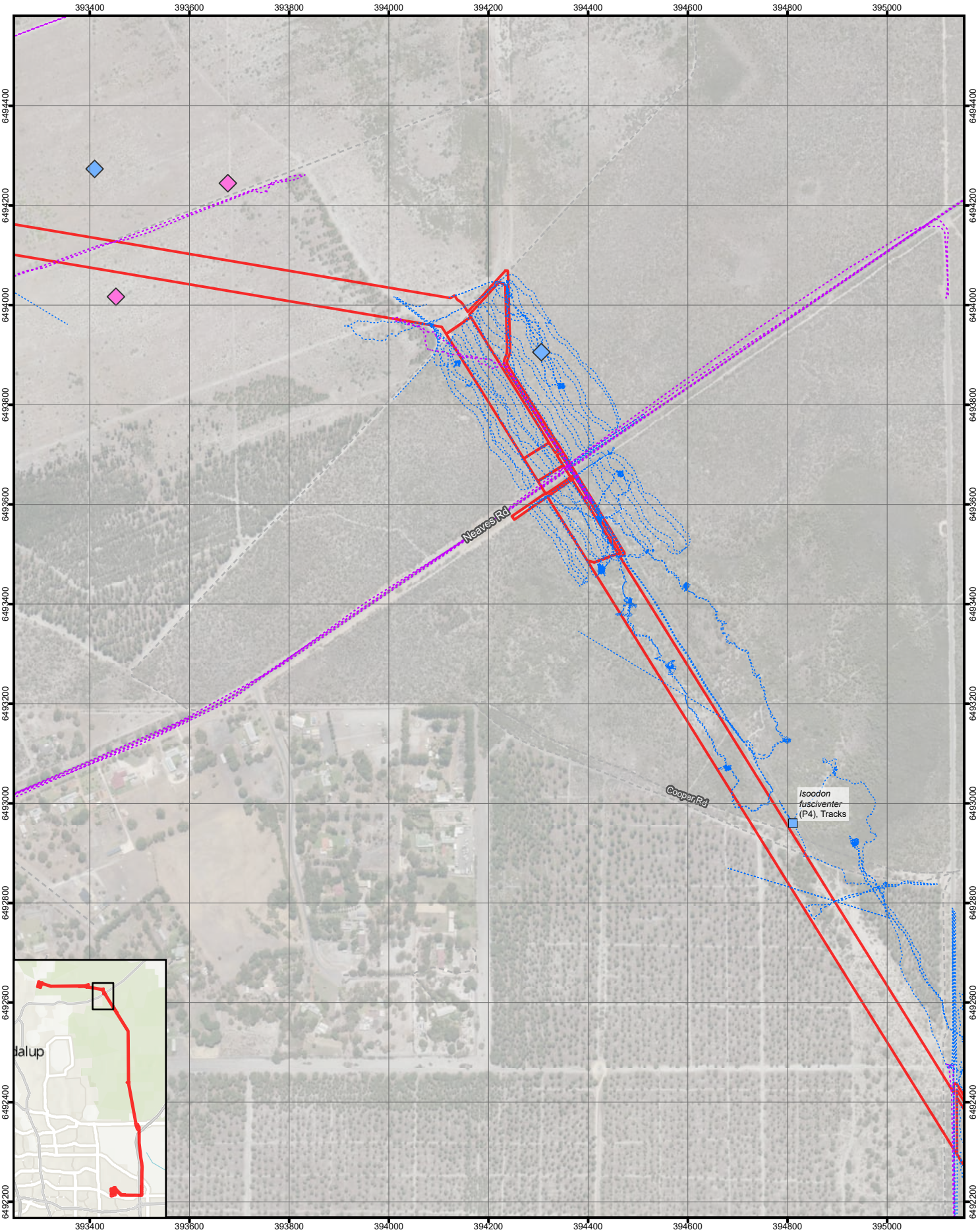

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Figure 6.4

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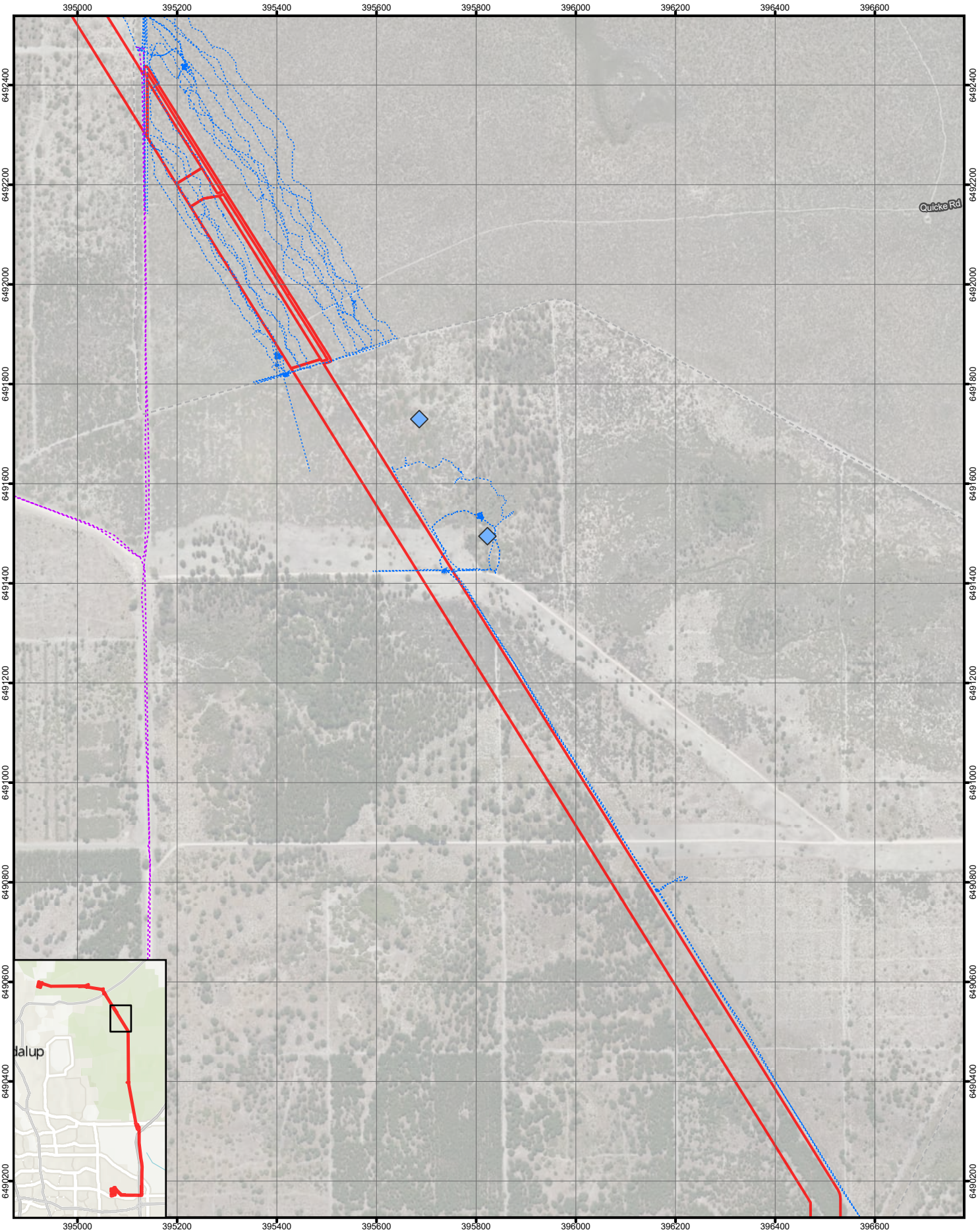

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Figure 6.5

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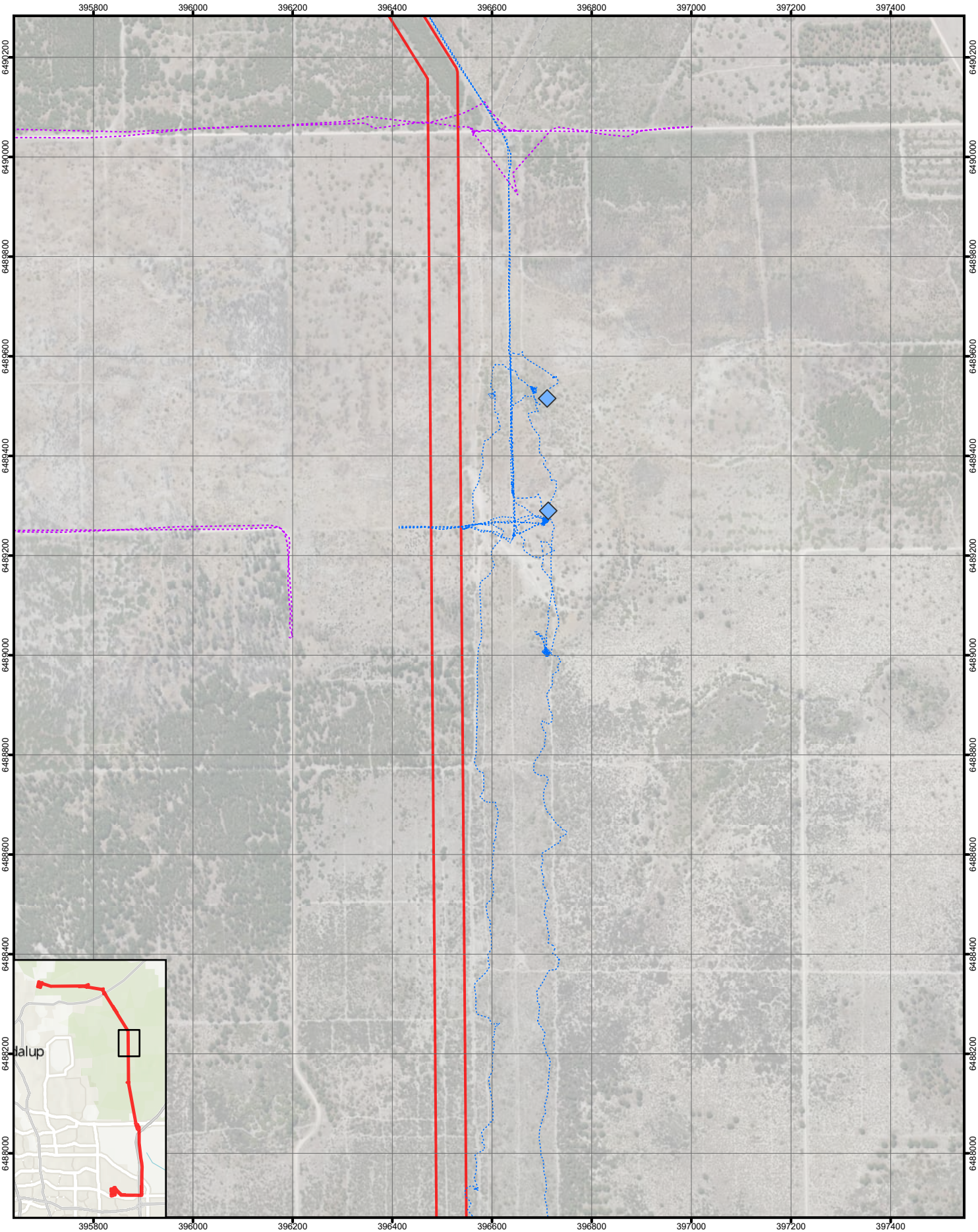

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Figure 6.6

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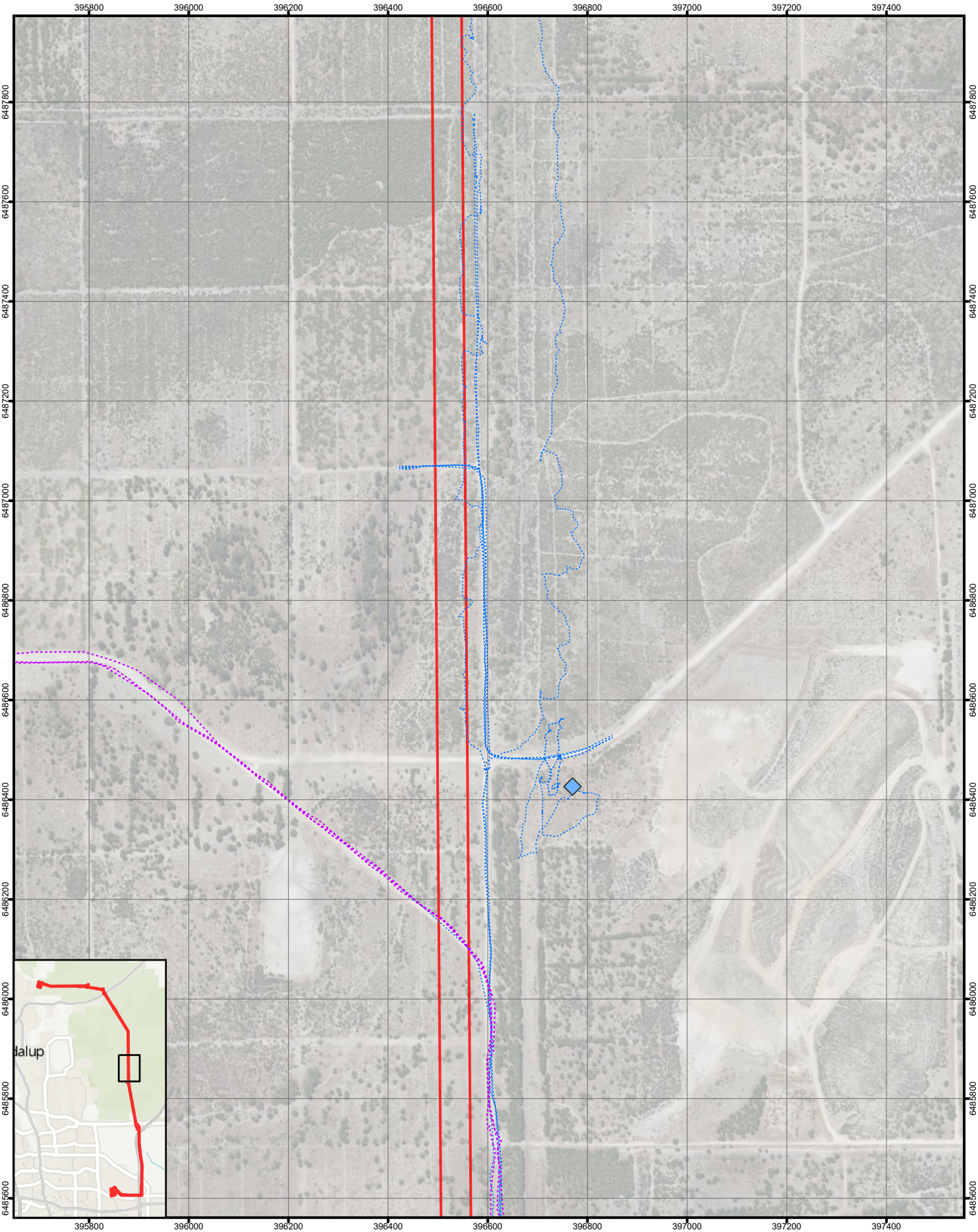

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Figure 6.7

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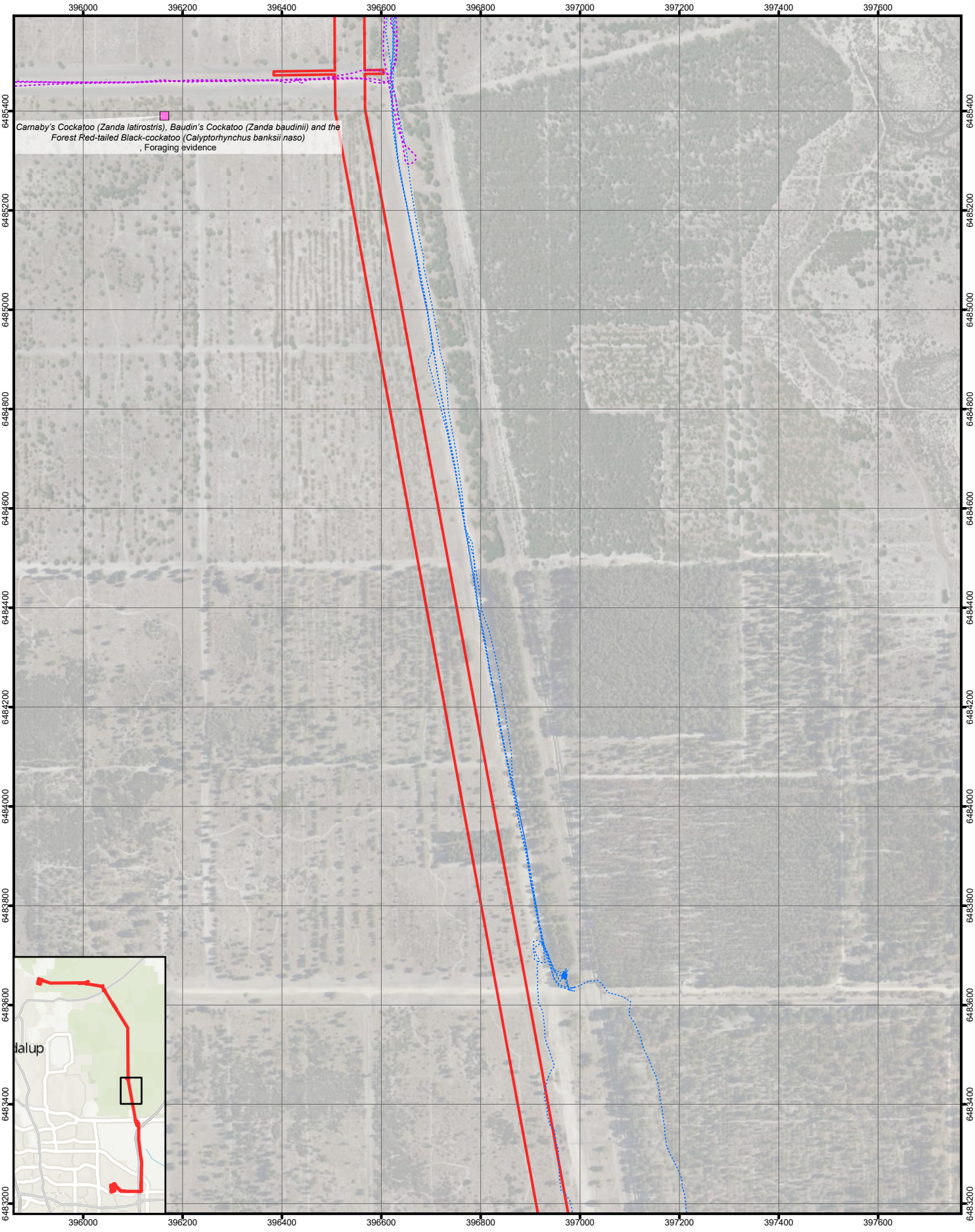

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 6.8

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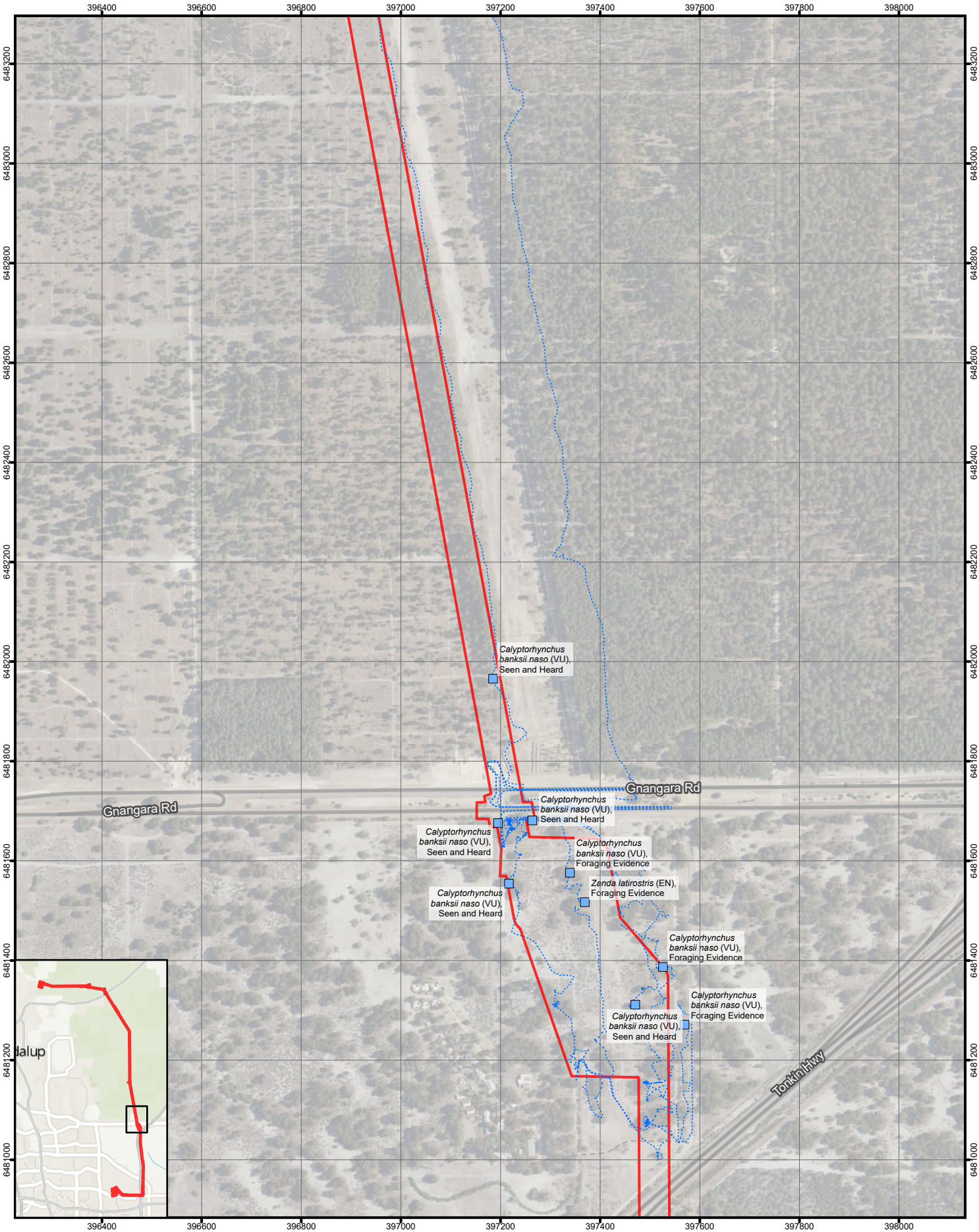

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Figure 6.9

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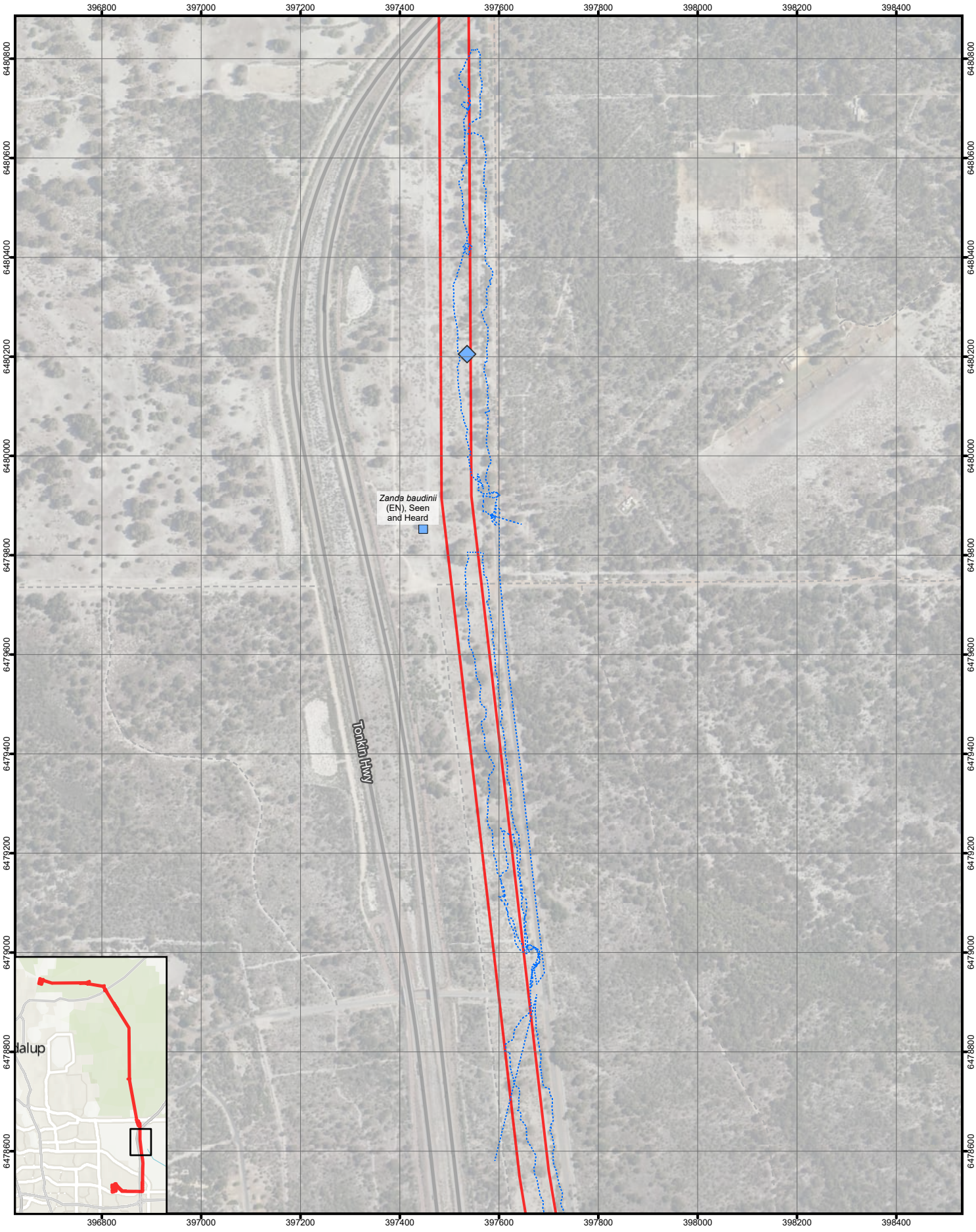

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Figure

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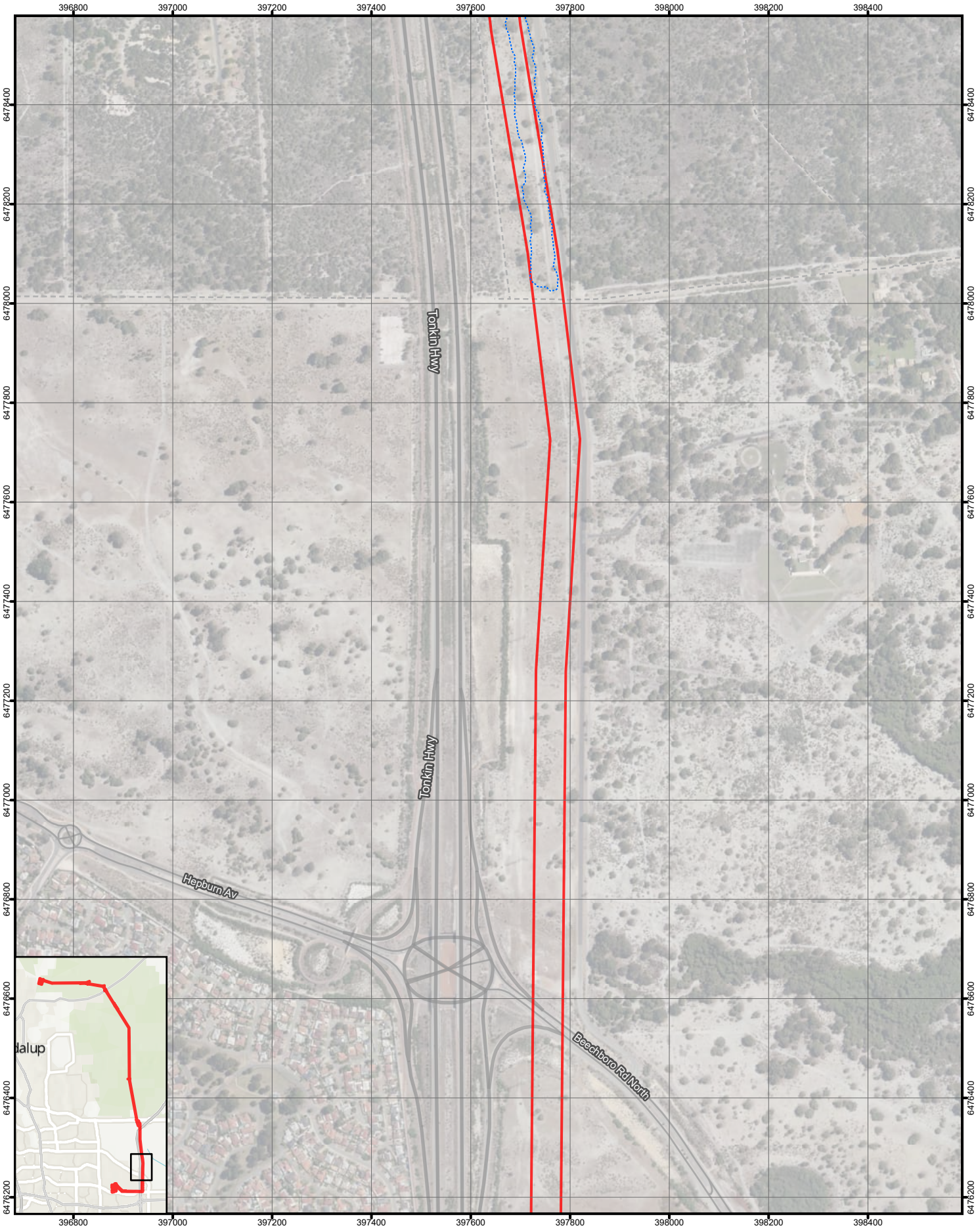

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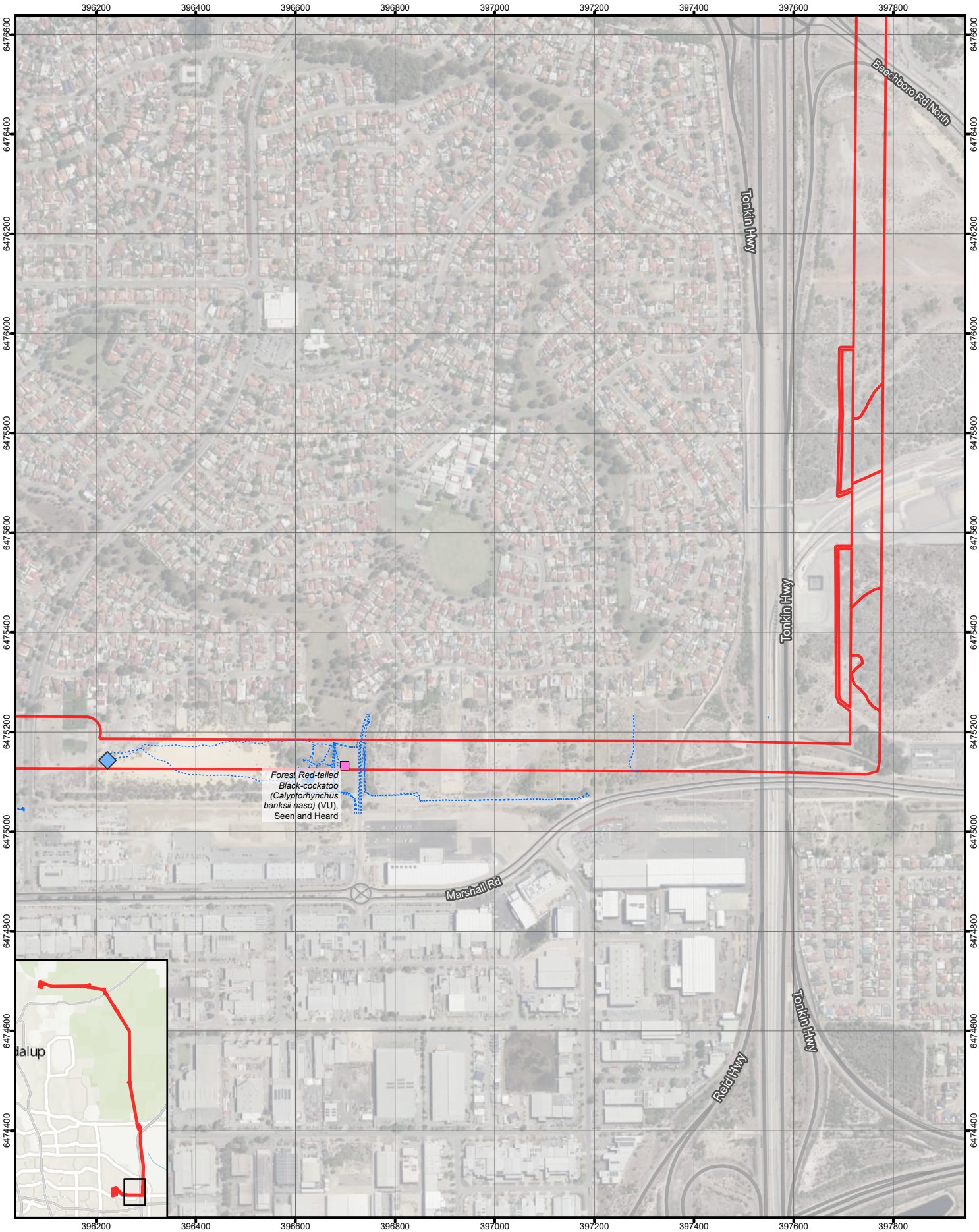

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 6.12

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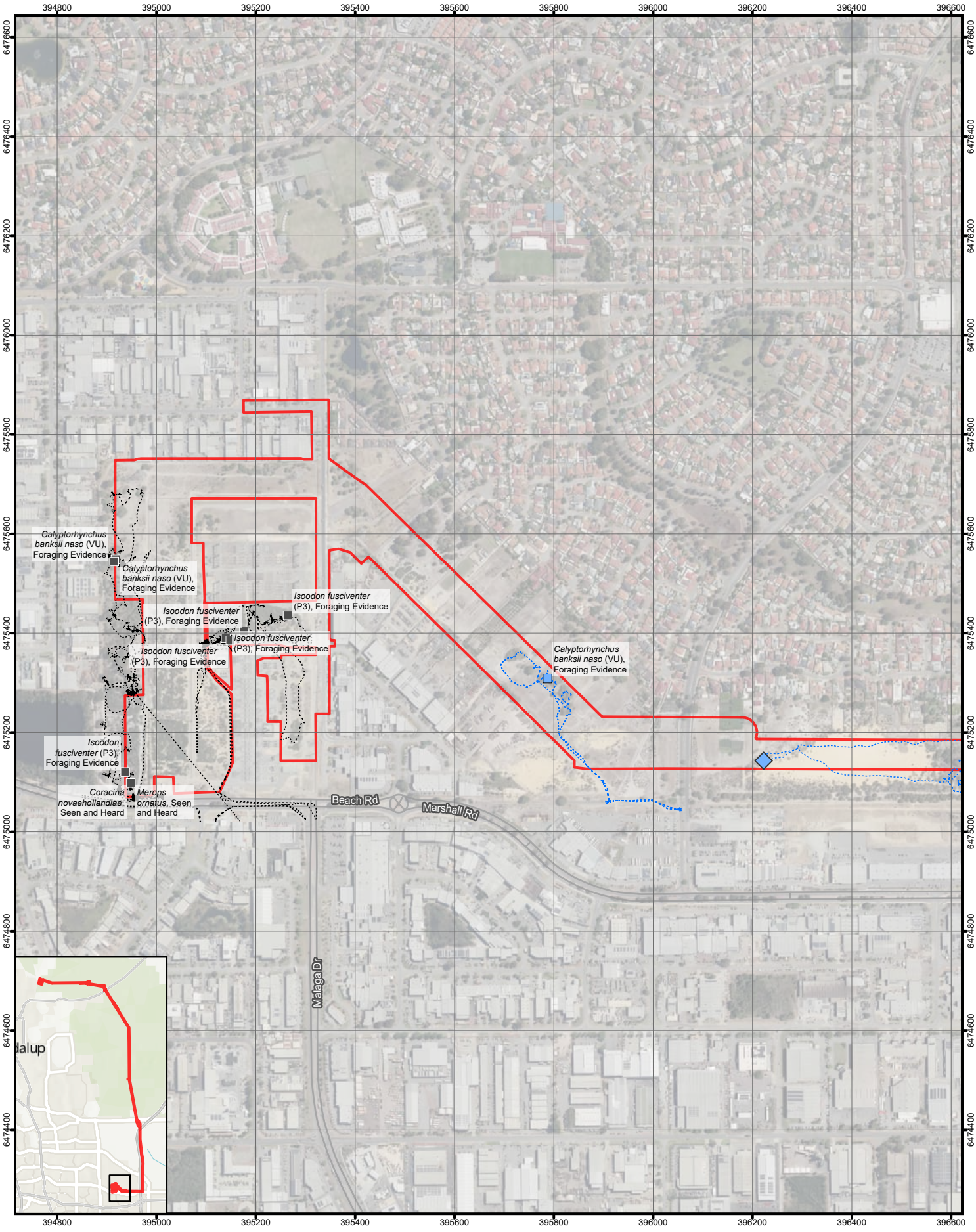

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Figure 6.13

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4.0 Results

4.1 Fauna Habitat Review

In total, ten habitats were allocated to the linear corridor, representing 535.74 ha (88.82%). Four native fauna habitats and six modified fauna habitats were recorded, including three refined habitats representing Pine Plantation. Fauna habitat is mapped in Figure 7.

Native fauna habitat represents 176.83 ha (29.32%) of the survey area and were represented by four fauna habitat types. The remaining survey area is represented by modified fauna habitat (361.31 ha, 59.90%), representing seven fauna habitat types, and cleared areas (67.46 ha, 11.18%). Pine Plantation is mapped for 167.38 ha, (27.75%). The modified habitat is described as mixed native introduced vegetation, urbanised land, plantations, clearing, tracks and infrastructure.

Black Cockatoo habitats are described in Table 6, including habitat suitability for conservation significant fauna species.

Table 6 Black Cockatoo Habitat Descriptions

Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	Carnaby's Cockatoo *Zanda latirostris*	Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	
Native Fauna Habitats					
Banksia Woodlands Dense *Banksia* sp. woodlands with mixed understorey with Jarrah and Marri scattered overstorey. Moderate understorey density including *Xanthorrhoea preissii*. Containing species including *Gastrolobium* spp., *Leschenaultia* sp. and *Lomandra hermaphrodita.* Leaf litter and debris	71.48 ha (11.85%)	Suitable core breeding, foraging and roosting habitat	Suitable core breeding, foraging and roosting habitat	Suitable core breeding, foraging and roosting habitat	

Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	Carnaby's Cockatoo *Zanda latirostris*	Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	
Eucalyptus Woodlands Marri (*Corymbia calophylla*), Costal Blackbutt (*Eucalyptus todtiana*) and Jarrah (*Eucalyptus marginata*) dominate low open woodland with mixed understorey. Leaf litter and debris common.	70.90 ha (11.75%)	Suitable core breeding, foraging and roosting habitat	Suitable core breeding, foraging and roosting habitat	Suitable core breeding, foraging and roosting habitat	
Wetlands Mixed ephemeral Paperbark (*Melaleuca preissiana)* wetlands, with *Kunzea micrantha* dominated shrub and mixed heath patches. Thick vegetation, Thick ground covering. Moist sandy soils.	32.05 ha (5.31%)	Unsuitable breeding, foraging and roosting habitat	Unsuitable breeding, foraging and roosting habitat	Unsuitable breeding, foraging and roosting habitat	

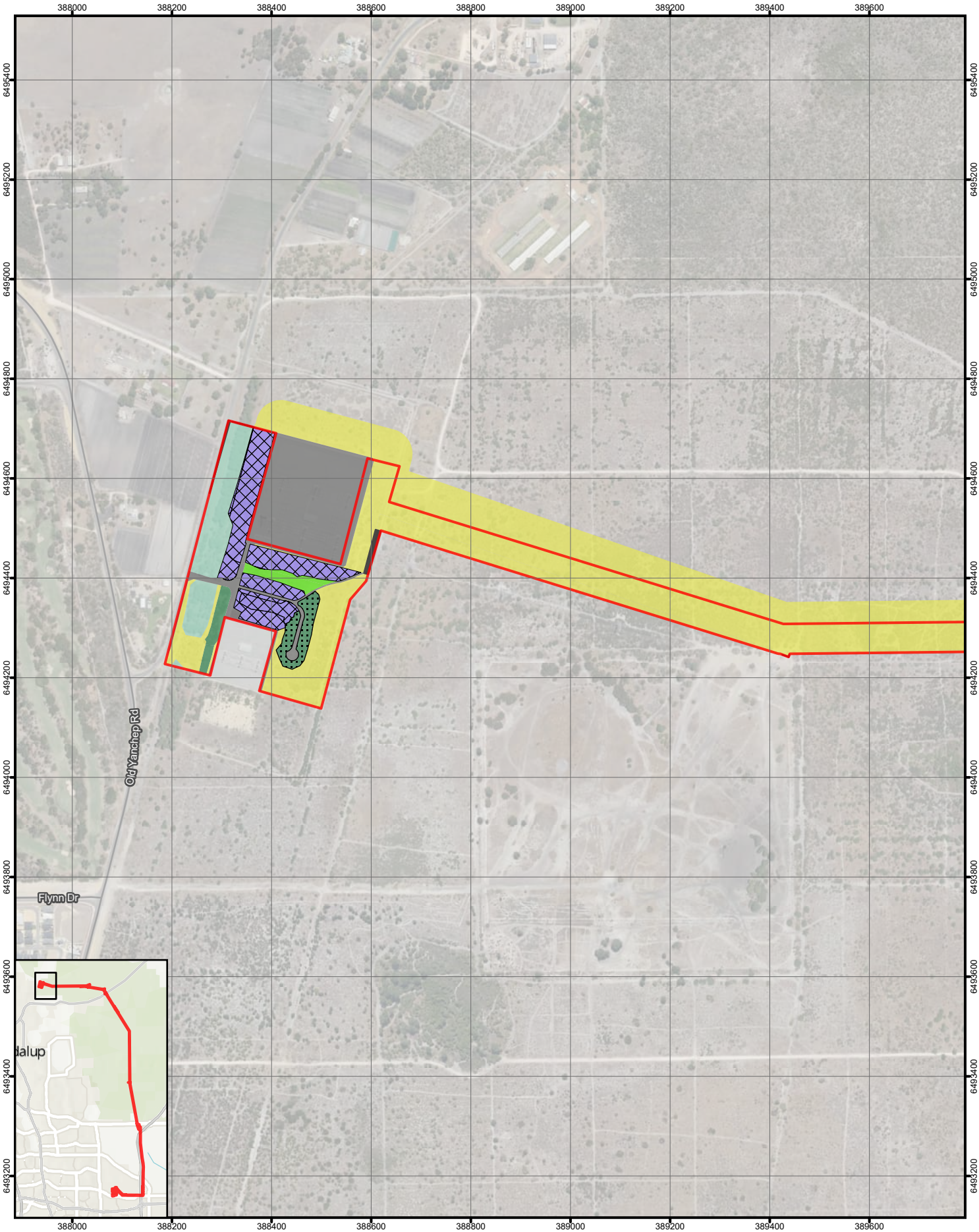
Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	**Carnaby's Cockatoo *Zanda latirostris***	**Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso***	
Mixed Shrubland Grasstree (*Xanthorrhoea preissii)* dominated shrublands, with mixed native understorey. Grasstrees have full skirts, and the soil present is sandy. Signs of native diggings were common. Infrequent Paperbark (*Melaleuca preissiana*) and other native trees.	12.40 ha (0.40%)	Unsuitable breeding, foraging and roosting habitat	Unsuitable breeding, foraging and roosting habitat	Unsuitable breeding, foraging and roosting habitat	

Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	Carnaby's Cockatoo *Zanda latirostris*	Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	
Modified Fauna Habitat					
Juvenile Plantations Pine (*Pinus pinaster)* plantation estimated to be less than 10 years old or recently cleared land containing minimal to no native species. Consistent fine leaf litter. No understorey present and frequent logs common. Trees are comparatively short, with a simple branch structure. Branches are bushier, letting less light through and obscuring branches. Fruit and seed can be produced in smaller quantities. Insect activity is limited.	68.52 ha (11.36%)	Unsuitable breeding, foraging and roosting habitat	Potential suitable supplementary primary exotic foraging habitat. Unsuitable breeding and roosting habitat	Unsuitable breeding, foraging and roosting habitat	
Mature Plantations Pine (*Pinus pinaster)* plantation that is estimated to be over 10 years old. Consistent fine leaf litter with little to no bare ground. No understorey present and frequent logs common. Trees are thickly stocked and are able to produce large amounts of seed and fruit, with well established branches and canopies. Insect activity is likely high. Sandy ground is compact. Gravel moderately common.	50.83 ha (8.43%)	Suitable roosting habitat. Unsuitable breeding and foraging habitat	Suitable roosting habitat and exotic primary foraging habitat. Unsuitable breeding habitat	Suitable roosting habitat. Unsuitable breeding and foraging habitat	

Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	**Carnaby's Cockatoo *Zanda latirostris***	**Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso***	
Burnt Plantations Pine (*Pinus pinaster)* plantation that is estimated to be over 10 years old and recently burnt. Minimal leaf litter. No understorey present and frequent logs common. Trees are burnt, resulting in minimal to no canopy cover. Trees are severely limited in their fruiting and seeding ability. Some trees may recover or avoided the fire resulting in a patchy mosaic of cover in the future. Insect activity is likely absent.	48.03 ha (7.96%)	Potential suitable roosting habitat. Unsuitable breeding and foraging and roosting habitat.	Potential suitable supplementary roosting habitat and exotic primary exotic foraging habitat. Unsuitable breeding and roosting habitat.	Potential suitable roosting habitat. Unsuitable breeding, and foraging and roosting habitat.	

Habitat Type	Area	Habitat Suitability			Photo
		Baudin's Cockatoo *Zanda baudinii*	**Carnaby's Cockatoo *Zanda latirostris***	**Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso***	
Adenanthos/Plantation Isolated pine (*Pinus pinaster*) regrowth over Woollybush (*Adenanthos cygnorum* var. *cygnorum),* scattered Grasstree (*Xanthorrhoea preissii)* and *Macrozamia fraseri.* Proximately Woollybush, with minimal leaf litter and scattered native shrub on white/light sandy soil. Ground cover includes mostly weeds and grasses. Logs and leaf litter largely absent. Scattered individuals of *Xanthorrhoea preissii* would provide minimal foraging value for *Zanda.* sp.	164.18 ha (27.22%)	Unsuitable breeding, foraging and roosting habitat	Suitable scattered supplementary primary exotic foraging habitat. Unsuitable breeding and roosting habitat	Unsuitable breeding, foraging and roosting habitat	
Trees over Cleared Scattered native species including *Eucalyptus, Banksia, Acacia, Xanthorrhoea* and *Hypocalymma* species over cleared land. Sandy soils, with minimal leaf litter and logs. Ground cover includes paddock weeds and grasses.	6.19 ha (1.03%)	Suitable scattered breeding, foraging and roosting habitat	Suitable scattered breeding, foraging and roosting habitat	Suitable scattered breeding, foraging and roosting habitat	N/A

Habitat Type		Area	Habitat Suitability			Photo
			Baudin's Cockatoo *Zanda baudinii*	Carnaby's Cockatoo *Zanda latirostris*	Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	
Urban/Residential Mixed urban/residential land, containing both scattered native and introduced vegetation, including garden species and weeds. Includes some tall mature trees. *This habitat type was inaccessible during the 2025 surveys and therefore the black cockatoo value is inferred*.	21.16 ha (3.51%)	Includes some tall mature trees that may be suitable for black cockatoo foraging, and/or roosting. Is likely to represent marginal or transient habitat only, not core habitat.				
Cleared areas represents (67.46 ha or 11.18%)						



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- EgGlCe
- Planted
- PpAcCe
- Trees
- Cleared
- Un-Surveyed
- TEC Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the SCP
- WA PEC, EPBC TEC Banksia Woodlands of the SCP

Vegetation

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Figure 7.1

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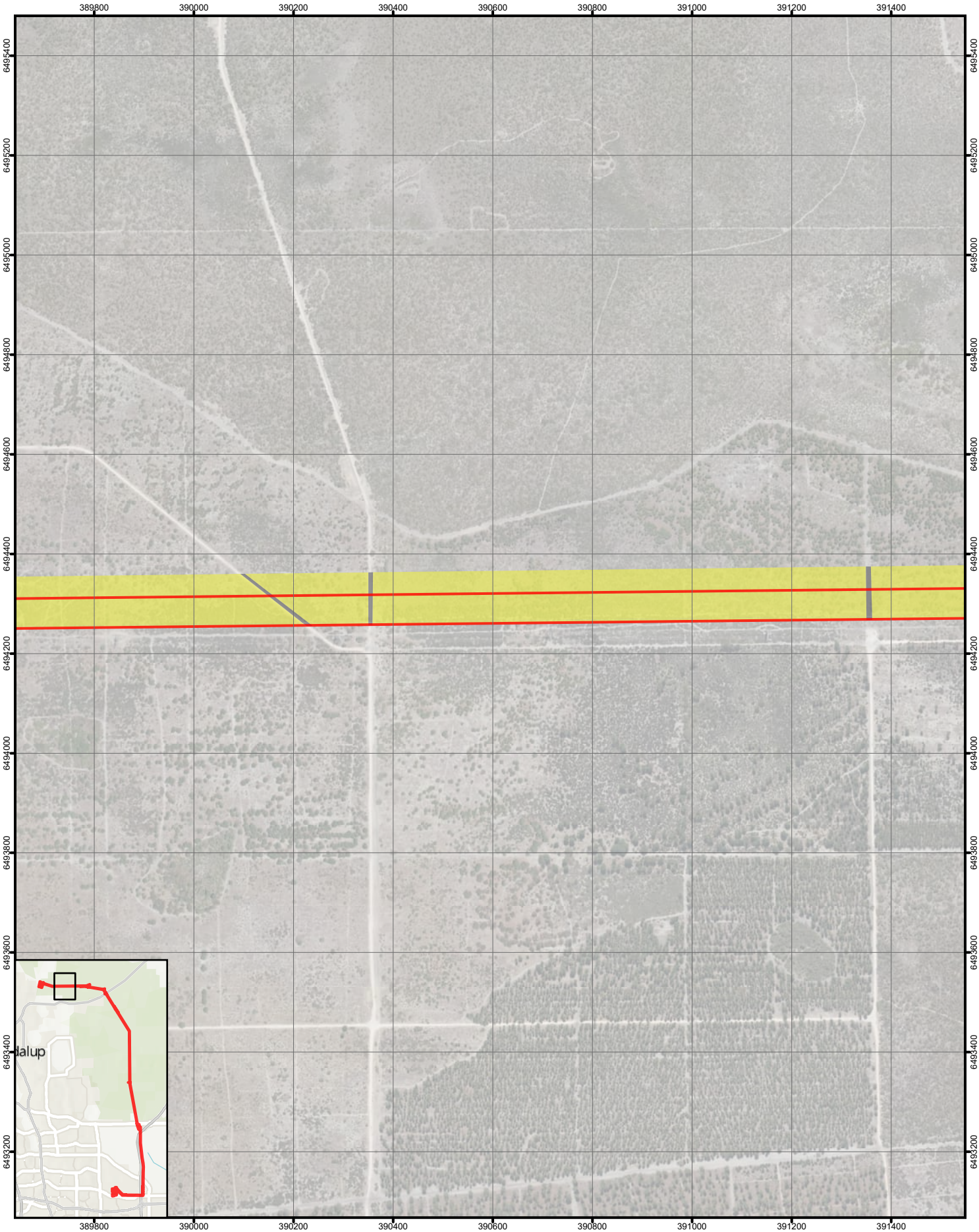

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Vegetation

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Figure 7.2

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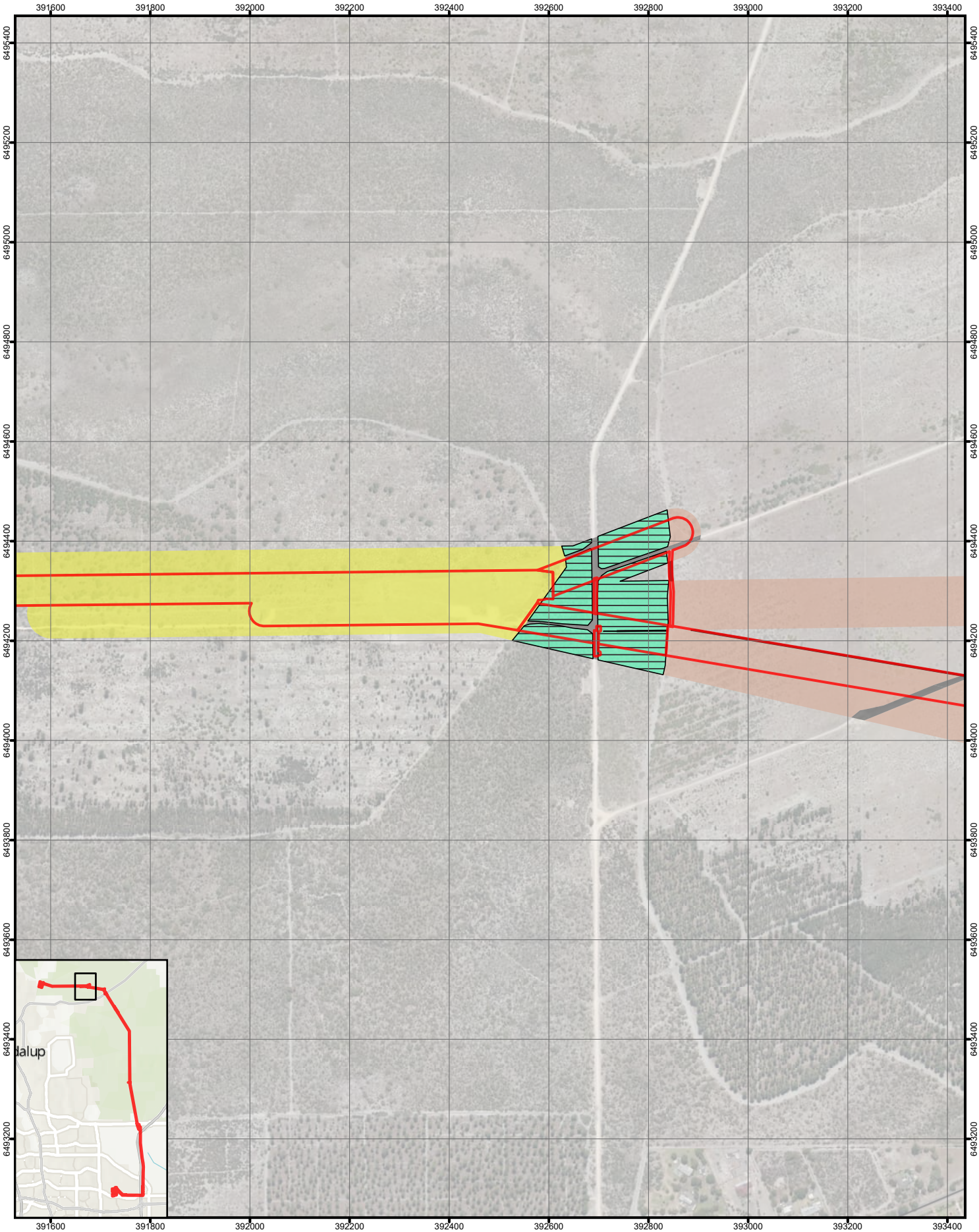

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Development Envelope

Vegetation Community

EtHsLb

Plantation

PpAcCe

Cleared

Un-Surveyed

TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP; PEC SCP *Banksia attenuata-Banksia menziesii* woodlands (floristic community type 23b)

Vegetation

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WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.3

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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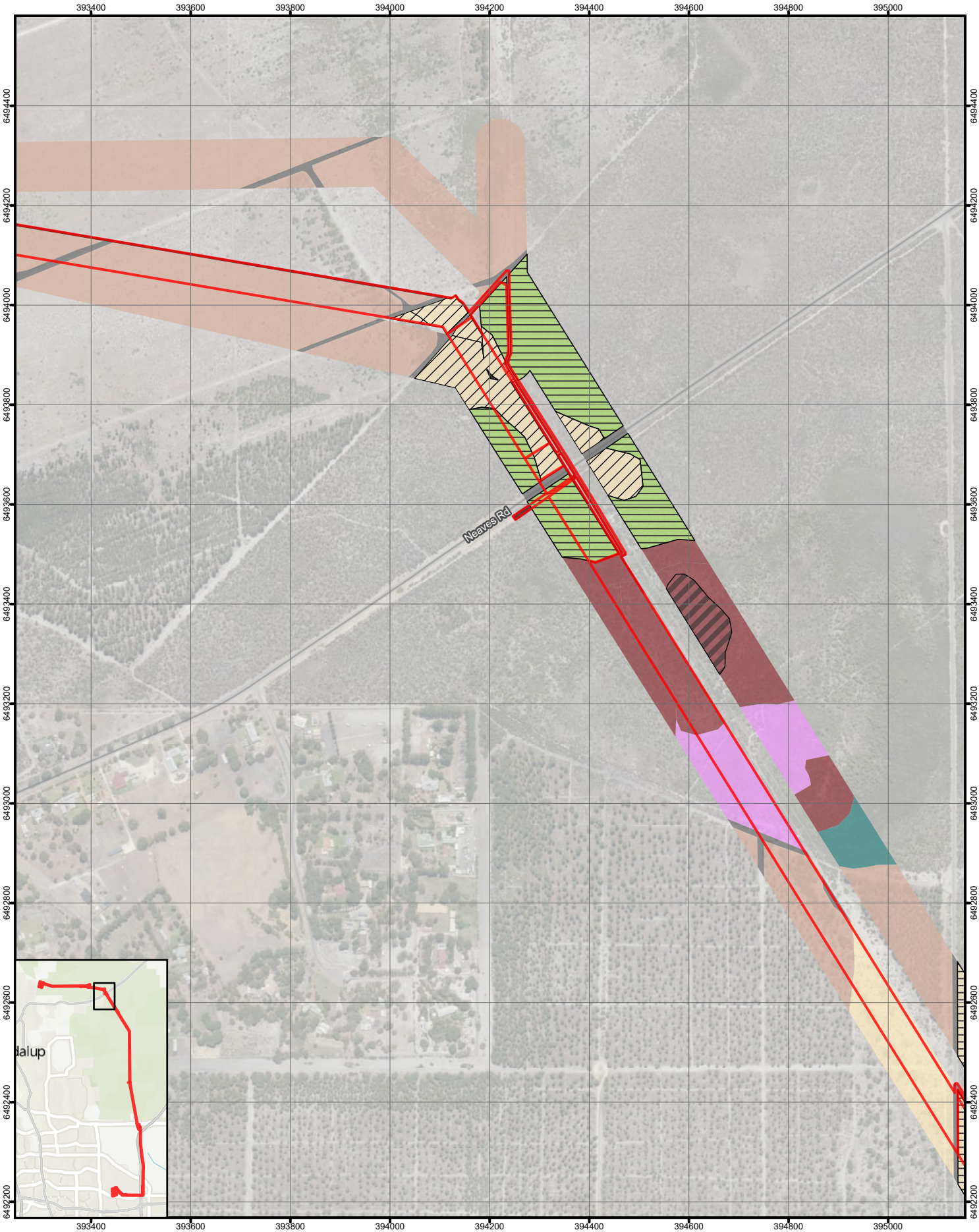

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LEGEND

- Development Envelope

Vegetation Community

- BaBeAn
- BaXpPo
- KmHg
- MpHaDb
- MpKgDs
- Plantation
- Cleared
- Un-Surveyed
- PEC Low lying *Banksia attenuata* woodlands or shrublands (floristic community type 21c)
- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP; PEC Low lying *Banksia attenuata* woodlands or shrublands (floristic community type 21c)
- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP; PEC SCP *Banksia attenuata-Banksia menziesii* woodlands (floristic community type 23b)

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.4

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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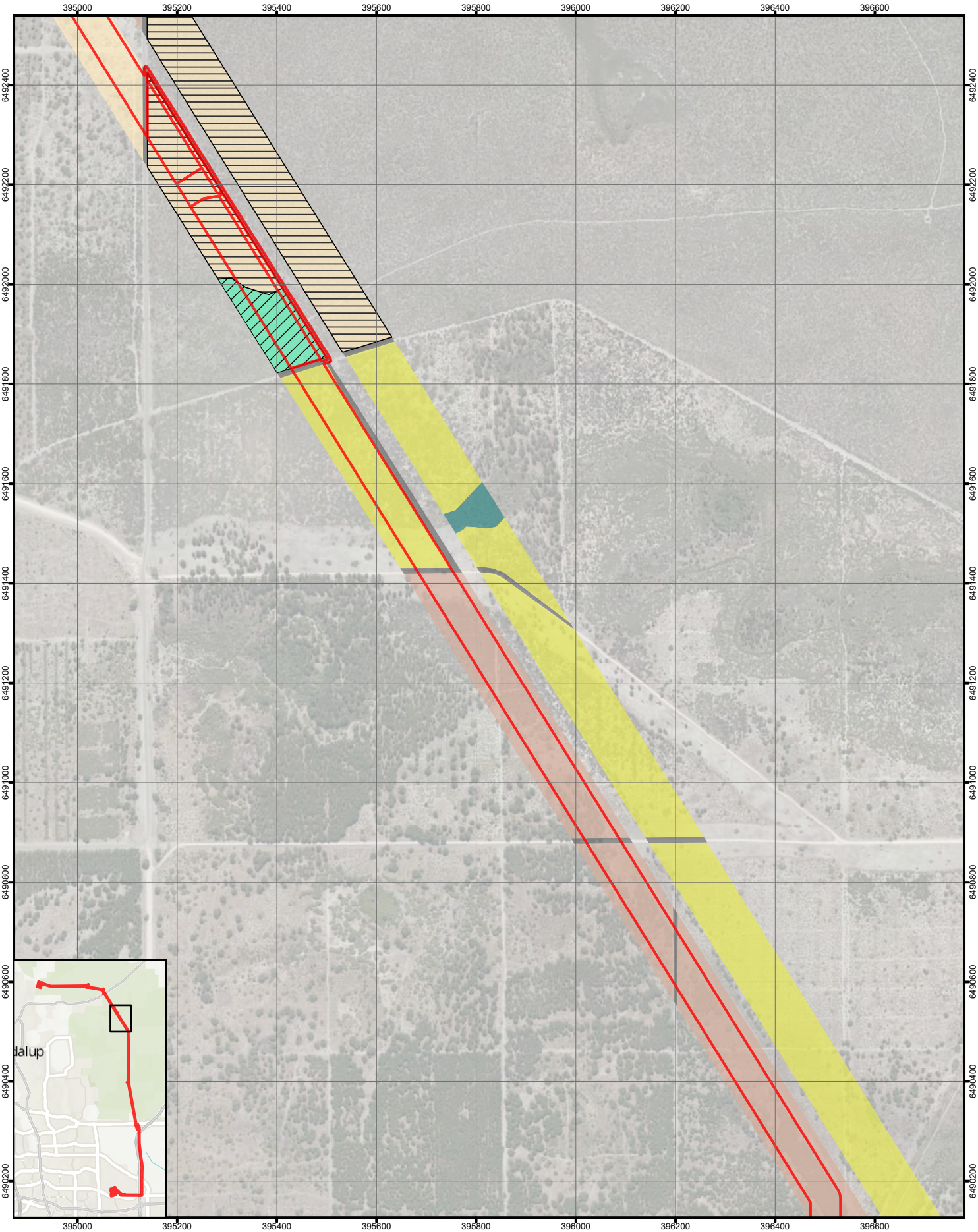

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LEGEND

- Development Envelope

Vegetation Community

- BaXpPo
- EtHsLb
- MpKgDs
- Plantation
- PpAcCe
- Cleared
- Un-Surveyed

- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP; PEC Low lying *Banksia attenuata* woodlands or shrublands (floristic community type 21c)
- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP; PEC SCP *Banksia attenuata-Banksia menziesii* woodlands (floristic community type 23b)

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.5

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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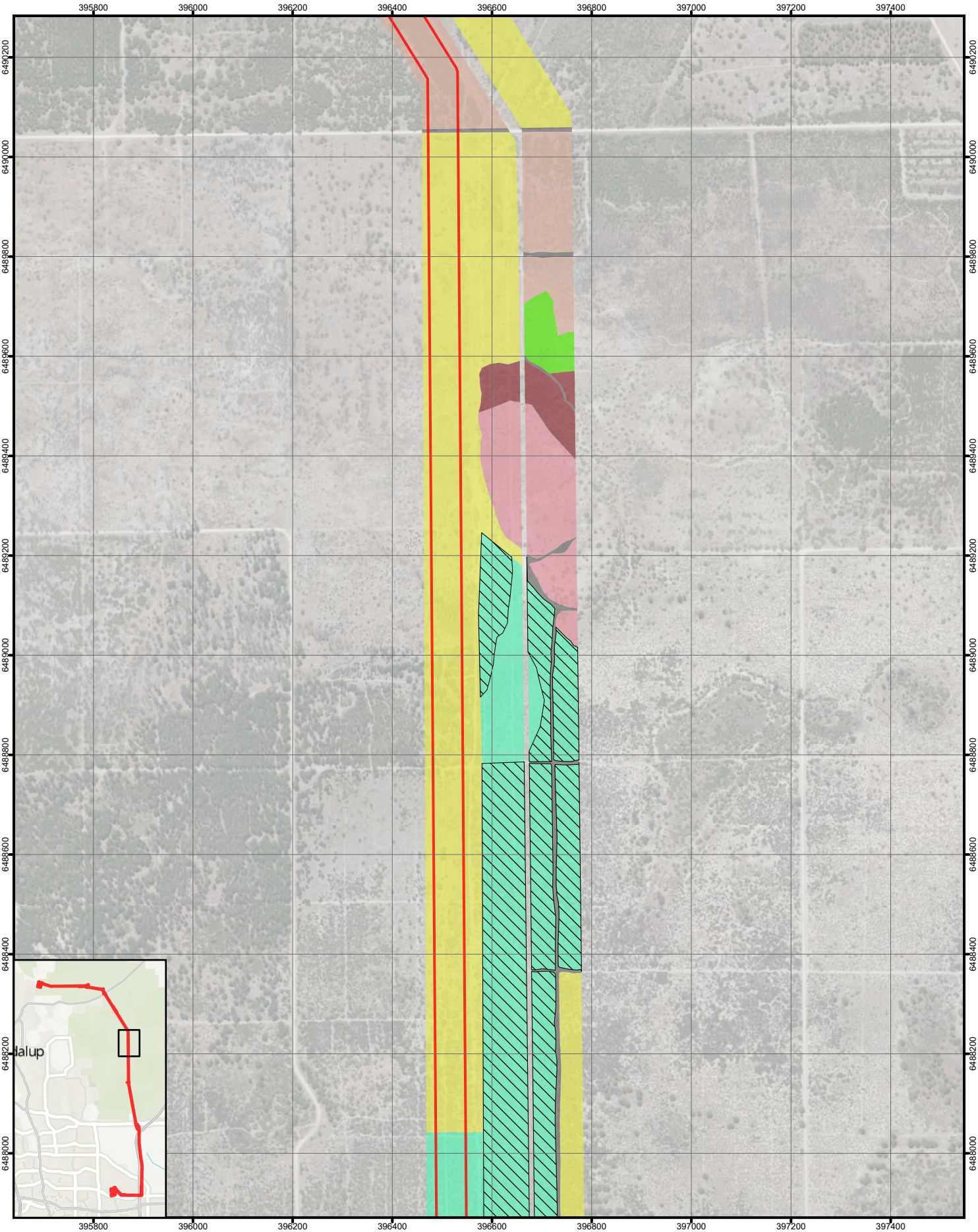

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LEGEND

- Development Envelope

Vegetation Community

- EtHsLb
- MlCa
- MpHaDb
- Plantation
- PpAcCe
- Trees
- Cleared
- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.6

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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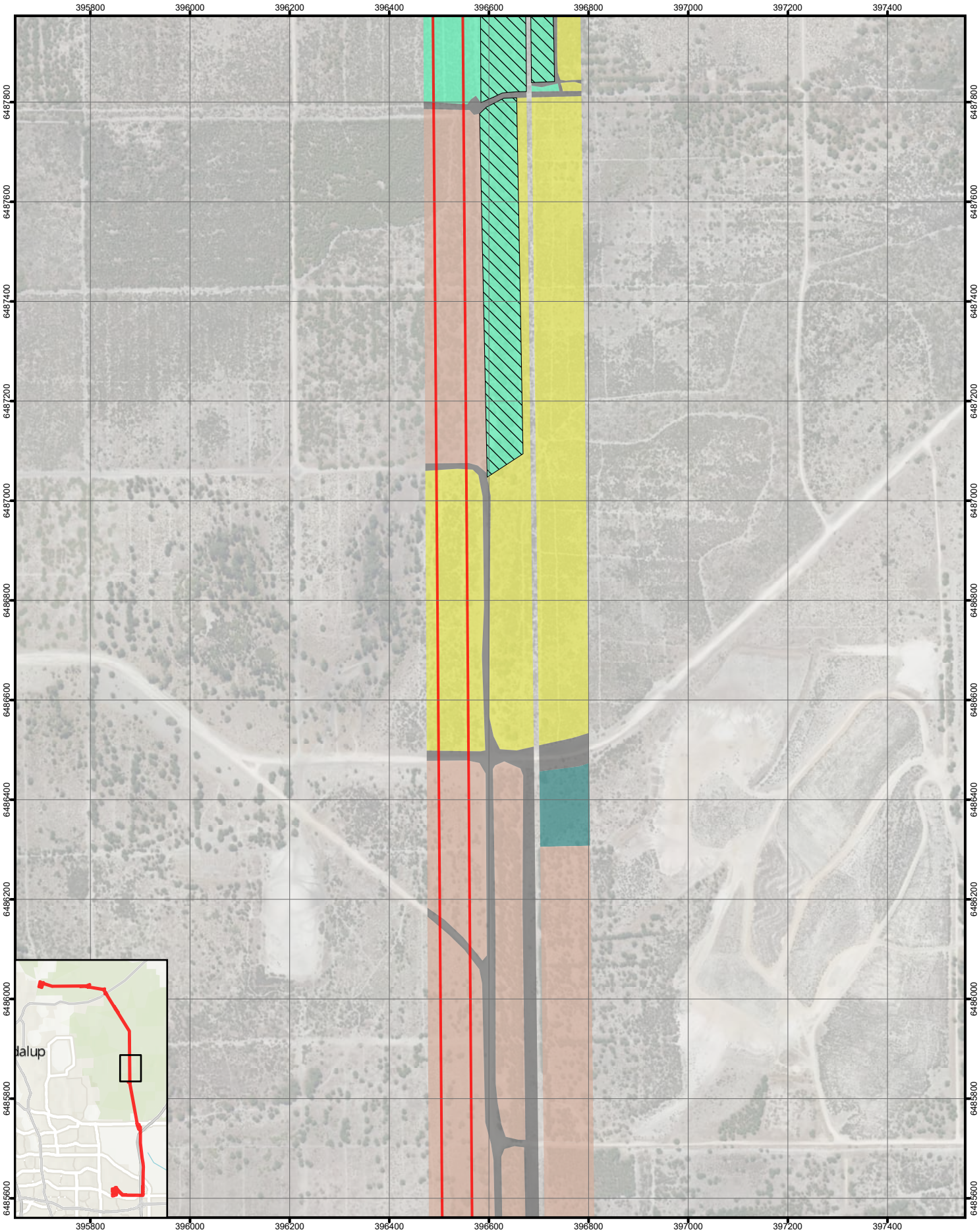

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LEGEND

- Development Envelope

Vegetation Community

- EtHsLb
- MpKgDs
- Plantation
- PpAcCe
- Cleared
- TEC Banksia Woodlands of the SCP; PEC Banksia Dominated Woodlands of the SCP

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.7

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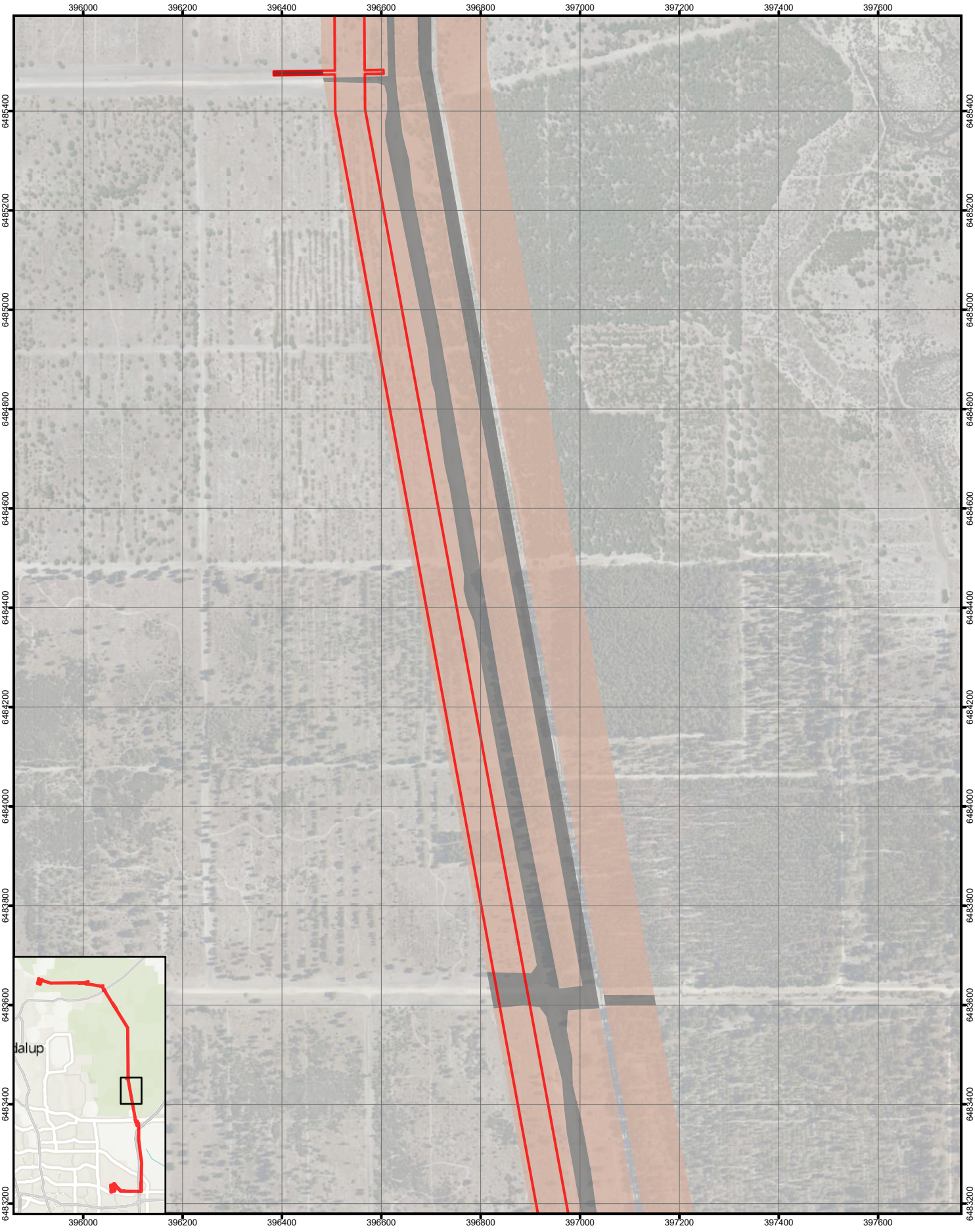

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- Development Envelope

Vegetation Community

- Plantation
- Cleared
- Un-Surveyed

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.8

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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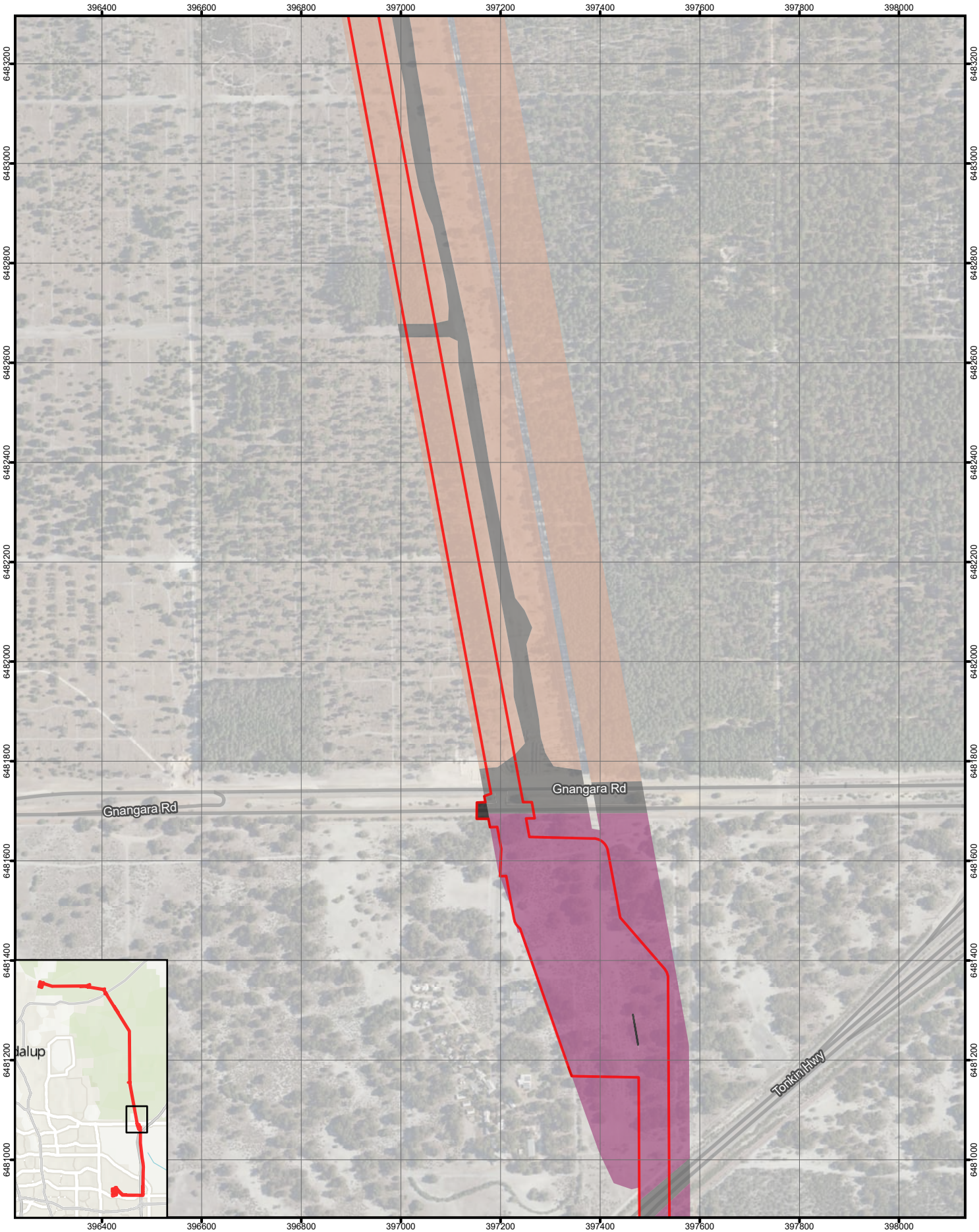

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LEGEND

- Development Envelope

Vegetation Community

- CcXpHg
- Plantation
- Cleared
- Un-Surveyed

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.9

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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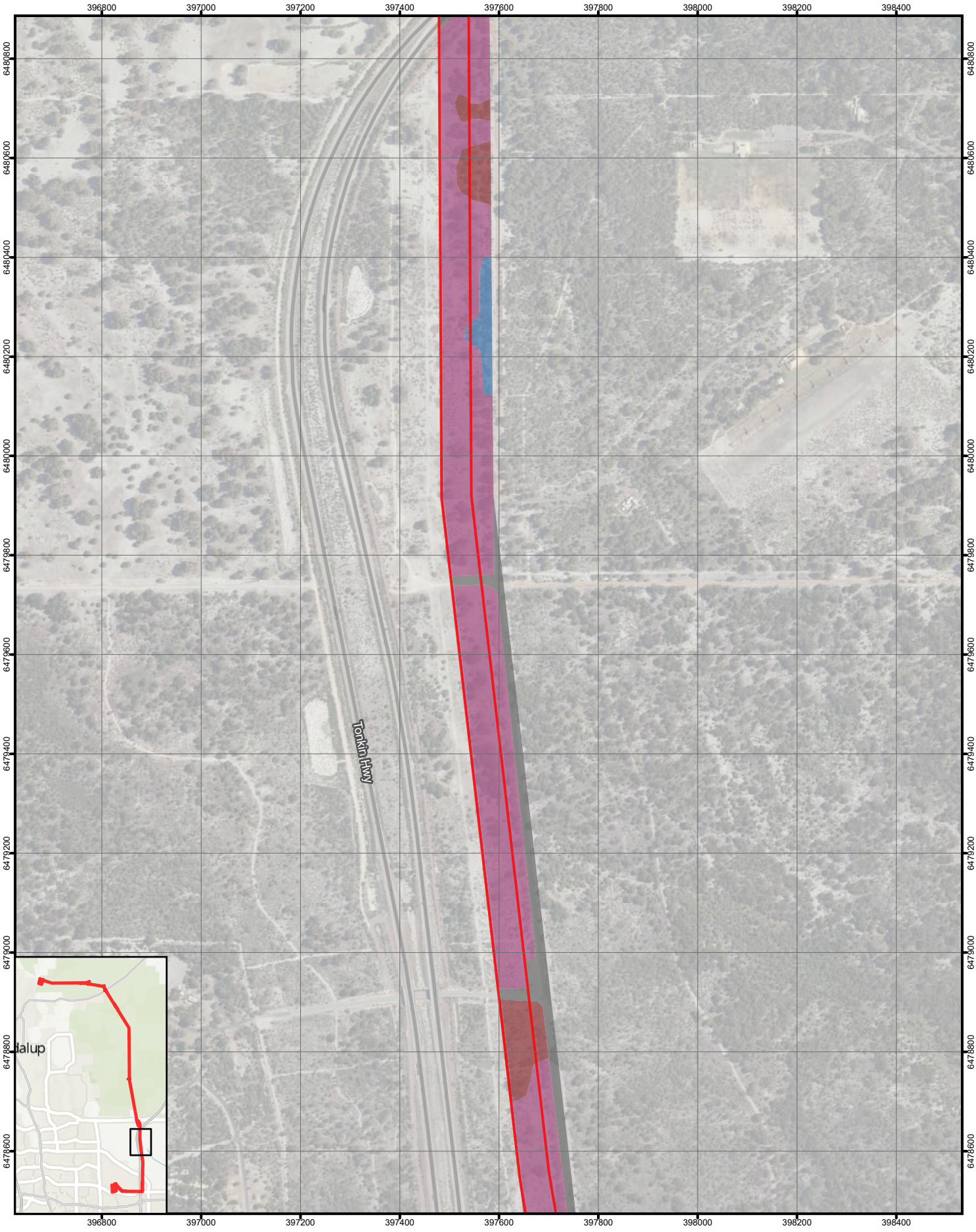

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LEGEND

- Development Envelope

Vegetation Community

- CcXpHg
- EmHhMp
- MpHaDb
- Cleared

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.10

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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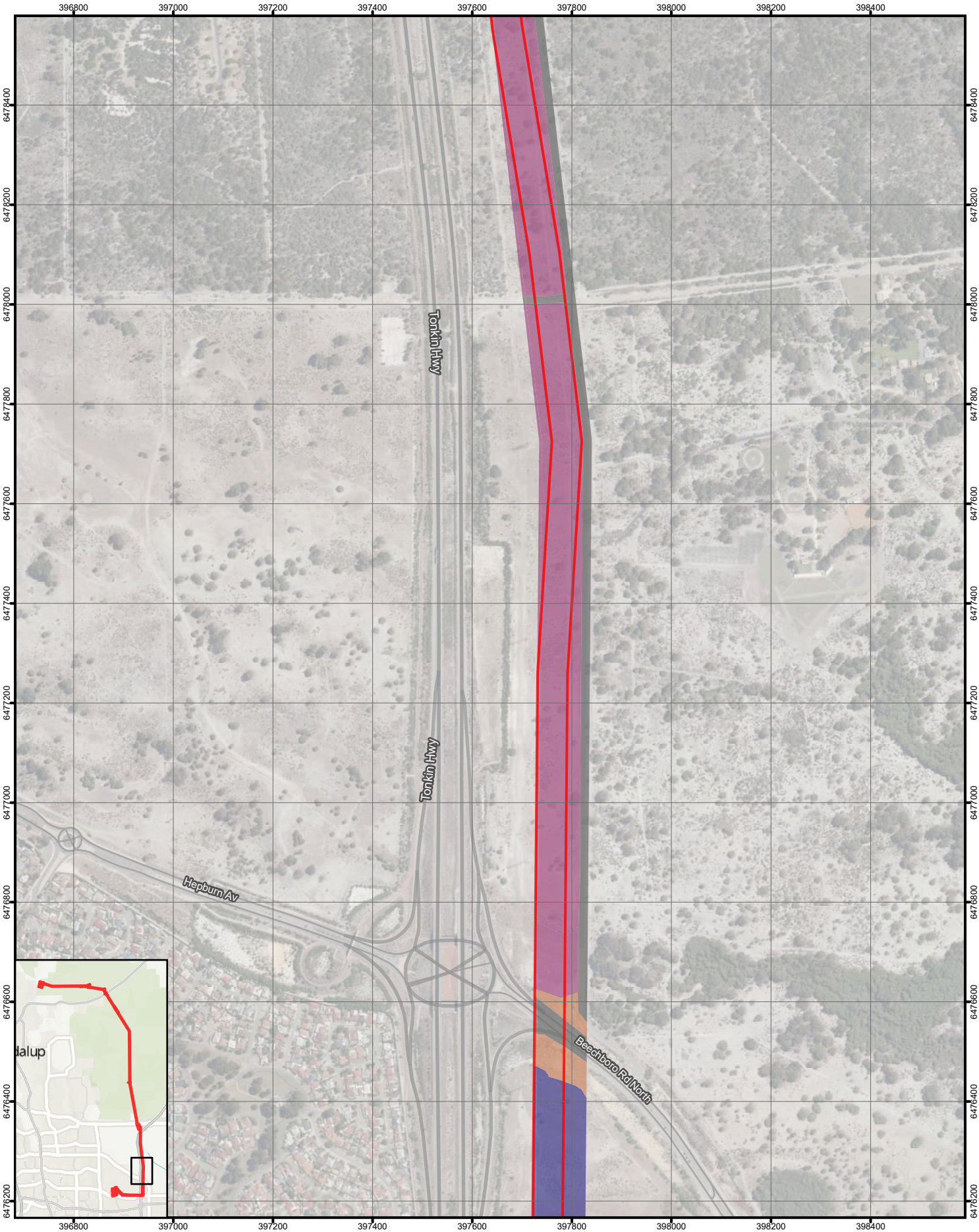

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LEGEND

- Development Envelope

Vegetation Community

- CcXpHg
- MpXpCe
- Paddock
- Cleared

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.11

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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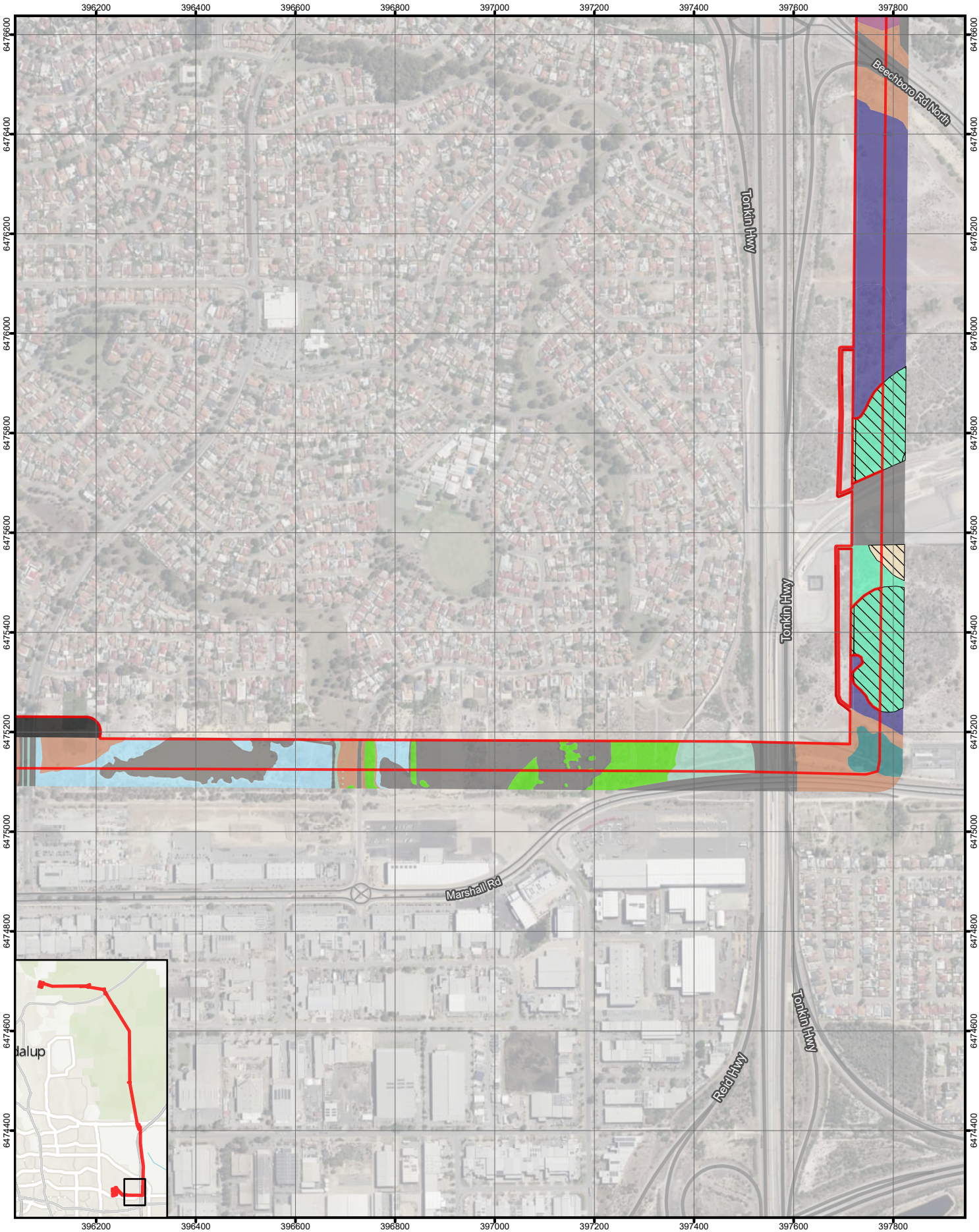

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope

Vegetation Community

- BaXpPo
- CcSxDf
- CcXpHg
- EtHsLb
- MpKgDs
- MpXpCe
- Paddock
- Planted
- Trees
- Cleared
- Un-Surveyed
- TEC Banksia Woodlands of the SCP;
- PEC Banksia Dominated Woodlands of the SCP

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.12

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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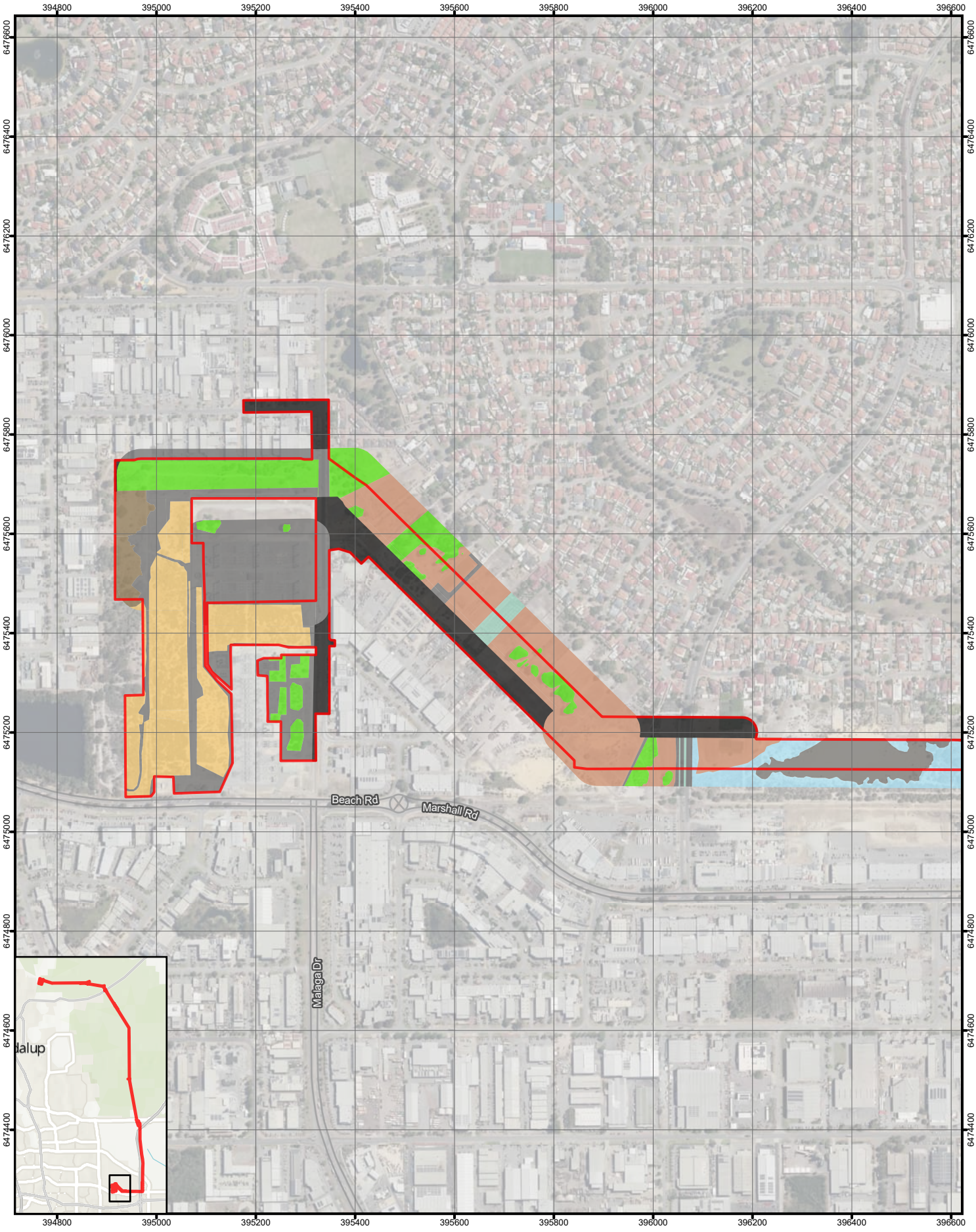

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope

Vegetation Community

- CcSxDf
- CcXpEc
- ErAcCc
- Paddock
- Planted
- Trees
- Cleared
- Un-Surveyed

Vegetation

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 7.13

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4.2 Black Cockatoo Assessment

4.2.1 Breeding Habitat

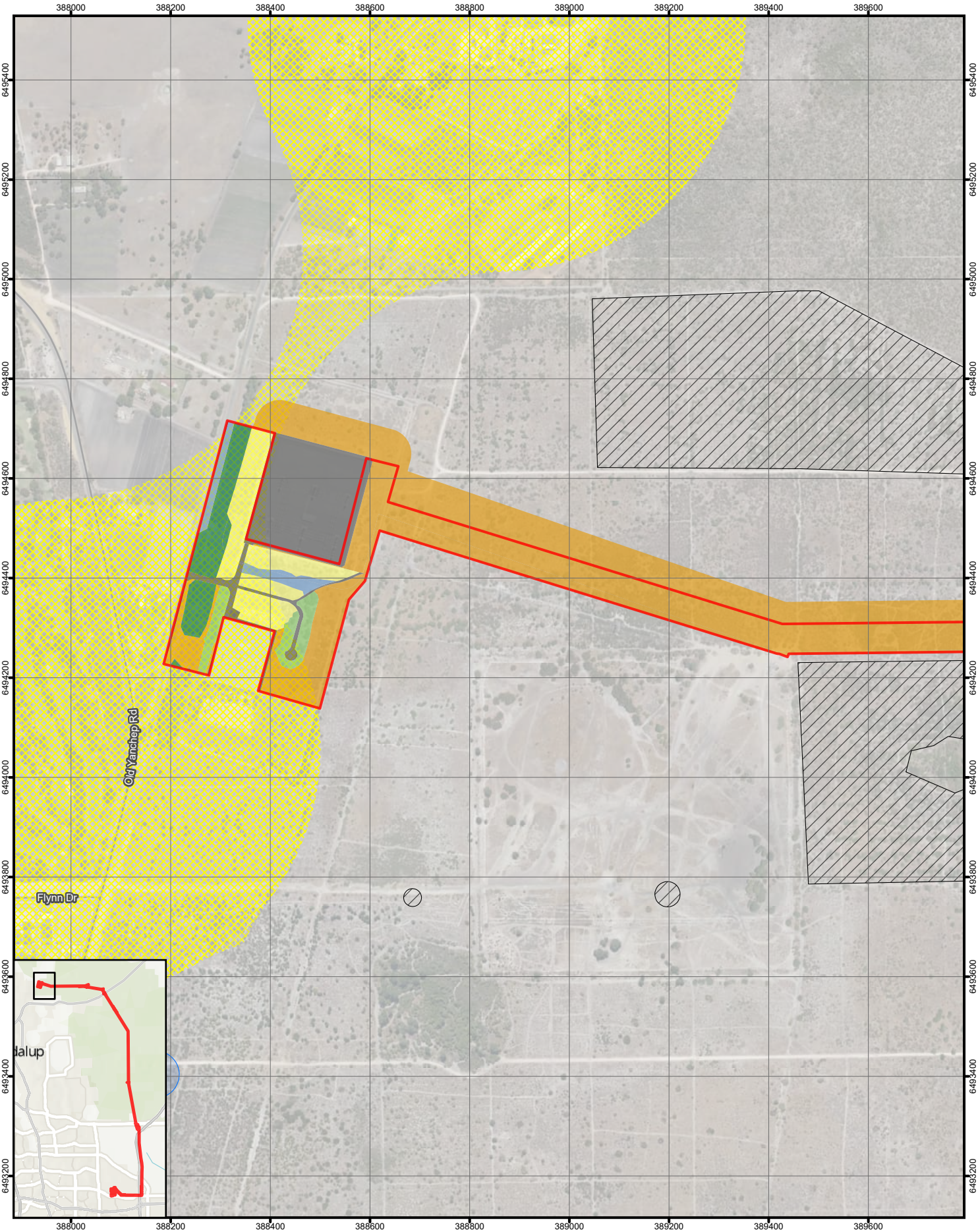
Of the 603.20 ha of survey area, 169.73 ha (28.14%) contains potential breeding habitat. Confirmed breeding has been recorded within the Eucalyptus woodland habitat, which represents 142.38 ha. All habitats that contain tall eucalyptus trees that have the potential to form a suitable hollow if left undisturbed are considered potential breeding habitat. These are listed below:

Trees Over Cleared (6.19 ha, 1.03%)

- Banksia Woodland (71.48 ha, 11.85%)
- Eucalyptus Woodland (70.90 ha, 11.75%)
- Urban/Residential (21.16 ha, 3.51%)

A total of 217 trees with a suitable DBH (>500 mm) were recorded during the 2022 survey as potential breeding trees (AECOM Australia, 2023). This consisted of 172 Marri (*Corymbia calophylla*), 18 Jarrah (*Eucalyptus marginata*), ten Stags, nine Costal Blackbutt (*Eucalyptus todtiana*), two introduced species, one Flooded Gum (*Eucalyptus rudis*), and five unidentified eucalypt species. Across the entire survey area 14 potential breeding trees were determined from the ground using binoculars to have a hollow with suitable entrance sizes for Black Cockatoo (Bamford Consulting Ecologists, 2024) in the 2022 survey.

During the 2025 survey, the 14 potential breeding trees were reassessed utilising drone imagery and expert input from Mike Bamford (Table 7). Two trees, totalling three hollows were determined to possess dimensions and characteristics described by Johnstone & Kirkby, (2010) and Groom, (2010) that would be suitable to support breeding for Black Cockatoos. One tree could not be assessed due to its location on private property (Tree ID 156). No trees were found to be actively in use at the time of the survey (Table 8), (Figure 8).



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Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Cleared
- Eucalyptus Woodland
- Mature Pine Plantation
- Trees Over Cleared

DBCA Fire History (DBCA_060)

- 2023
- 2024

Black Cockatoo Roosting Sites Buffered

- 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.1

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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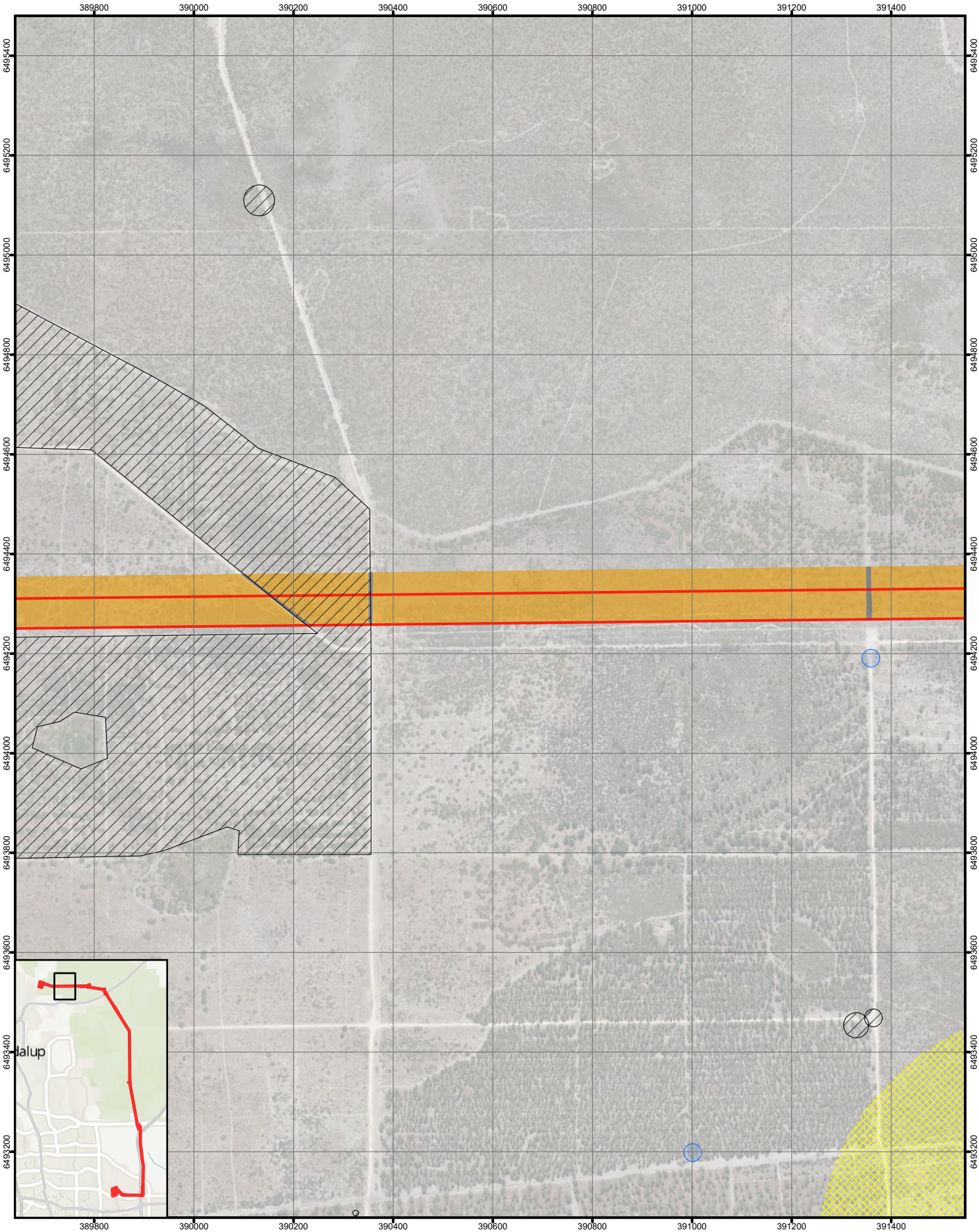

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope
- Fauna Habitat
  - Adenanthos/Plantation
  - Cleared
- DBCA Fire History (DBCA_060)
  - 2023
  - 2024
- Black Cockatoo Roosting Sites Buffered
  - 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.2

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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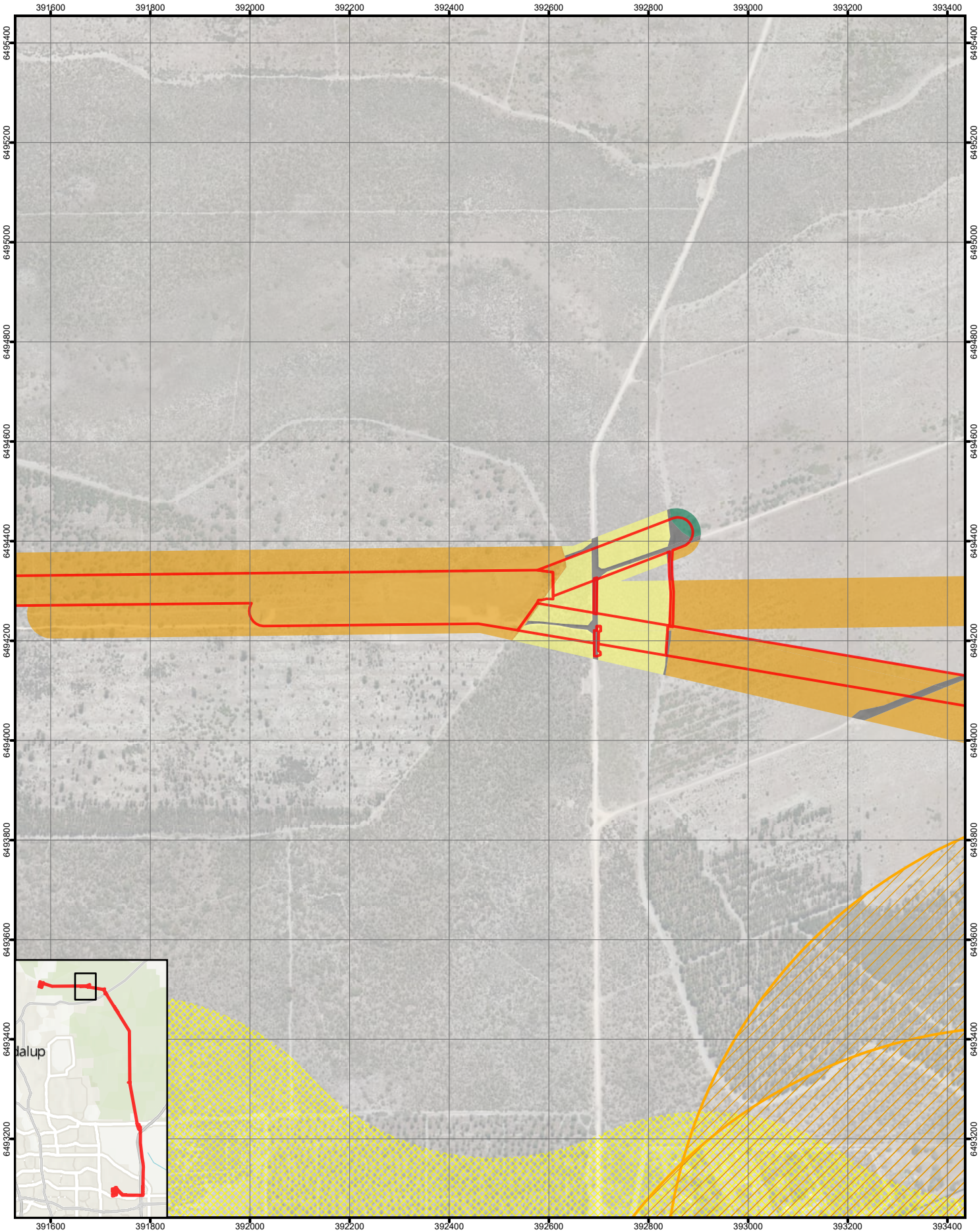

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APPROVED BY	H. SPANSWICK

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Service Layer Credits: World Hillshade: Esri, CGIAR,World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community,World Imagery: Maxar,WMS:

LEGEND

- Development Envelope

Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Cleared
- Mature Pine Plantation

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.3

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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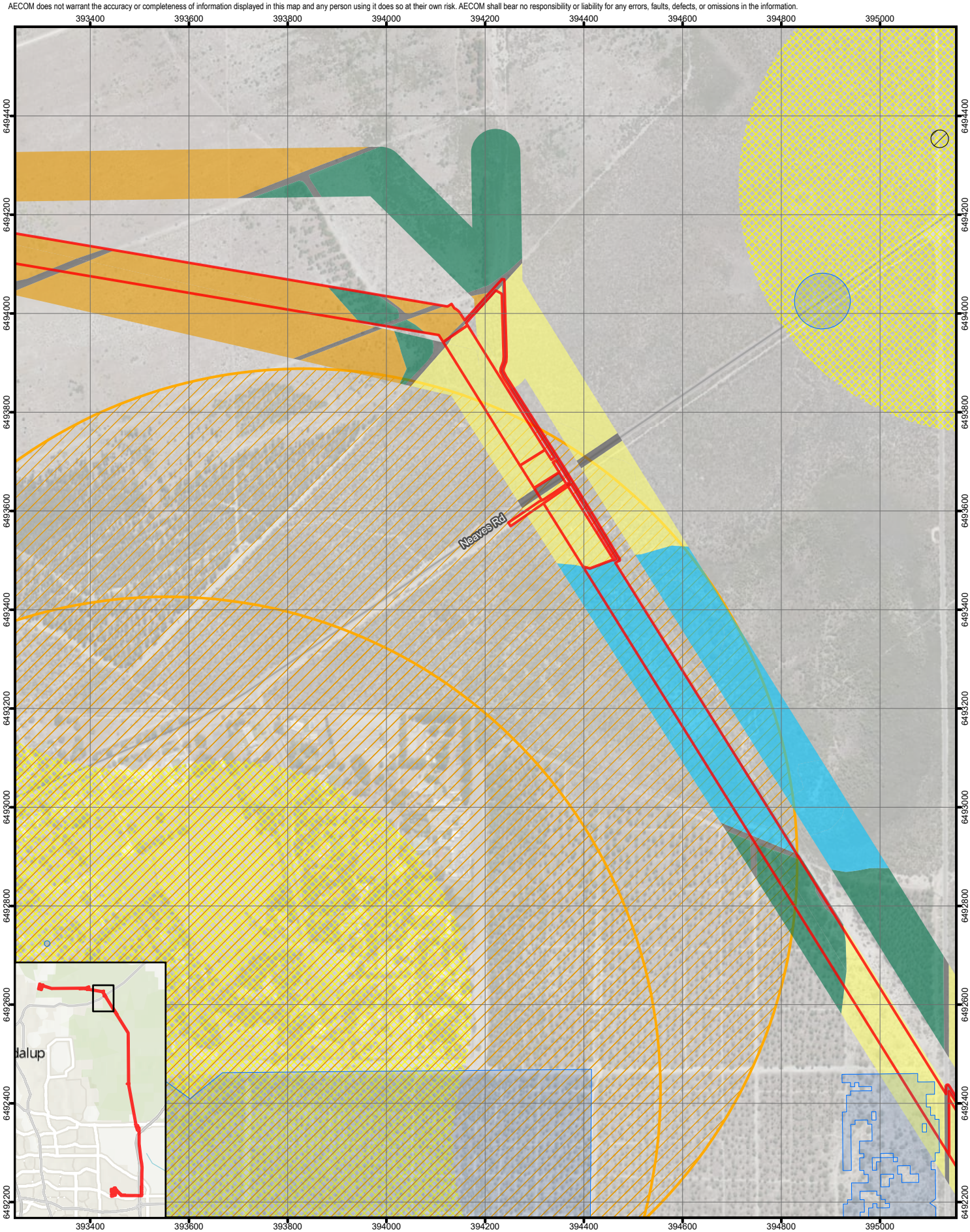

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope

Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Cleared
- Mature Pine Plantation
- Wetlands

DBCA Fire History (DBCA_060)

- 2023
- 2024

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.4

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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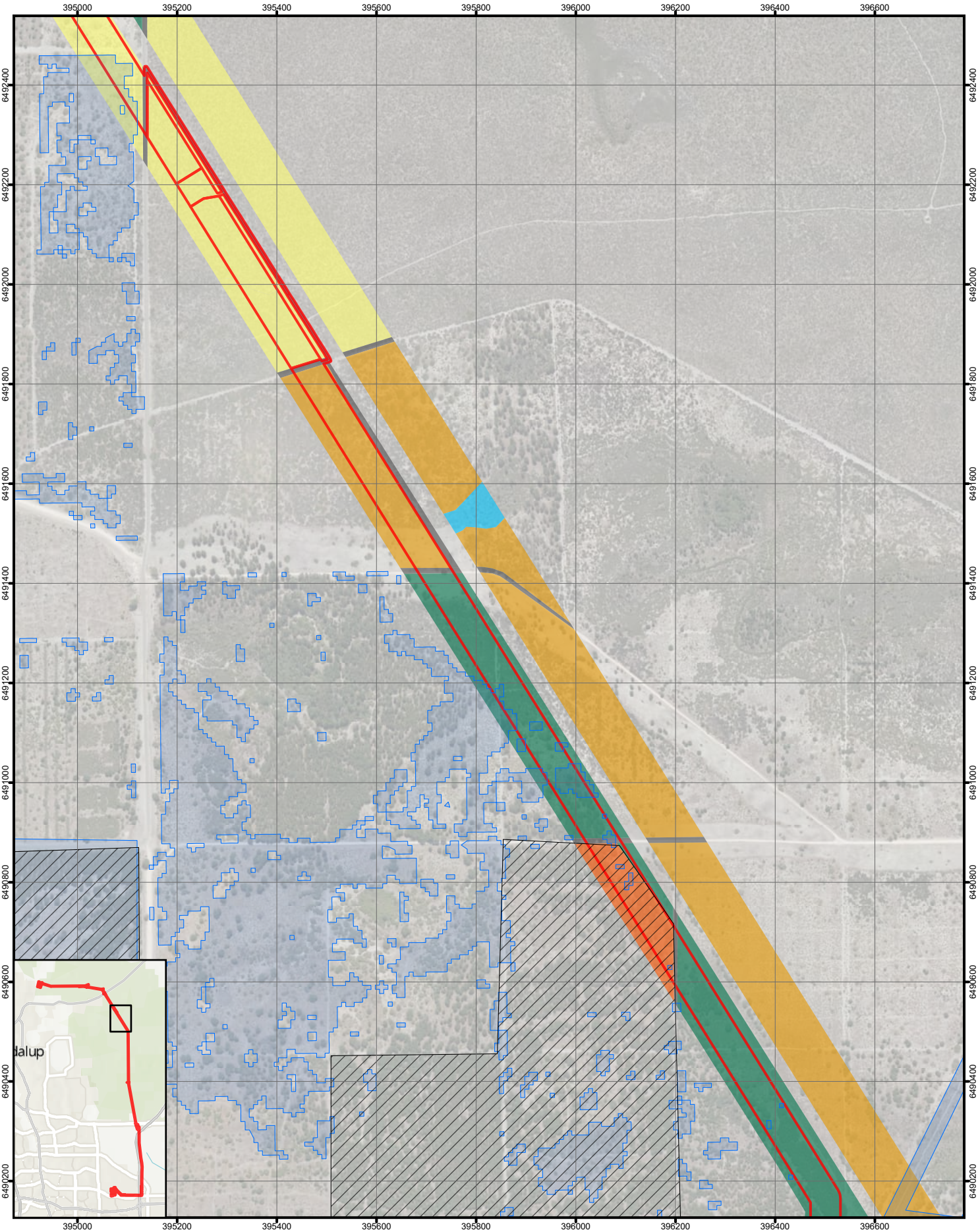

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope

Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Burnt Pine Plantation
- Cleared
- Mature Pine Plantation
- Wetlands

DBCA Fire History (DBCA_060)

- 2023
- 2024

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.5

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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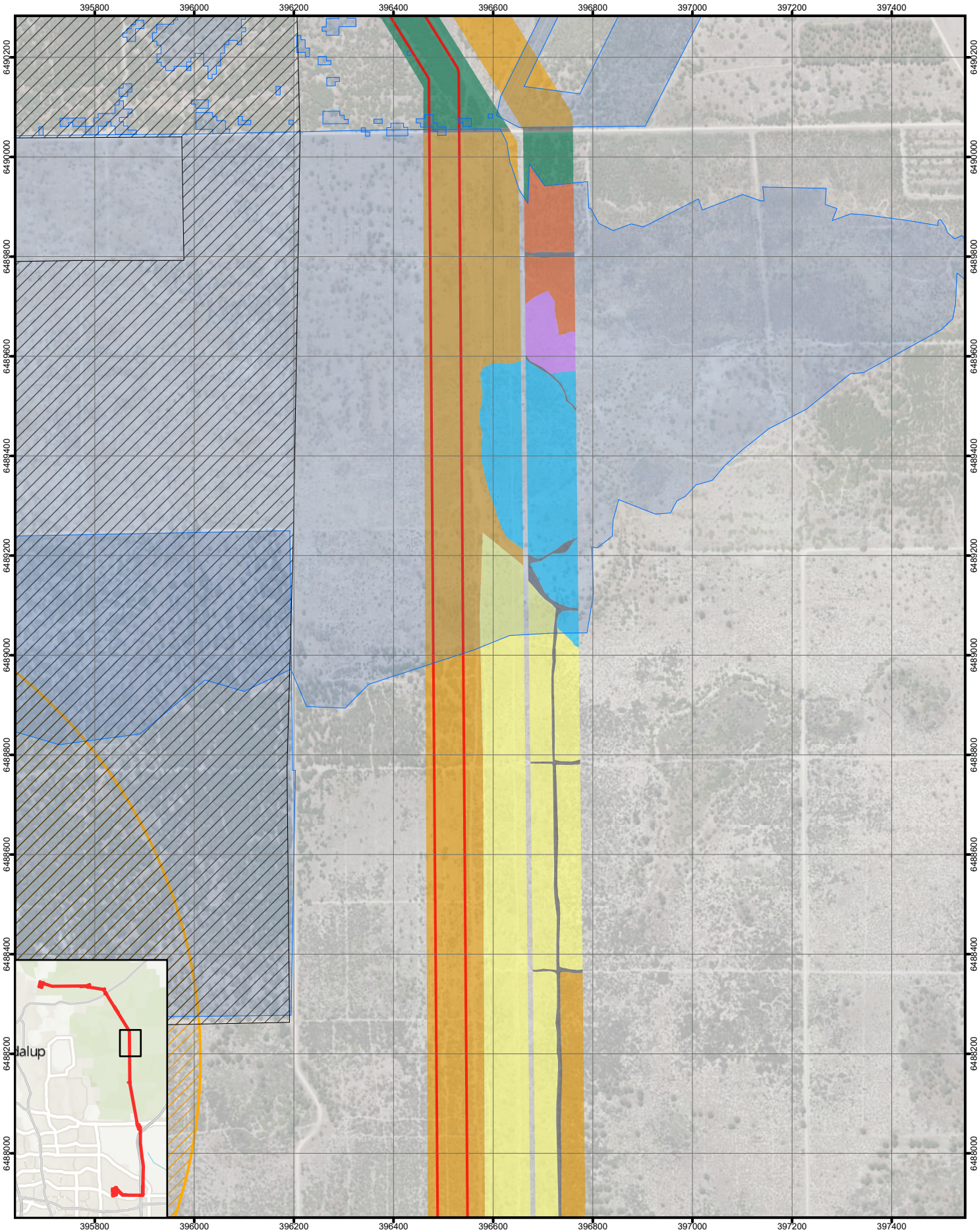

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LEGEND

- Development Envelope

Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Burnt Pine Plantation
- Cleared
- Mature Pine Plantation
- Mixed Shrubland
- Wetlands

DBCA Fire History (DBCA_060)

- 2023
- 2024

Black Cockatoo Roosting Sites Buffered

- 1000m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.6

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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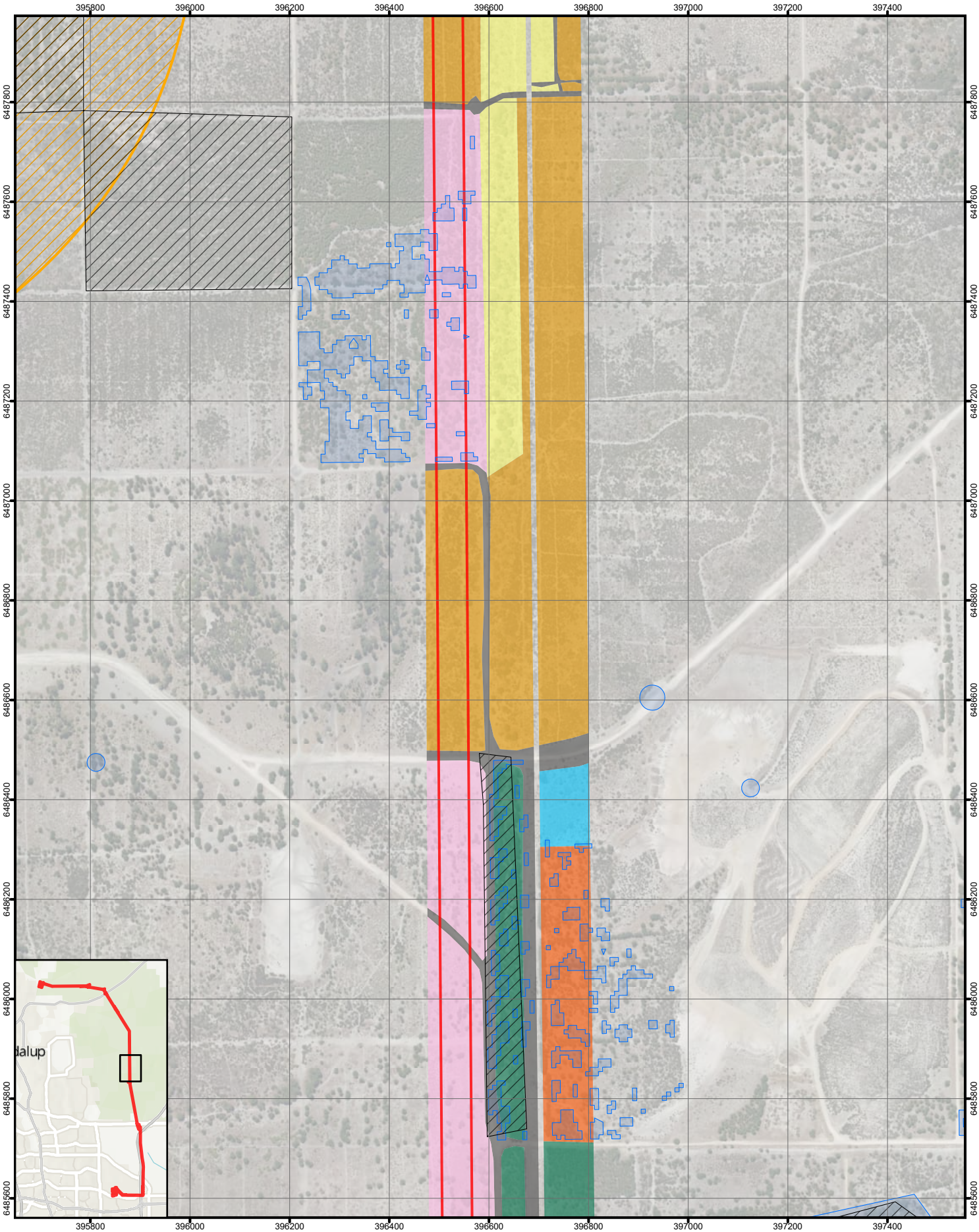

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LEGEND

- Development Envelope

Fauna Habitat

- Adenanthos/Plantation
- Banksia Woodland
- Burnt Pine Plantation
- Cleared
- Juvenile Pine Plantation
- Mature Pine Plantation
- Wetlands

DBCA Fire History (DBCA_060)

- 2023
- 2024

Black Cockatoo Roosting Sites Buffered

- 1000m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.7

Project: L:\Legacy\Projects\607x\60743139_WP_NREP_Cockatoo_Survey\900_CAD_GIS\920_GIS\02_MXD_APRX\03_ReportFigures\60743139_WP_NREP_Cockatoo_Survey_ReportFigures.aprx (WyattK2),
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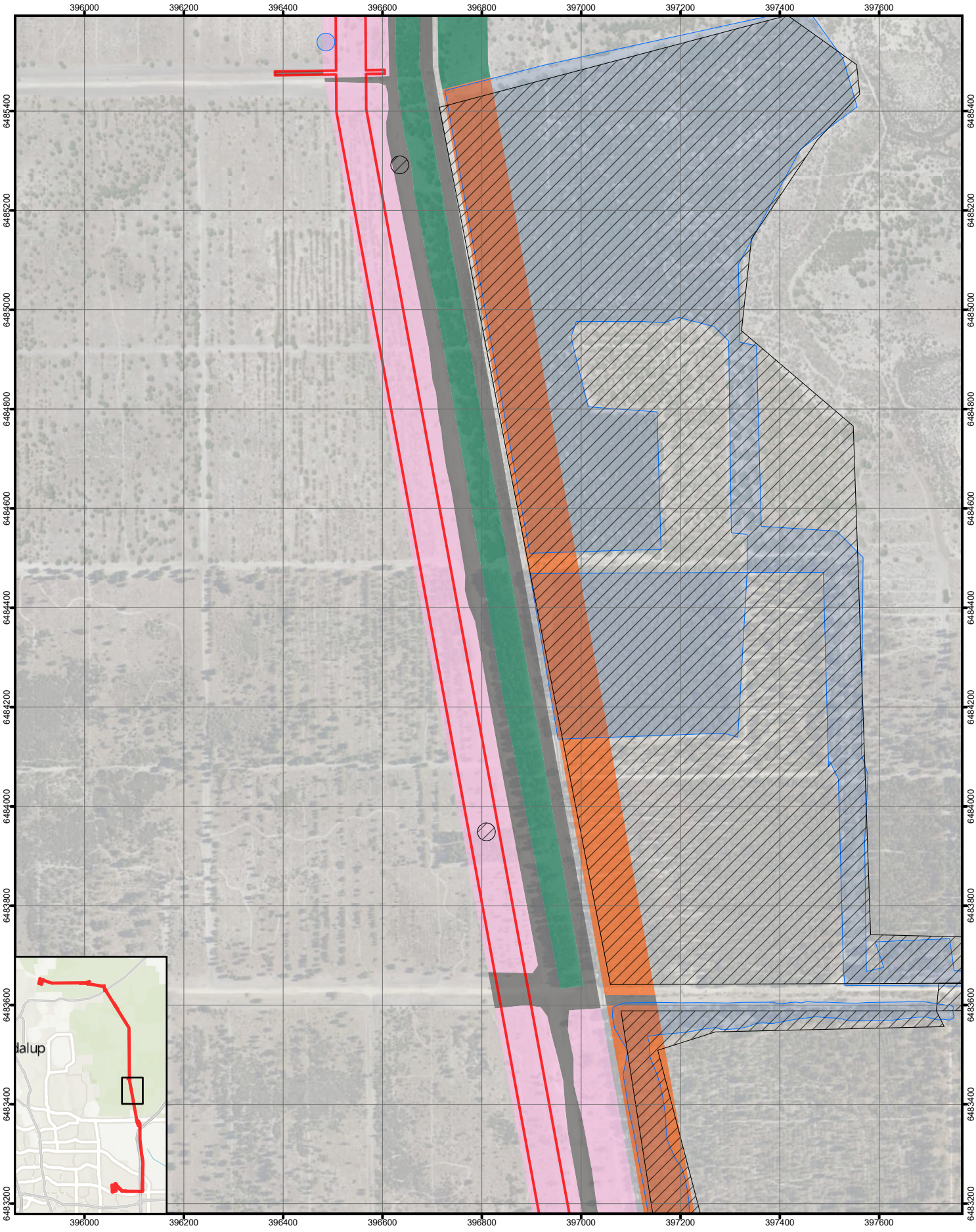

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LEGEND

- Development Envelope
- Fauna Habitat
  - Burnt Pine Plantation
  - Cleared
  - Juvenile Pine Plantation
  - Mature Pine Plantation
- DBCA Fire History (DBCA_060)
  - 2023
  - 2024

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.8

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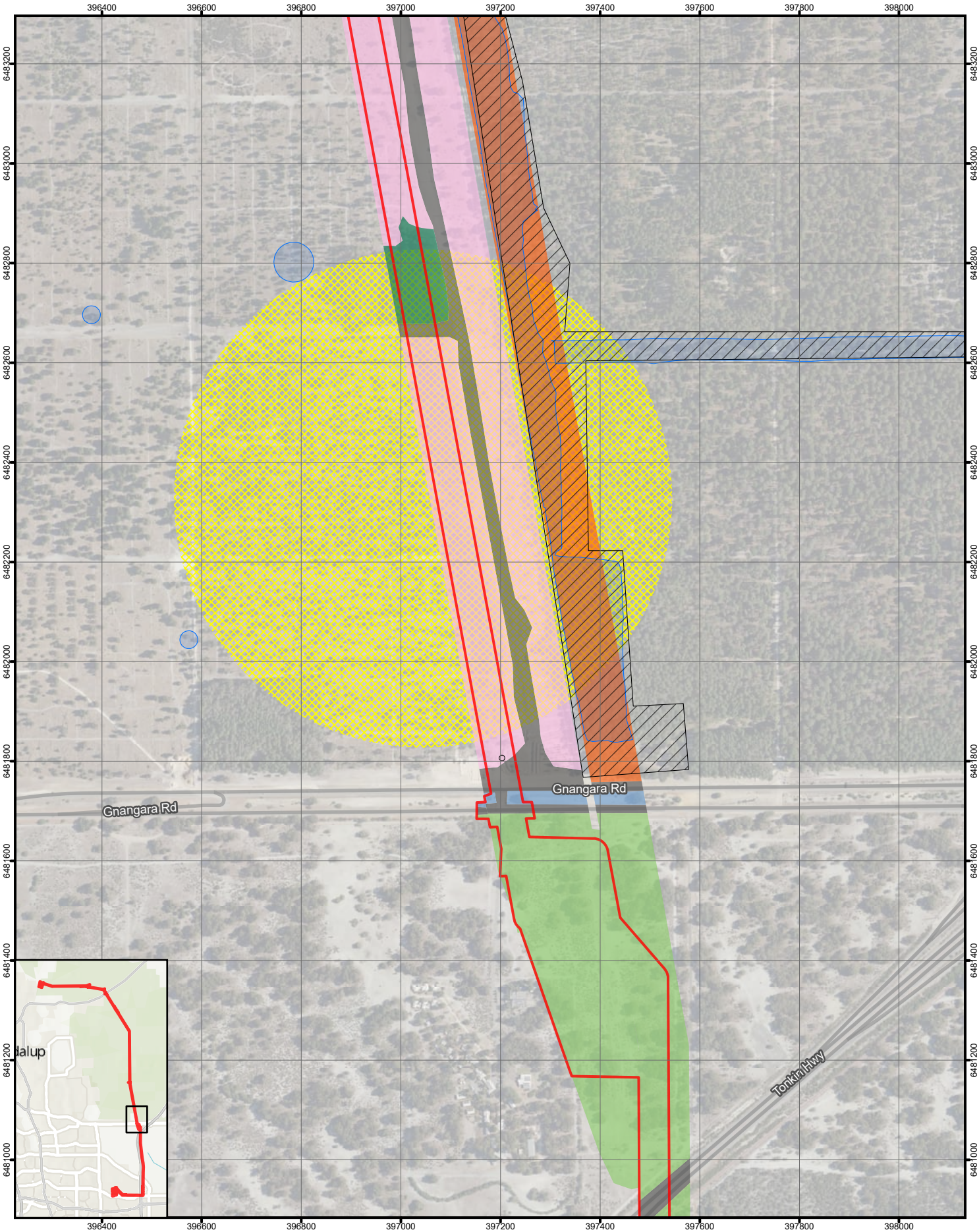

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LEGEND

- Development Envelope

Fauna Habitat

- Burnt Pine Plantation
- Cleared
- Eucalyptus Woodland
- Juvenile Pine Plantation
- Mature Pine Plantation
- Trees Over Cleared

DBCA Fire History (DBCA_060)

- 2023
- 2024

Black Cockatoo Roosting Sites Buffered

- 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.9

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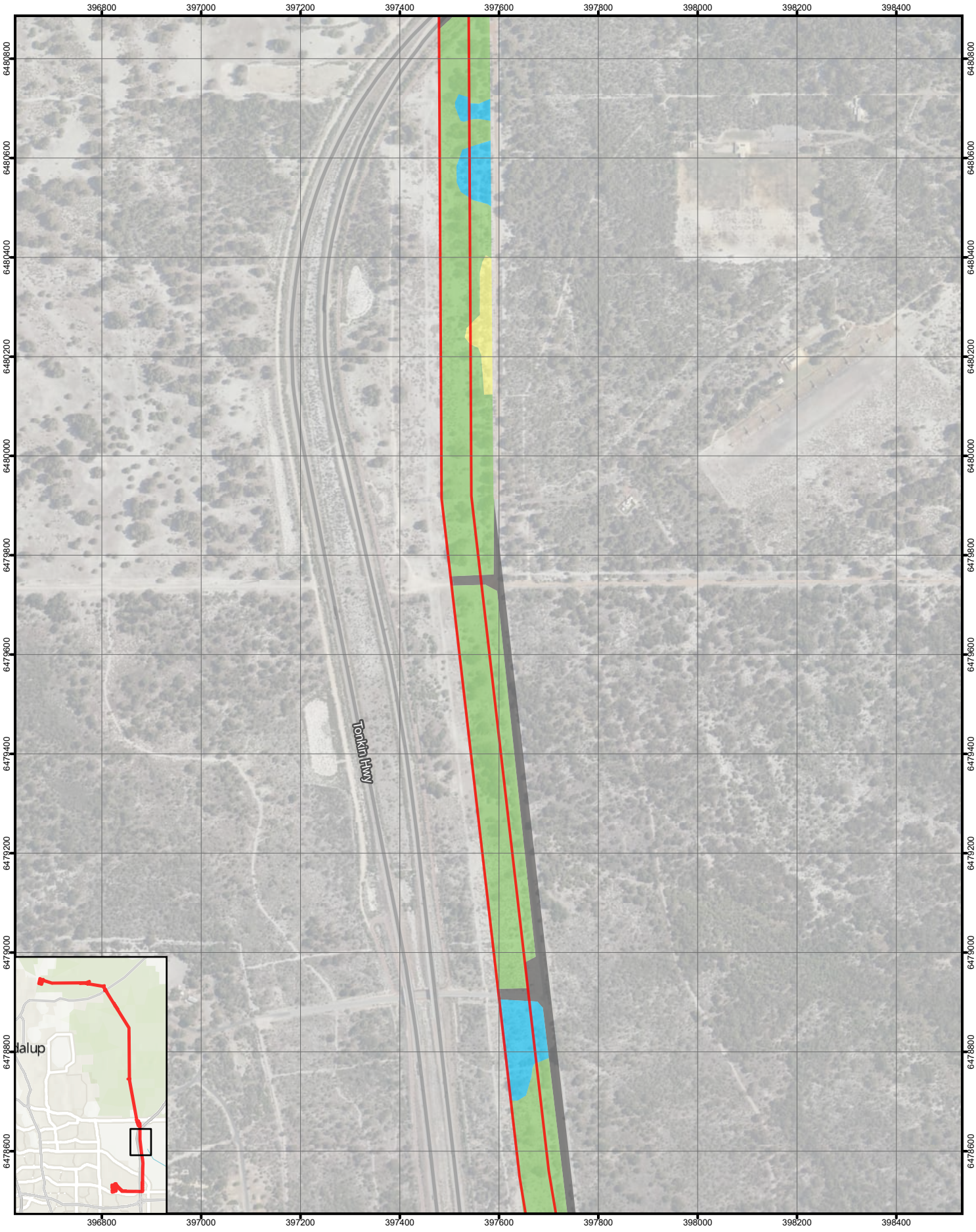

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LEGEND

- Development Envelope

Fauna Habitat

- Banksia Woodland
- Cleared
- Eucalyptus Woodland
- Wetlands

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.10

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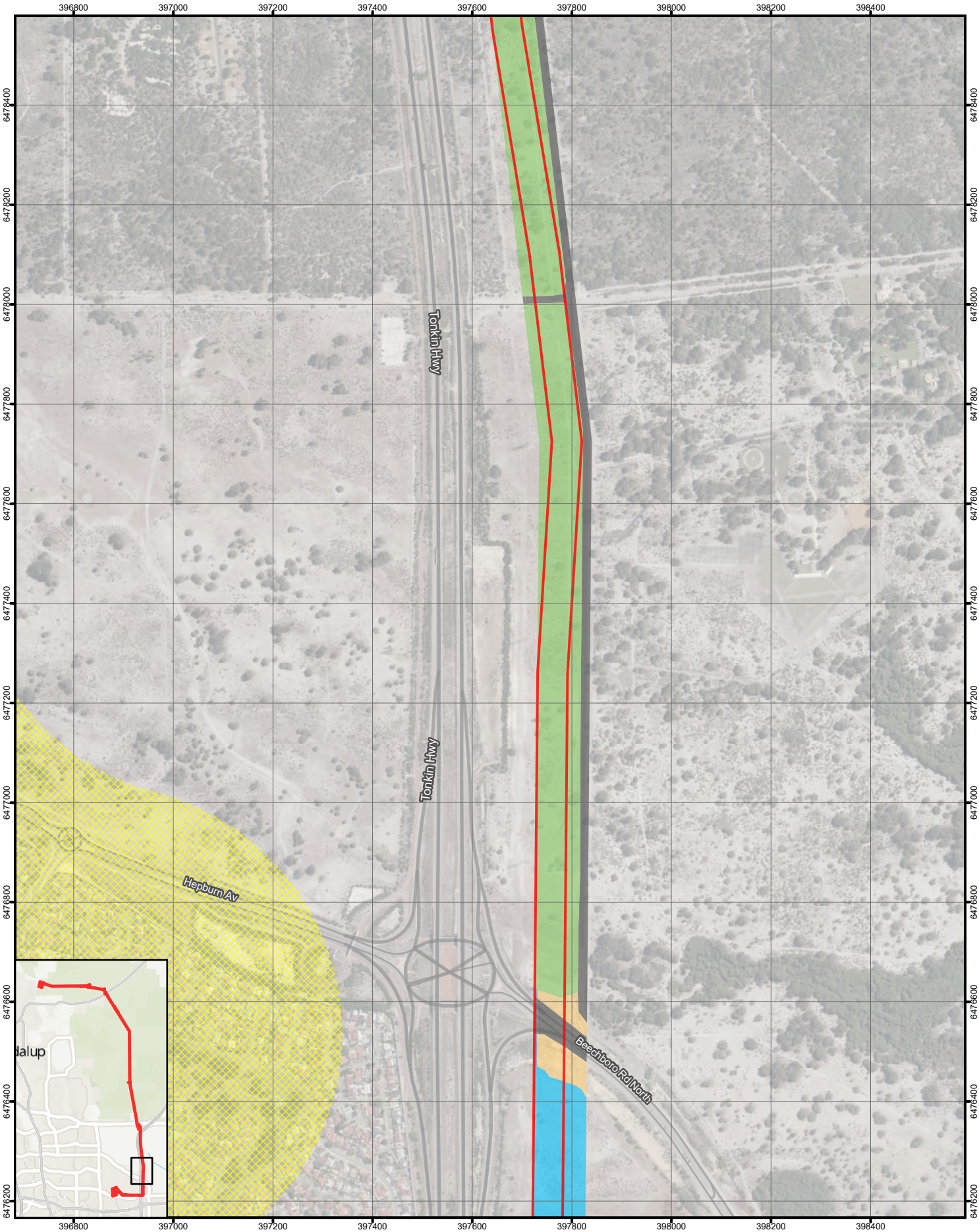

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- Development Envelope

Fauna Habitat

- Cleared
- Eucalyptus Woodland
- Trees Over Cleared
- Urban/Residential
- Wetlands

Black Cockatoo Roosting Sites Buffered

- 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.11

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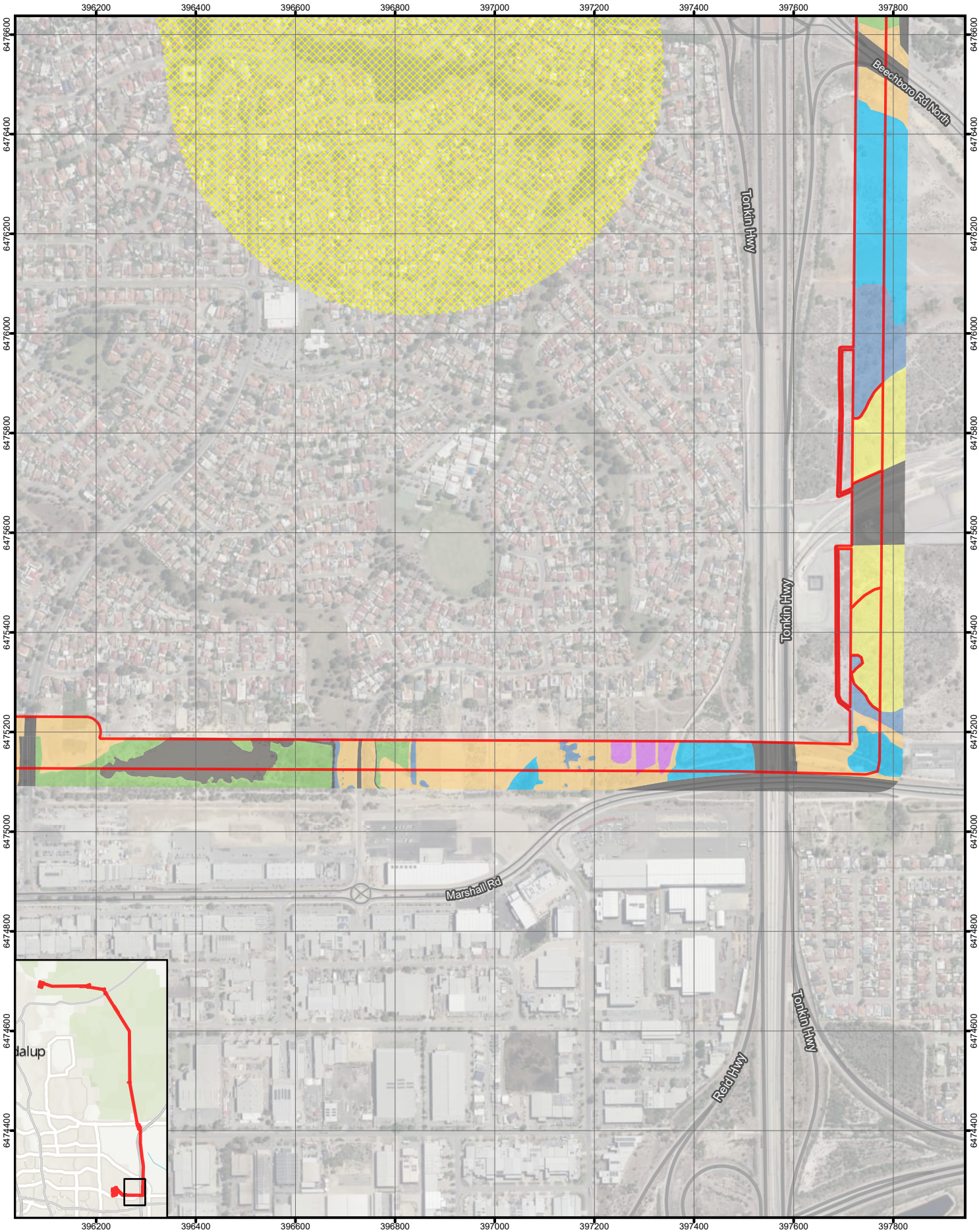

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LEGEND

- Development Envelope

Fauna Habitat

- Banksia Woodland
- Cleared
- Eucalyptus Woodland
- Mixed Shrubland
- Trees Over Cleared
- Urban/Residential
- Wetlands

Black Cockatoo Roosting Sites Buffered

- 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.12

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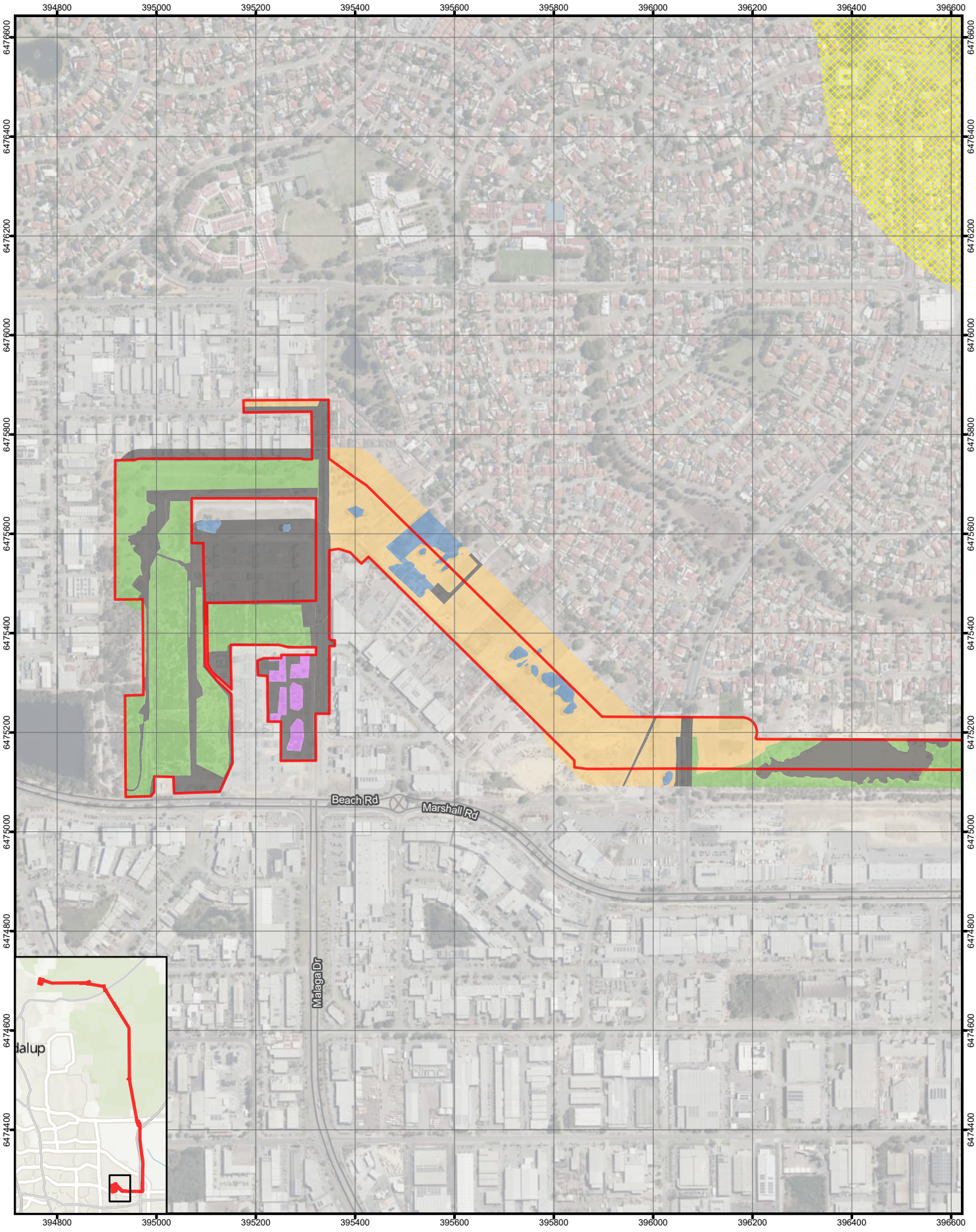

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LEGEND

- Development Envelope

Fauna Habitat

- Cleared
- Eucalyptus Woodland
- Mixed Shrubland
- Trees Over Cleared
- Urban/Residential

Black Cockatoo Roosting Sites Buffered

- 500m

Fauna Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 8.13

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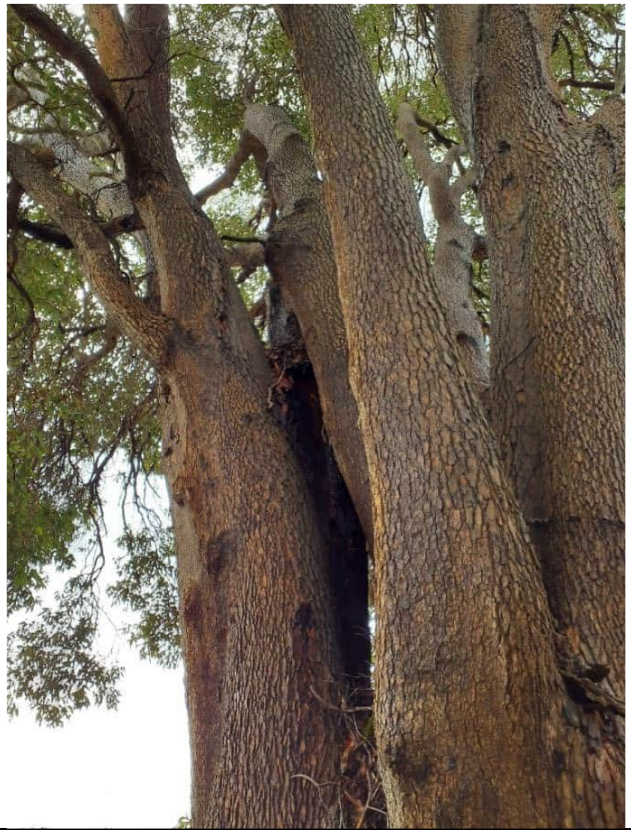
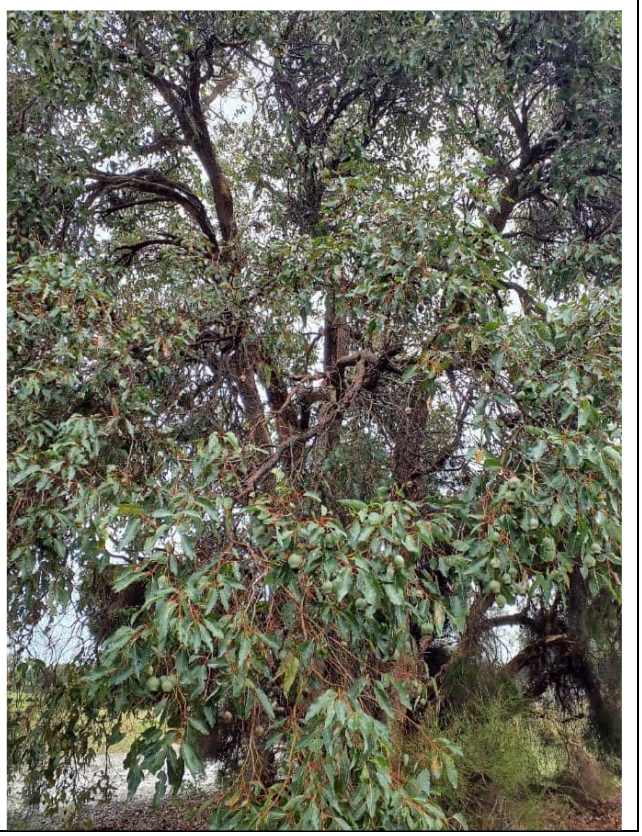
Table 7 Black Cockatoo Breeding and Potential Breeding Trees with Hollows reassessed in the 2025 survey (*Highest rated hollow indicated by green highlight.)*

Tree ID	Species	Height (m)	DBH (cm)	BCE score	Hollow Suitability (revised)	Coordinates	
7	Marri (*Corymbia calophylla*)	20-25	128	5	No Hollow	115.9178338	31.8098632
9	Stag	5-10	98	2	Previously Active Hollow	115.9175183	31.8085776
10	Stag	10-15	105	4	Unsuitable Hollow	115.917501	31.80761604
11	Stag	5-10	60	5	No Hollow	115.9174619	31.80690047
18	Stag	20-25	110	3	Inactive Hollow	115.9174888	31.8042759
18	Stag	20-25	110	3	Inactive Hollow	115.9174888	31.8042759
87	Stag	5-10	83	4	Unsuitable Hollow	115.8864656	31.6890502
87	Stag	5-10	83	4	Unsuitable Hollow	115.8864656	31.6890502
101	Coastal Blackbutt (*Eucalyptus todtiana*)	15-20	110	4	Unsuitable Hollow	115.9173776	31.80191304
156	Marri (*Corymbia calophylla*)	20-25	84	3	Unable to Confirm	115.9153696	31.79914635
160	Marri (*Corymbia calophylla*)	20-25	68	4	Unsuitable Hollow	115.9171117	31.8013066
160	Marri (*Corymbia calophylla*)	20-25	68	4	Unsuitable Hollow	115.9171117	31.8013066
160	Marri (*Corymbia calophylla*)	20-25	68	4	Unsuitable Hollow	115.9171117	31.8013066
166	Marri (*Corymbia calophylla*)	15-20	70	4	Unsuitable Hollow	115.9171558	31.80092704

Table 8 Results of re-assessment of the 14 potential black cockatoo breeding tress

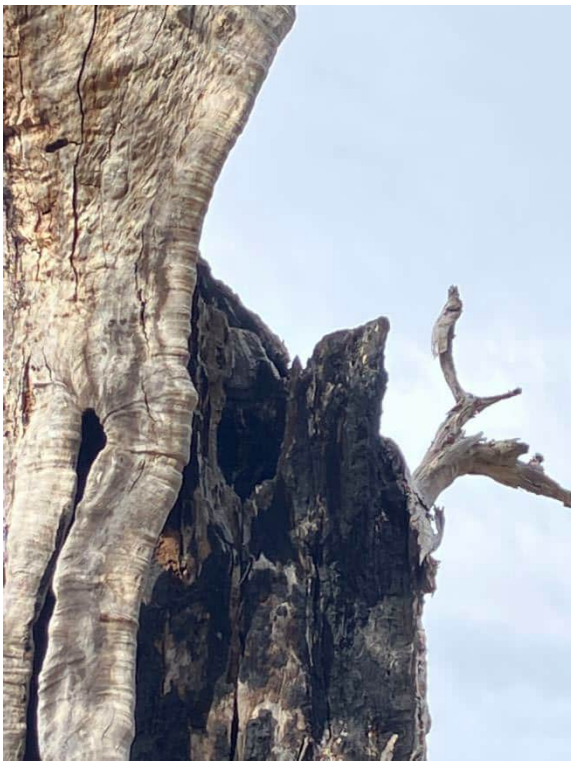
Survey Date 05/09/2022	Longitude:115.9178338	Latitude: -31.8098632	DBH: 128 cm dbh	Height: 20-25 m
07	**Potential Nest Tree:** *Corymbia Calophylla* (Marri) standing tree in good health within Banksia Woodland habitat		**BCE Nest Tree Score:** 5	
	Potential Hollows: 1 (7A)		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** Horizontal Trunk hollow (approximately 20m x 40m) approximately 3 m above ground, facing west with potential chew marks/older evidence of use		**Original Hollow Classification:** Potential Hollow (in upper branches)	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Higher branches too thin to support suitable hollow. Nothing visible in higher branches with drone. Trunk “hollow” (pictured left) does not extend below opening.		**Revised Hollow Classification:** No Hollow	





Survey Date: 05/09/2022	Longitude: 115.9175183	Latitude: -31.8085776	DBH: 98cm dbh	Height: 5-10 m
09	**Potential Nest Tree:** Structurally sound stag within Eucalyptus Woodland habitat		**BCE Nest Tree Score:** 2	
	Potential Hollows: 1 (9A)		**Reassessed Suitable Hollows: 1** (9A)	
Hollow: A	**Hollow Description:** A potential vertical spout hollow (approximately 60m x 60m) approximately 6 m above ground, with a south-west entry, as well as a north facing entry, both leading to the same chamber. **Potential chew marks/older evidence of use.**		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Stag is structurally sound despite fire. Chew marks confirmed through drone imagery to be present within the chamber and its entrance suggesting recent visitation. Chamber estimated to be 0.5 m deep with leaf litter at the base.		**Revised Hollow Classification:** Previously Active Hollow	

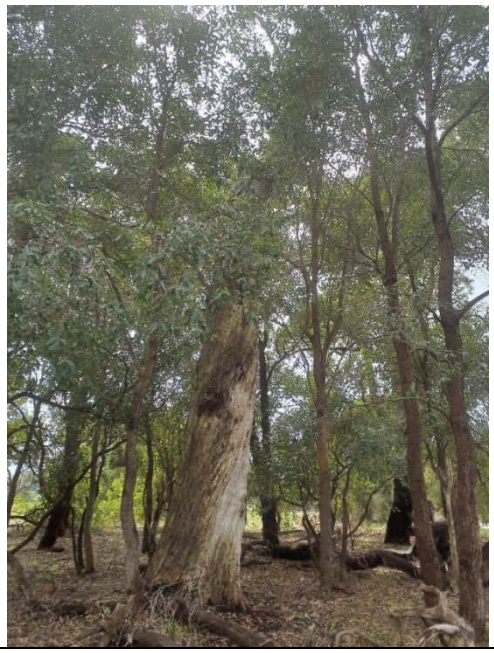
Survey Date: 05/09/2022	Longitude: 115.9175183	Latitude: -31.8085776	DBH: 98cm dbh	Height: 5-10 m

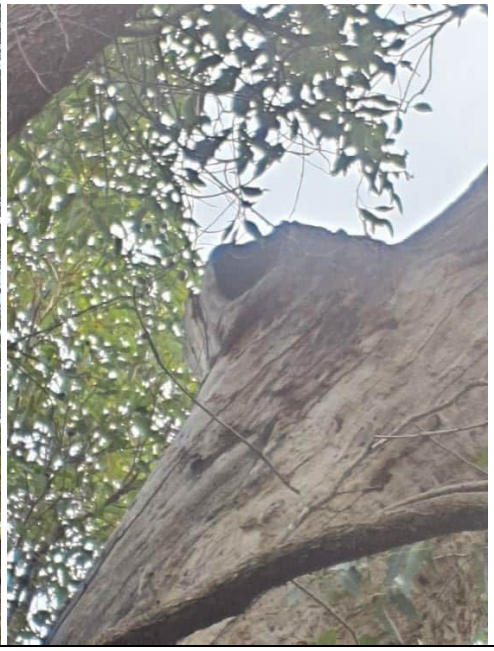


Survey Date: 05/09/2022	Longitude: 115.9175005	Latitude: 31.8076162	DBH: 105cm dbh	Height: 10-15 m
10	**Potential Nest Tree:** Stag with structural damage within Eucalyptus woodland habitat		**BCE Nest Tree Score:** 4	
	Potential Hollows: 1 (10A)		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** potential branch hollow at 45 degrees (approximately 20cm x 20cm) approximately 6 m above ground, with a south-east facing entry, likely currently occupied by bees. No evidence observed		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Centre of tree has been burnt out and it is likely to fall down in next 10 years. Hollow entrance is unlikely to extend the full length of the branch into the vertical chamber		**Revised Hollow Classification:** Unsuitable Hollow	

Survey Date: 05/09/2022	Longitude: 31.8069006	Latitude: 115.9174616	DBH	Height
11	**Tree Description:** Stag within Eucalyptus woodland habitat		**BCE Nest Tree Score:** 5	
	Potential Hollows: 1 (11A)		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** potential branch hollow at 45 degrees (approximately 30m x 30m) approximately 7 m above ground, with a west facing entry. No evidence of use observed		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Suspected hollow determined to be closed. Tree is dead and likely to fall over before producing a hollow		**Revised Hollow Classification:** No Hollow	

Survey Date: 05/09/2022	Longitude: 31.8069004	Latitude: 115.9174614	DBH: 110 cm dbh	Height: 20-25m
18	**Tree Description:** Structurally sound stag within Eucalyptus Woodland habitat		**BCE Nest Tree Score:** 3	
	Potential Hollows: 2 (18A-B)		**Reassessed Suitable Hollows:** 1 (18A)	
Hollow: A	**Hollow Description:** Vertical spout hollow (approximately 40cm x 30cm) approximately 20 m above ground, with an east facing entry. No evidence of use observed (no photo available due to canopy)		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** One hollow, multiple entrances (2-3), no evidence of use.		**Revised Hollow Classification:** Inactive Hollow	
Hollow B	**Hollow Description:** Trunk hollow (approximately 15cm x 15cm) approximately 13 m above ground, with a southwest facing entry. No evidence of use observed, likely closed. Bees noted (pictured below)		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** second entrance to Hollow 18A		**Revised Hollow Classification:** N/A	

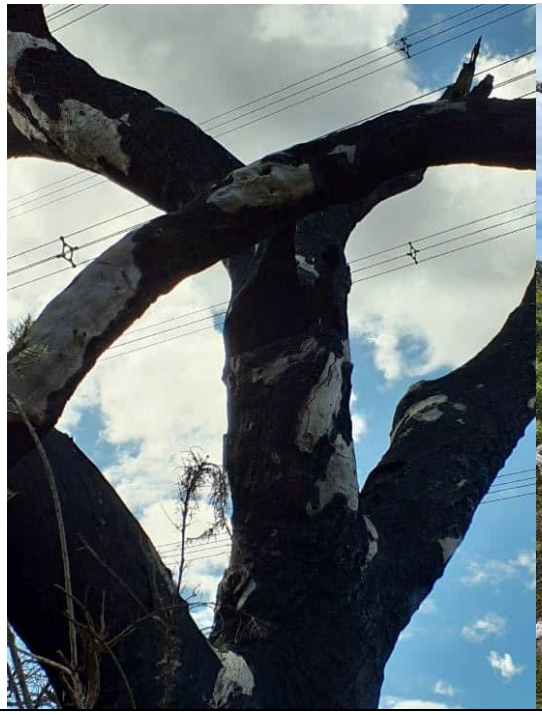




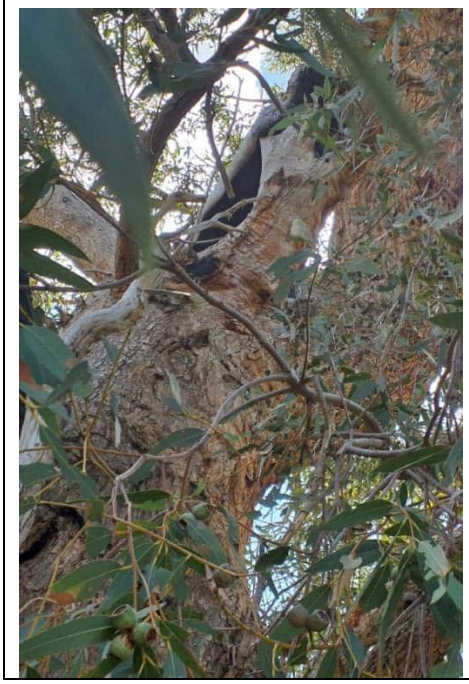
Survey Date: 09/09/2022	Longitude: 31.6890500	Latitude: 115.8864659	DBH:83 cm dbh	Height: 5-10 m
87	**Tree Description:** Stag, burnt, stable within Banksia Woodland habitat. Dieback impacted		**BCE Nest Tree Score:** 4	
	Potential Hollows: 2		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** Branch hollow (approximately 30cm x 20cm) approximately at 45 degreed 6 m above ground, with a north facing entry. No evidence of use observed, likely closed. Bees noted		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Not suitable as 'hollow' does not extend into trunk		**Revised Hollow Classification:** Unsuitable Hollow	

Hollow B	**Hollow Description:** Vertical branch hollow (approximately 50cm x 80cm) approximately 8 m above ground, with a southwest facing entry. No evidence of use observed, likely closed. Bees noted	**Original Hollow Classification:** Potential Hollow
Reassessment Date: 27/02/2025	**Reassessment Comments:** Not suitable as 'hollow' does not extend into trunk	**Revised Hollow Classification:** Unsuitable Hollow

Survey Date: 09/09/2022	Longitude: 31.6890500	Latitude: 115.8864659	DBH:83 cm dbh	Height: 5-10 m

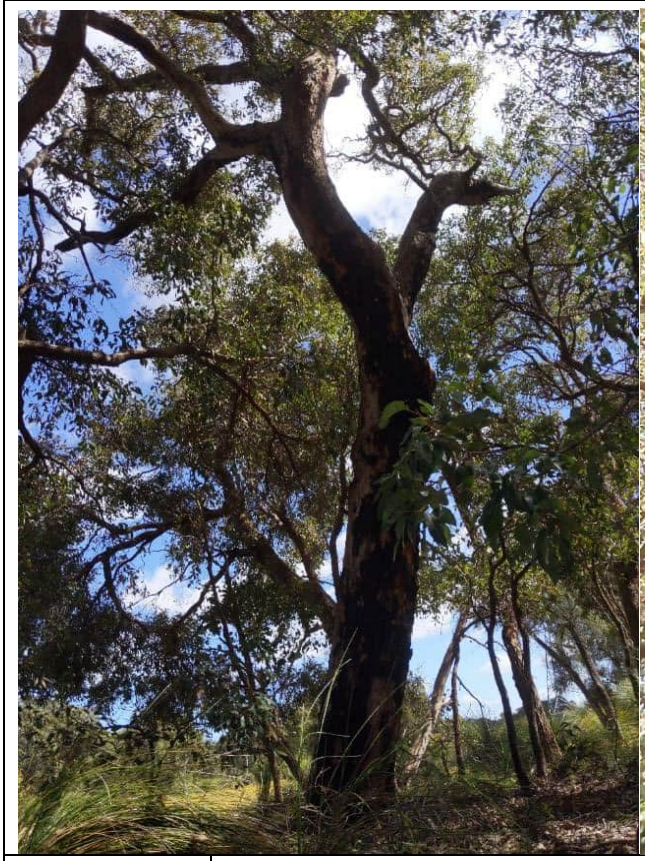


Survey Date: 07/10/2022	Longitude: 31.8019129	Latitude: 115.9173774	DBH:110 c m dbh	Height: 15-20 m
101	**Tree Description:** Coastal Blackbutt. (*Eucalyptus todtiana*), partially dead within Eucalyptus Woodland habitat		**BCE Nest Tree Score:** 4	
	Potential Hollows: 1 (101A)		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** Vertical branch hollow (approximately 20cm x 20cm) approximately 6 m above ground, with a south facing entry. No evidence of use observed.		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Not suitable, drone imagery demonstrates a platform only, filled with debris. No hollow.		**Revised Hollow Classification:** No Hollow	



Survey Date: 07/10/2022	Longitude: 31.7991463	Latitude: 115.9153696	DBH:84 cm dbh	Height: 20-25 m
156	**Tree Description:** Marri (*Corymbia calophylla*), dead and burnt within Eucalyptus Woodland habitat		**BCE Nest Tree Score: 3**	
	Potential Hollows: 1 (156A)		**Reassessed Suitable Hollows:** 1(156A)	
Hollow: A	**Hollow Description:** 45 degree branch hollow (approximately 30cm x 20cm) approximately 15 m above ground, with an east facing entry. Unable to confirm evidence of use.		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Access to private property was unavailable at the time of reassessment survey. Conservatively retains original assessment categories.		**Revised Hollow Classification:** Unable to confirm	

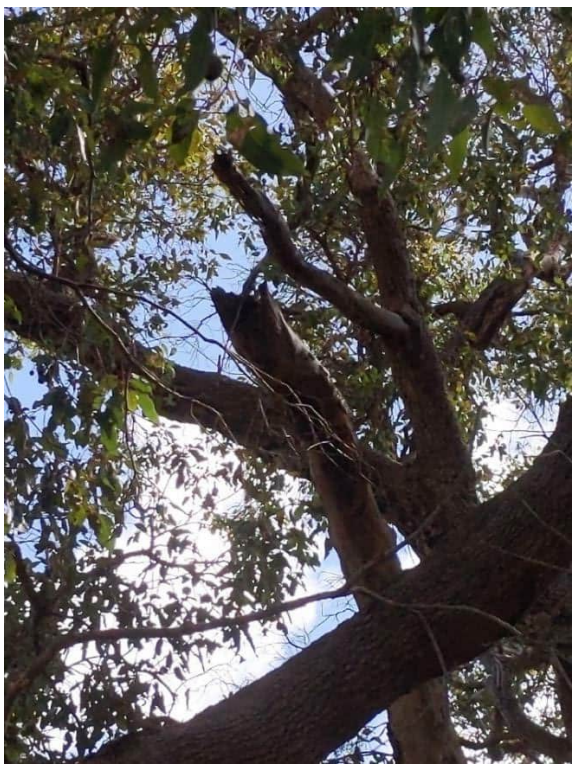
Survey Date: 07/10/2022	Longitude:31.8013066	Latitude:115.9171118	DBH:68 cm dbh	Height: 20-25 m
160	**Tree Description:** Marri (*Corymbia calophylla*), many dead, broken limbs within Eucalyptus Woodland habitat		**BCE Nest Tree Score:** 4	
	Potential Hollows: 3 (160 A-C)		**Reassessed Suitable Hollows: 0**	
Hollow: A	**Hollow Description:** Branch hollow at 45 degrees, (approximately 20cm x 30cm) approximately 12 m above ground, with a north east facing entry. Potential old evidence of use observed.		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Opening on top of 'hollow' entrance. Chew marks on outer rim indicates evidence, however, entrance to trunk hollow is not open. Hollow likely scoped out by bird but does not meet the criteria for a suitable nesting hollow		**Revised Hollow Classification:** Unsuitable Hollow	



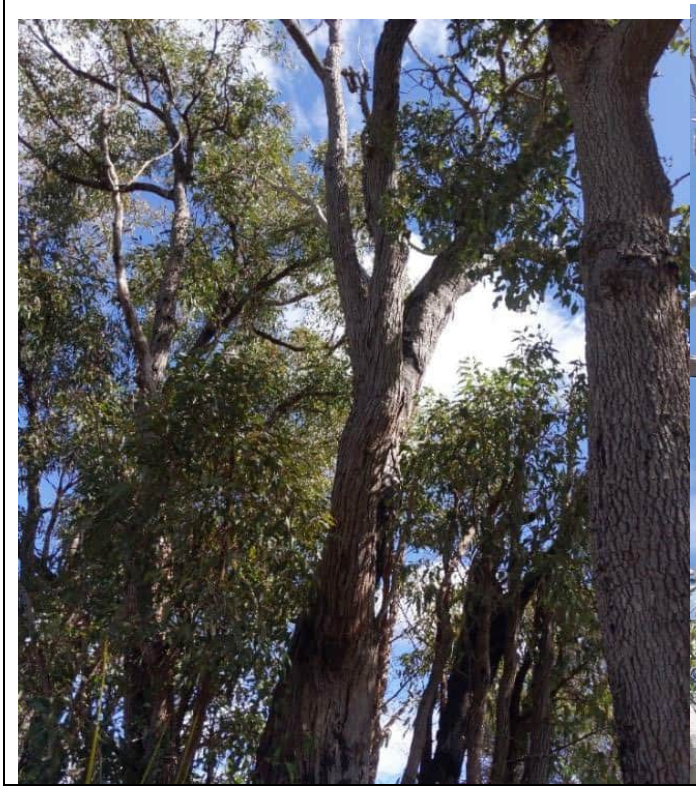
Hollow: B	**Hollow Description:** Vertical trunk hollow (approximately 50cm x 30cm) approximately 8 m above ground, with a north east facing entry. Potential evidence of use observed – white chew marks on rim of entrance.	**Original Hollow Classification:** Unsuitable Hollow
Reassessment Date: 27/02/2025	**Reassessment Comments:** Chew marks on outer rim indicates evidence, however drone imagery shows 'hollow' is too shallow and filled with debris. Hollow likely scoped out by bird but does not meet the criteria for a suitable nesting hollow	**Revised Hollow Classification:** Unsuitable Hollow

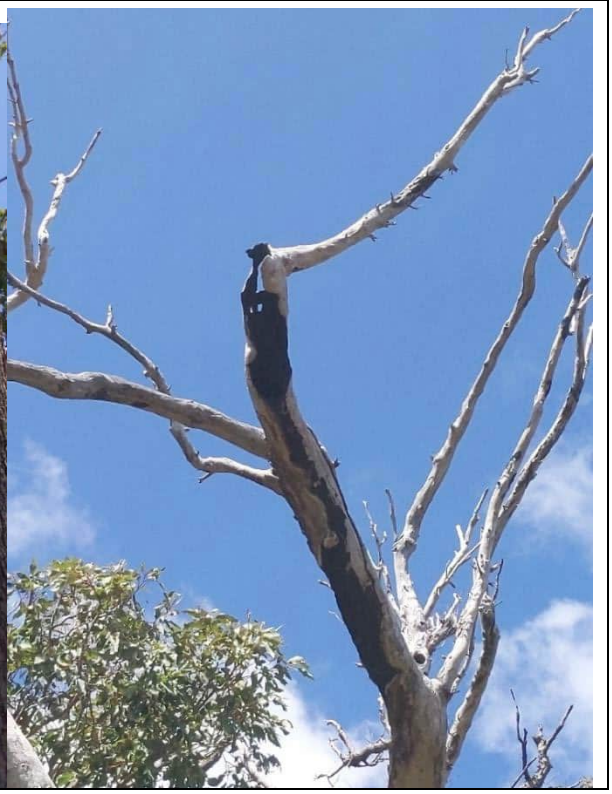
Survey Date: 07/10/2022	Longitude:115.8013066	Latitude:-31.9171118	DBH:68 cm dbh	Height: 20-25 m

Hollow: C	**Hollow Description:** Horizontal branch hollow (approximately 20cm x 20cm) approximately 15 m above ground, with a south facing entry. No evidence of use.	**Original Hollow Classification:** Potential Hollow
Reassessment Date: 27/02/2025	**Reassessment Comments:** Likely too long and main chamber not suitable.	**Revised Hollow Classification:** Unsuitable Hollow



Survey Date: 07/10/2022	Longitude: 31.8009270	Latitude: 115.9171558	DBH:70 cm dbh	Height: 15-20 m
166	**Tree Description:** Marri (*Corymbia calophylla*), dead burnt within Eucalyptus woodland habitat		**BCE Nest Tree Score: 4**	
	Potential Hollows: 1 (166A)		**Reassessed Suitable Hollows:** 0	
Hollow: A	**Hollow Description:** Horizontal branch hollow (approximately 20cm x 20cm) approximately 12 m above ground, with a north facing entry. No evidence of use.		**Original Hollow Classification:** Potential Hollow	
Reassessment Date: 27/02/2025	**Reassessment Comments:** Hollow too long until chamber, entrance not clear on inspection		**Revised Hollow Classification:** Unsuitable Hollow	





4.2.2 Foraging Habitat

4.2.2.1 DAWE (2022) Method

The survey area has been assessed as a score of **10** 'High-quality foraging habitat' (Table 9) for Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*), Carnaby's Cockatoo (*Zanda latirostris)* and Baudin's Cockatoo (*Zanda baudinii).* Based on the scoring tool criteria, no subtractions were made. As per the guidelines, the foraging tool is applied once to the total impact area. This tool only applies to sites equal to or larger than 1 hectare in size. The survey area contains Banksia Woodlands, Eucalyptus Woodlands with Jarrah, Banksia Woodlands, Trees Over Cleared and Plantations with suitable foraging species.

The foraging quality assessments are presented in Table 9. During 2025 survey, foraging evidence for all three black cockatoo species were recorded within or directly adjacent to the survey area, whereas in 2022, foraging evidence was limited to the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Carnaby's Cockatoo (*Zanda latirostris)*(Table 10). This included chewed Marri nuts, Pinecone and *Banksia sp.* foraging. All three species were recorded via sightings or call identification within the survey area during the 2022 surveys. Multiple Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) sightings were recorded in 2025.

Table 9 Black Cockatoo Foraging Habitat Assessment (DAWE, 2022)

Starting Score		Baudin's Cockatoo (*Zanda baudinii*)		Carnaby's Cockatoo (*Zanda latirostris*)		Forest Red-Tailed Black Cockatoo (*Calyptorhynchus banksii naso*)	
		Start at a score of 10 if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation**. This tool only applies to sites equal to or larger than 1 hectare in size.**		**Start at a score of 10** if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as *Banksia* spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. **This tool only applies to sites equal to or larger than 1 hectare in size.**		**Start at a score of 10** if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri Forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. **This tool only applies to sites equal to or larger than 1 hectare in size.**	
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat).					
Foraging	**-2**	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☐	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☐	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	☐
Connectivity	**-2**	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	☐
Proximity to breeding	**-2**	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	☐

Starting Score		Baudin's Cockatoo (*Zanda baudinii*)		Carnaby's Cockatoo (*Zanda latirostris*)		Forest Red-Tailed Black Cockatoo (*Calyptorhynchus banksii naso*)	
Proximity to roosting	-1	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	☐
Impact from significant plant disease	-1	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	☐	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	☐	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50%of the preferred food plants present.	☐
		8		**10**		**10**	

Table 10 Black Cockatoo Foraging Evidence

Species	Description	Photo
Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso)* (2022)	Typical chewing on marri nuts.	
Carnaby's Cockatoo (*Zanda latirostris)* (2022)	*Banksia* cone foraging.	
Carnaby's Cockatoo (*Zanda latirostris),* Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso) and* Baudin's Cockatoo (*Zanda baudinii)* (2025)	Assorted Marri nut foraging evidence for all three species of black cockatoo (in hand). Pine fruit foraging evidence (arms)	

4.2.2.2 Bamford Method (2024)

A refined foraging habitat value was allocated to each habitat using the unpublished updated BCE (2024) methodology, provided by Mike Bamford to AECOM. This scoring tool considered known breeding and roosting sites, and the characteristics associated with each fauna habitat type.

A total of ten fauna habitats were described across 535.74 ha (88.82%) of the survey area, representing varying degrees of value for the black cockatoos. Cleared areas represent an additional 67.63 ha. Native terrestrial fauna habitat represented 176.83 ha (33.01%) of the fauna habitat present. Habitats were categorised to represent altering conditions, complexities, and habitat values, resulting in four 'Native fauna habitat' and seven 'Modified fauna habitat' types. The following factors influenced the results:

- Foraging evidence was identified for all three species of black cockatoo within the survey area.
- Foraging and breeding habitat was identified adjacent to all corridors, in particular the Gnangara Pine Plantations and large patches of remnant native vegetation. The Forest Red-tailed Black Cockatoo was observed resting and foraging in various tree species, including *E. marginata* and *C. Calophylla* within the survey area, as well as flying over.
- Pine Plantations included within the survey area represented varying value to the black cockatoos based on their age and burnt status (Plate 1).
- There is approximately 42,724 ha of native vegetation mapped within 15 km of the survey area. Native vegetation within the survey area is mapped by DBCA (77.54 ha) and represents approximately 0.18% of the available foraging habitat. Therefore, species context is generally considered low-to moderately abundant in the surrounding areas (BCE, 2024) (See Section 4.3 for modification discussion).
- Multiple confirmed and unconfirmed roosting sites are present within 20 km of the survey area for black cockatoos and specifically for Carnaby's Cockatoos. The survey area intersects five separate 1 km buffers of confirmed roost sites for black cockatoos and Carnaby's Cockatoo specific roost sties (DBCA, 2019).
- Dieback (*Phytophthora* Dieback) is mapped for 8.29 ha in the survey area but does not constitute more than 50% of the survey area.
- The survey area contains Banksia Woodlands and Eucalyptus Woodlands, with suitable foraging species including multiple proteaceous species, Marri *Corymbia calophylla* and Tuart *Eucalyptus gomphocephala* trees. Isolated trees and some patches of shrubland also provide connectivity between patches of better condition habitat.

The habitat foraging scores for each species are listed below in Table 11 and mapped in Figure 9.

Table 11 Bamford (2024) refined foraging score calculation

Fauna Habitat Type	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black Cockatoo	Extent (ha)
Adenanthos/Plantation	2	1	0	164.18 (27.22%)
Banksia Woodlands	8	4	3	71.48 (11.85%)
Burnt Pine Plantation	2	0	0	48.03 (7.96%)
Cleared	0	0	0	67.46 (11.18%)
Eucalyptus Woodland	6	6	7	70.90 (11.75%)
Mature Pine Plantation	7	0	0	50.83 (8.43%)
Mixed Shrubland	3	2	2	2.40 (0.40%)
Juvenile Pine Plantation	2	0	0	68.52 (11.36%)
Trees Over Cleared	1	2	3	6.19 (1.03%)

Fauna Habitat Type	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black Cockatoo	Extent (ha)
Urban/Residential	1	1	2	21.16 (3.51%)
Wetlands	2	2	2	**32.05 (5.31%)**

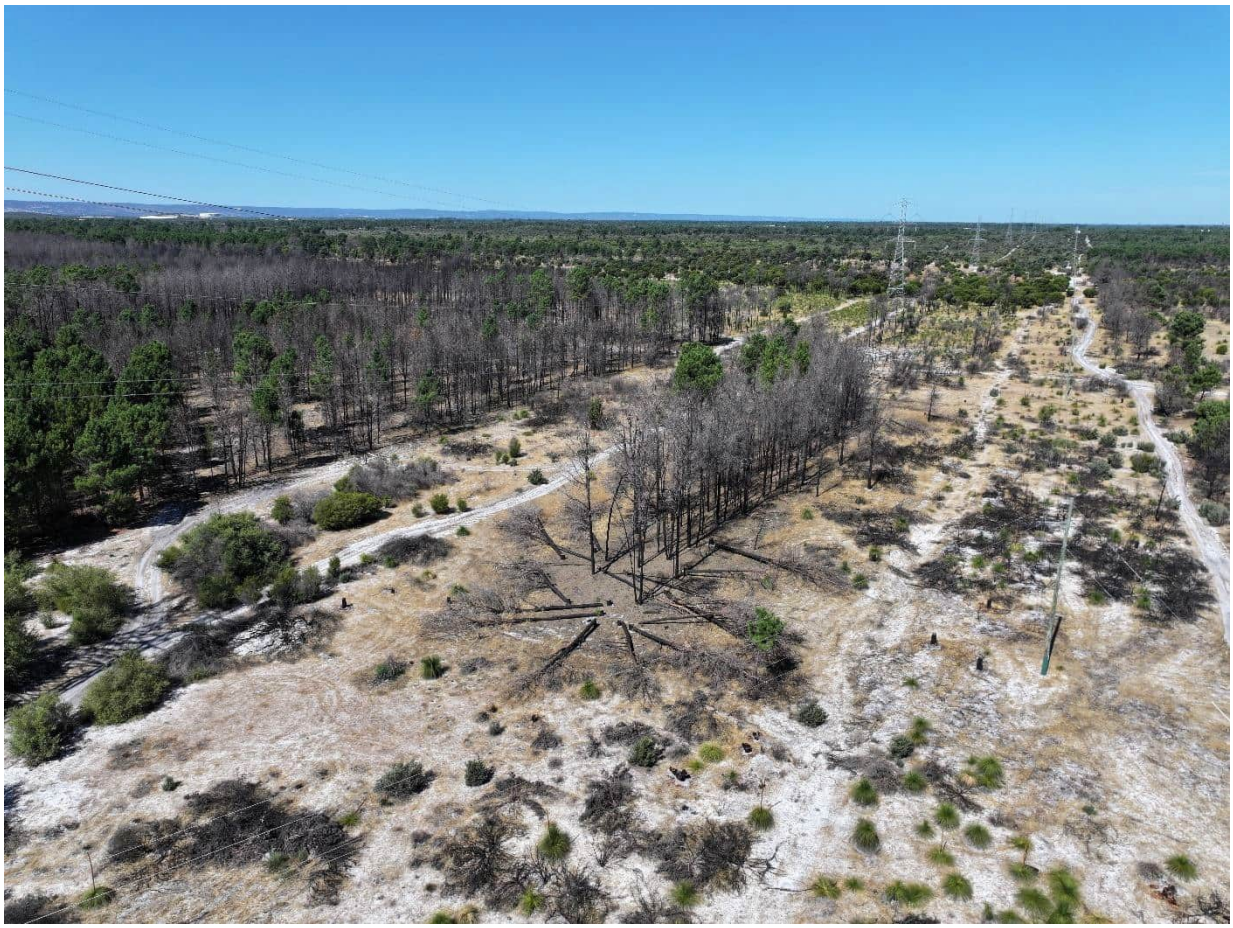
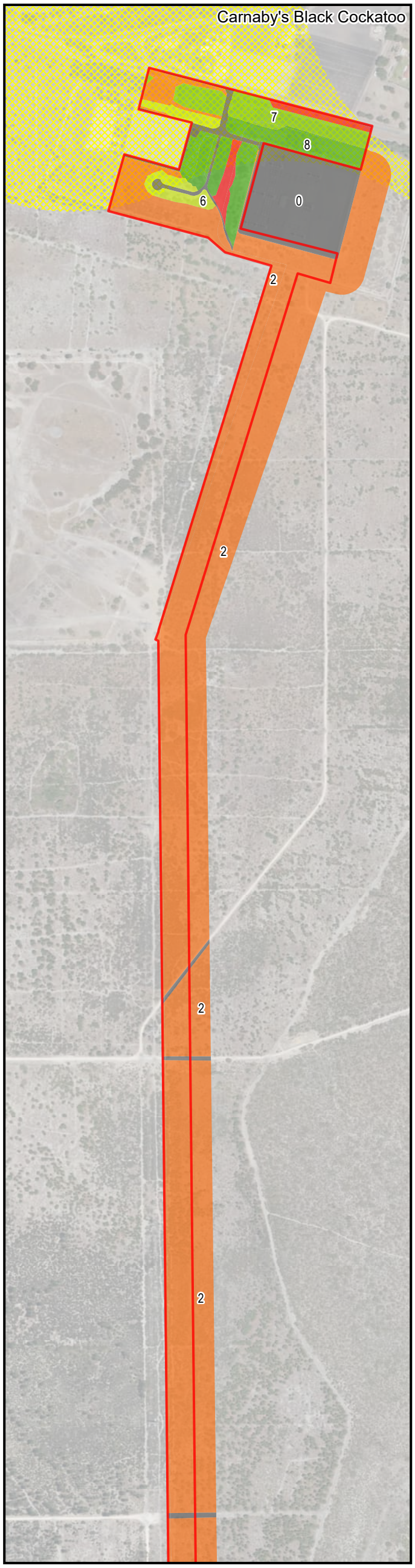
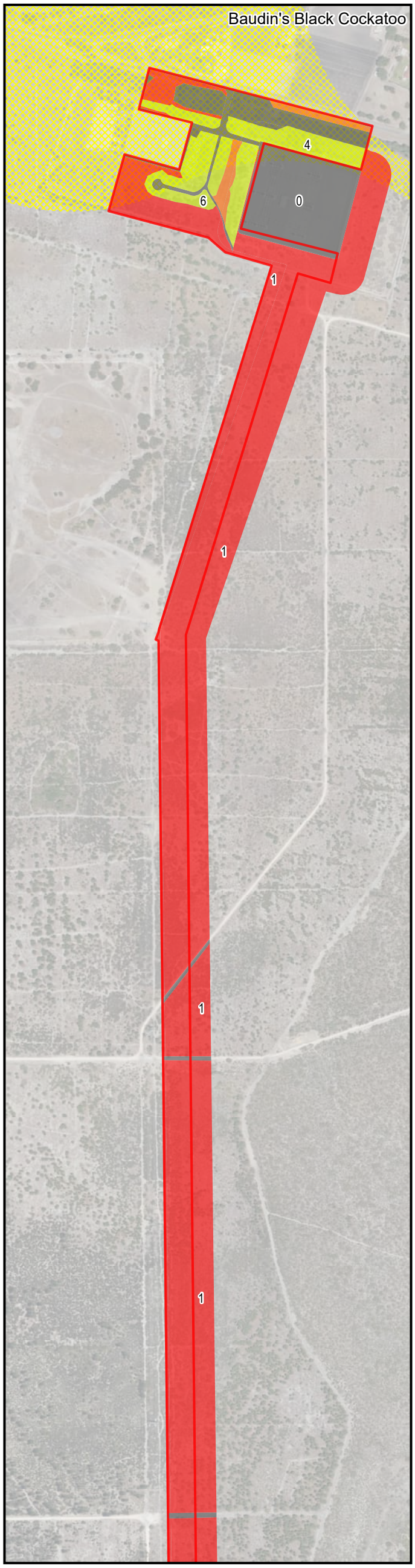
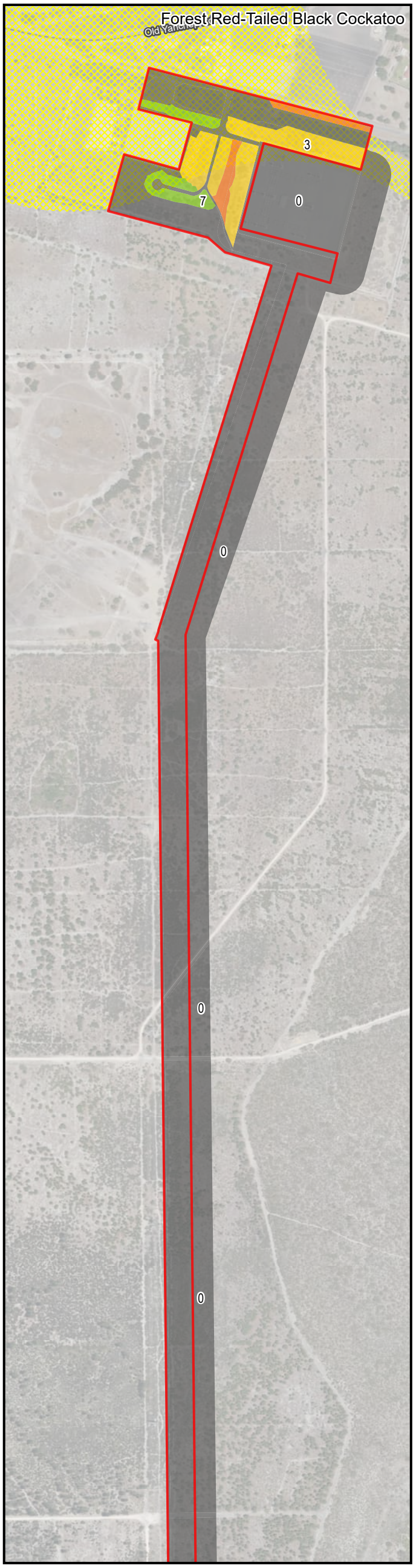


Plate 1 Burnt Pine Plantation (AECOM, 2025)







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  - Negligible (1)
  - Low (2)
  - Low to Moderate (3)
  - Moderate (4-6)
  - Moderate to High (7)
  - High (8-10)
- Black Cockatoo Roosting Sites Buffered
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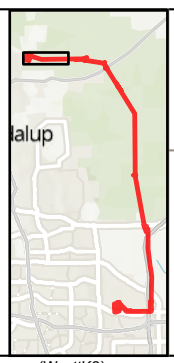

Black Cockatoo Foraging Habitat

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Figure

9.1

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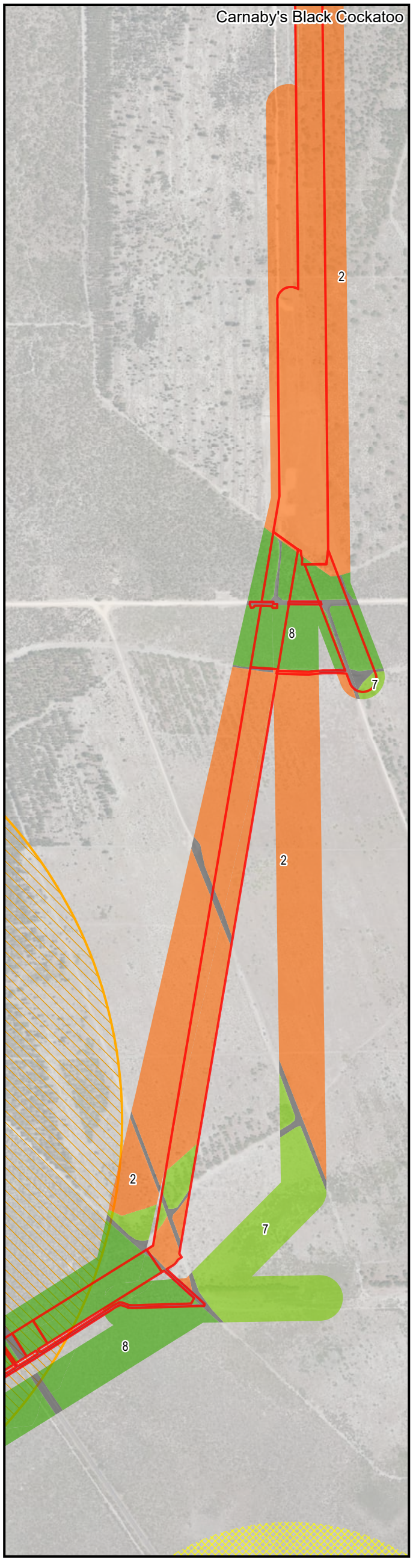

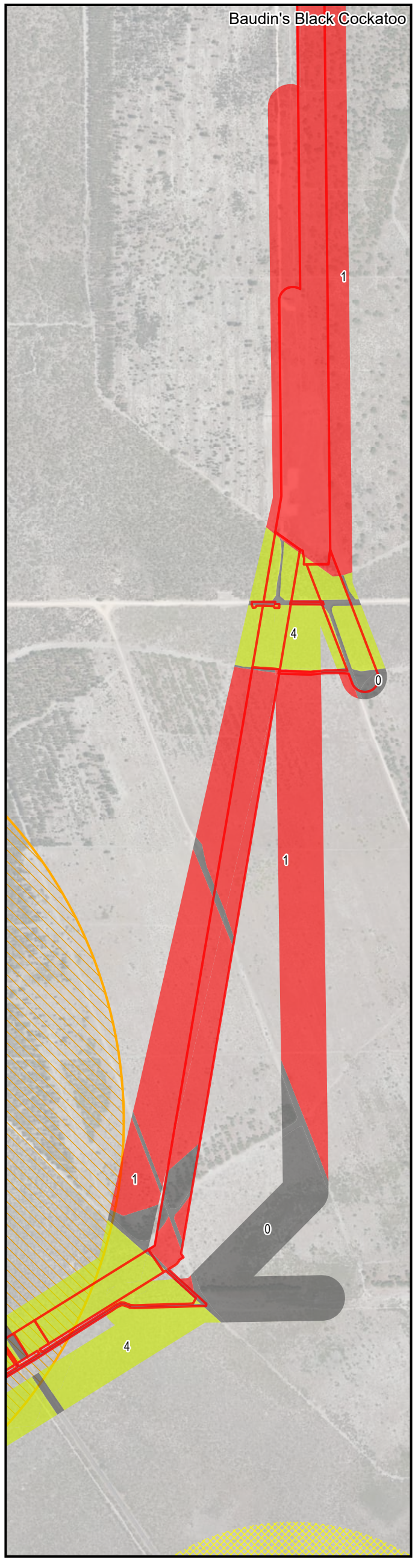

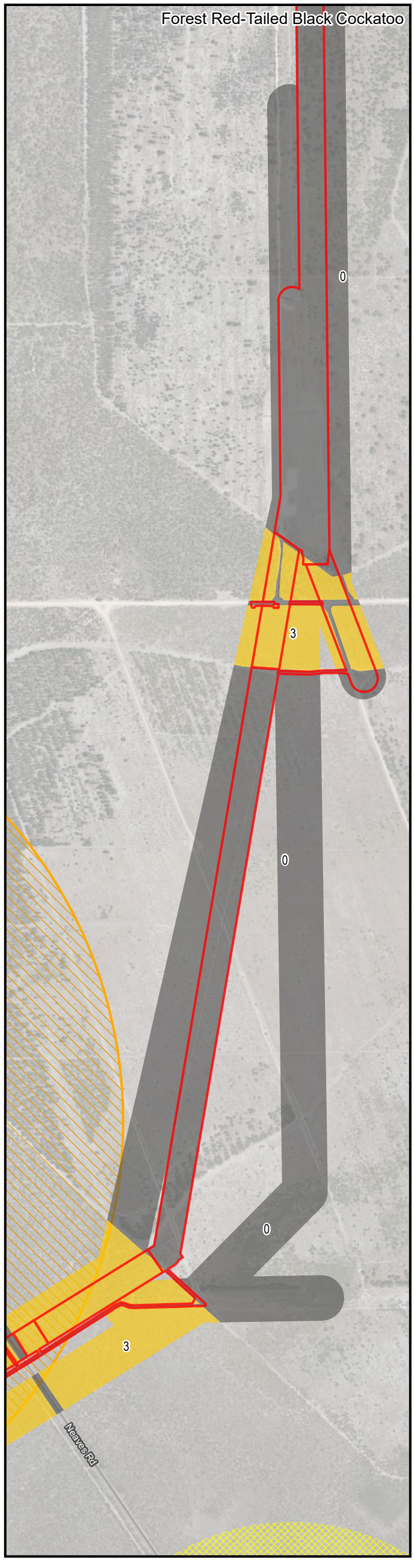

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  - High (8-10)
- Black Cockatoo Roosting Sites Buffered
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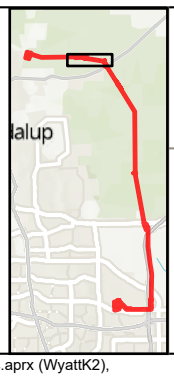
  - 1000m



Black Cockatoo Foraging Habitat

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Figure 9.2

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- Black Cockatoo Roosting Sites Buffered
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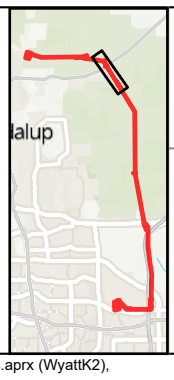

Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

9.3

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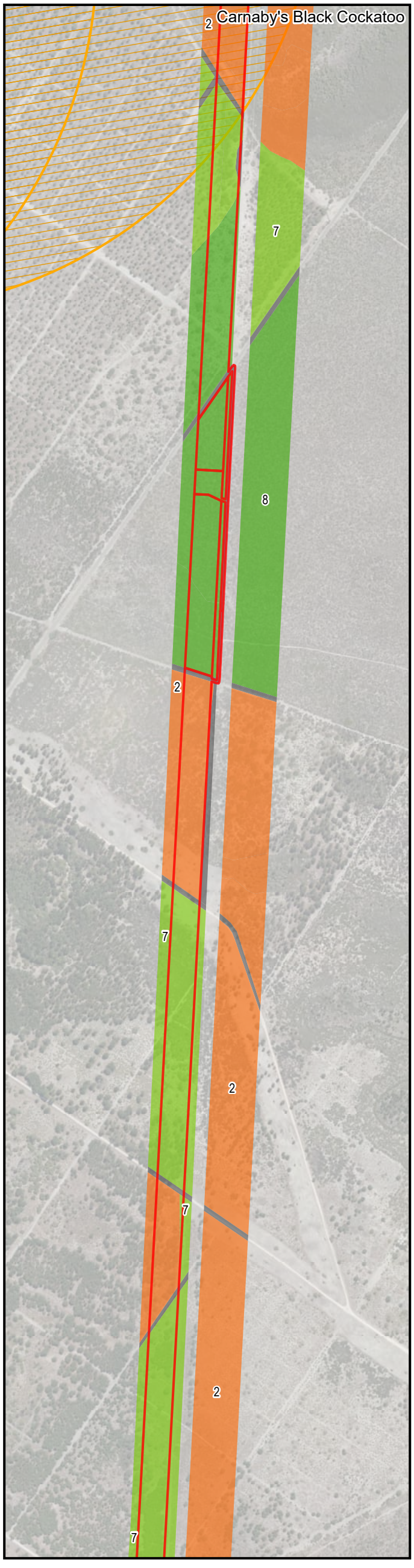

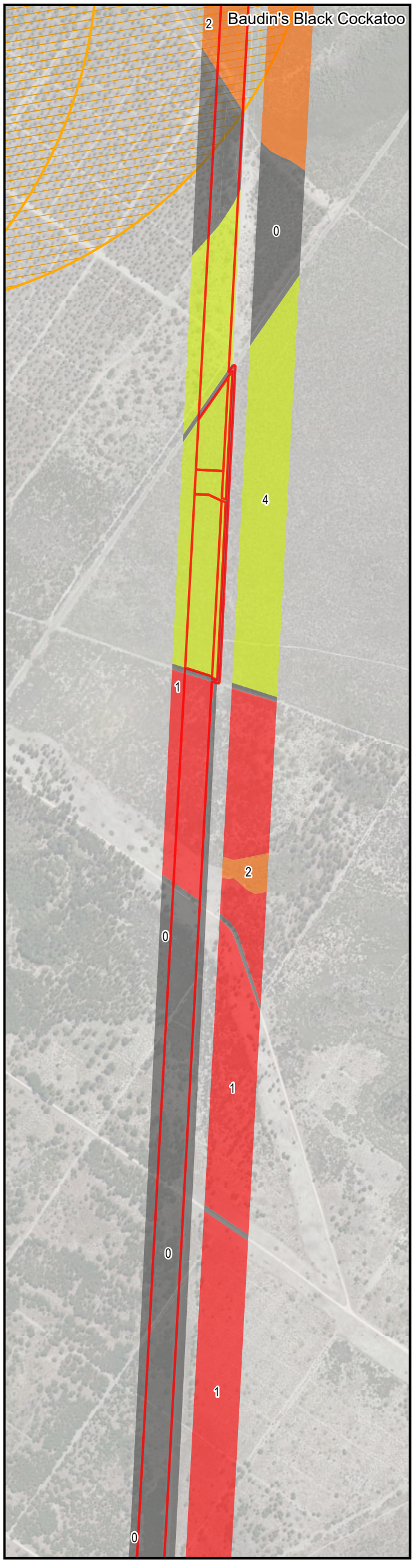

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- Black Cockatoo Roosting Sites Buffered
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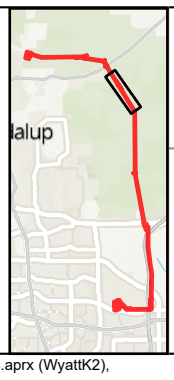

Black Cockatoo Foraging Habitat

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ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 9.4

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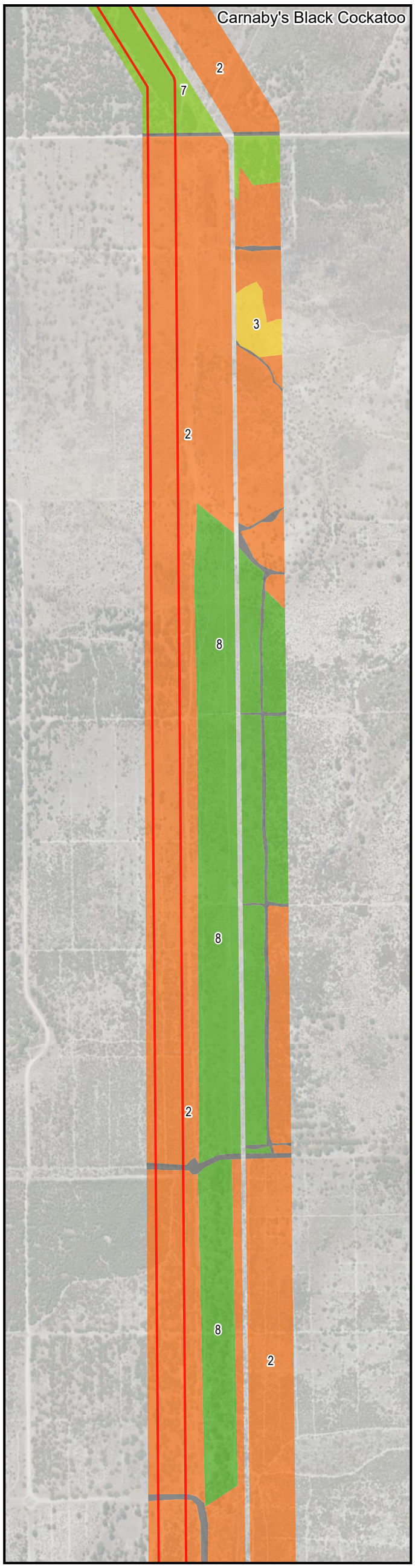

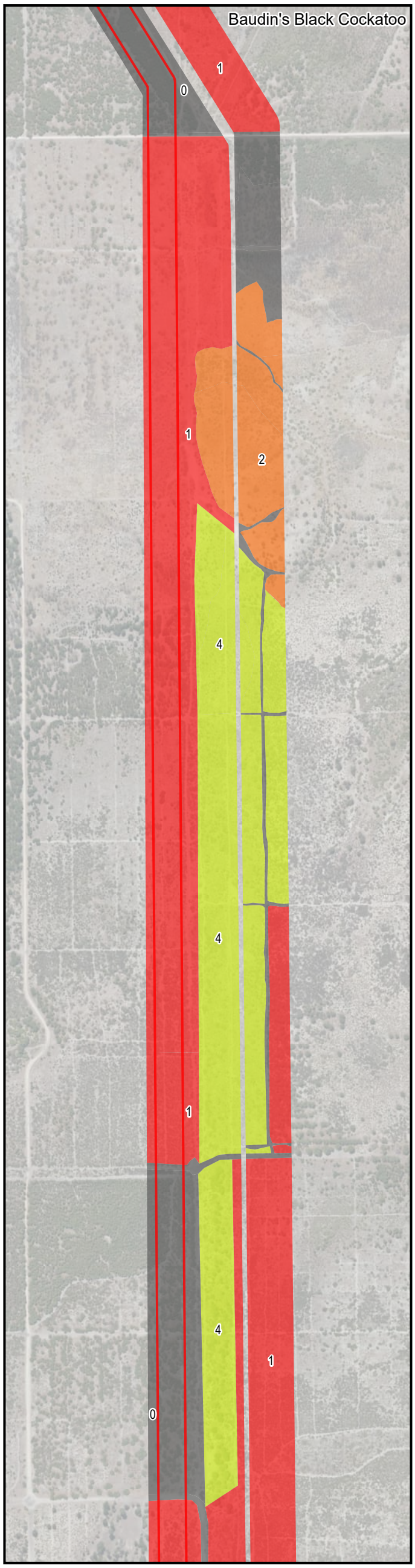

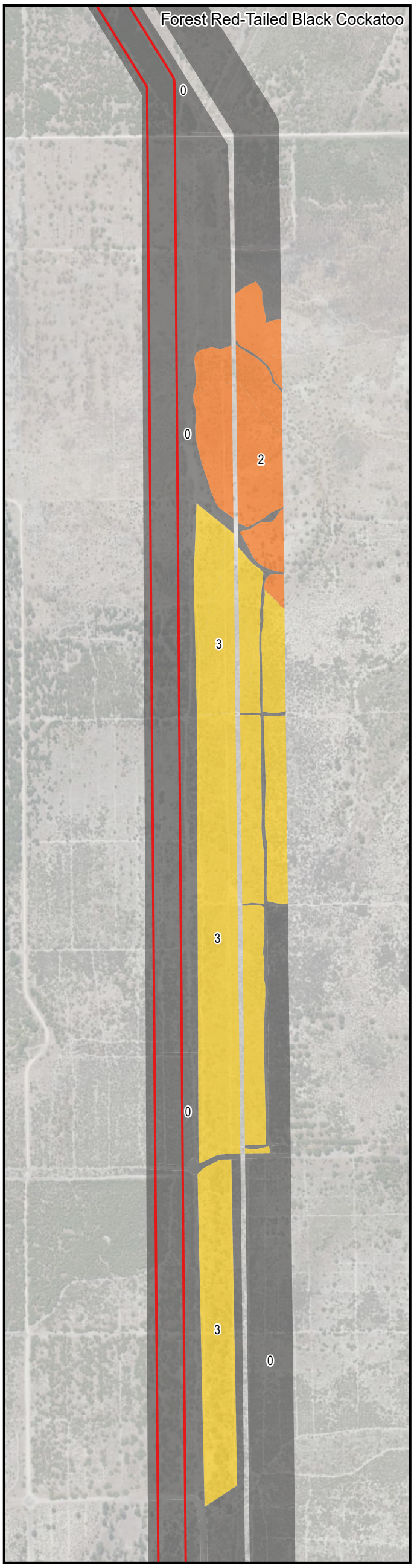

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LEGEND

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- Low to Moderate (3)
- Moderate (4-6)
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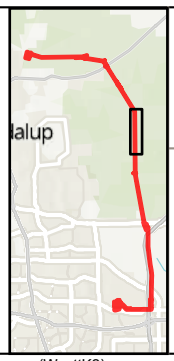

Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

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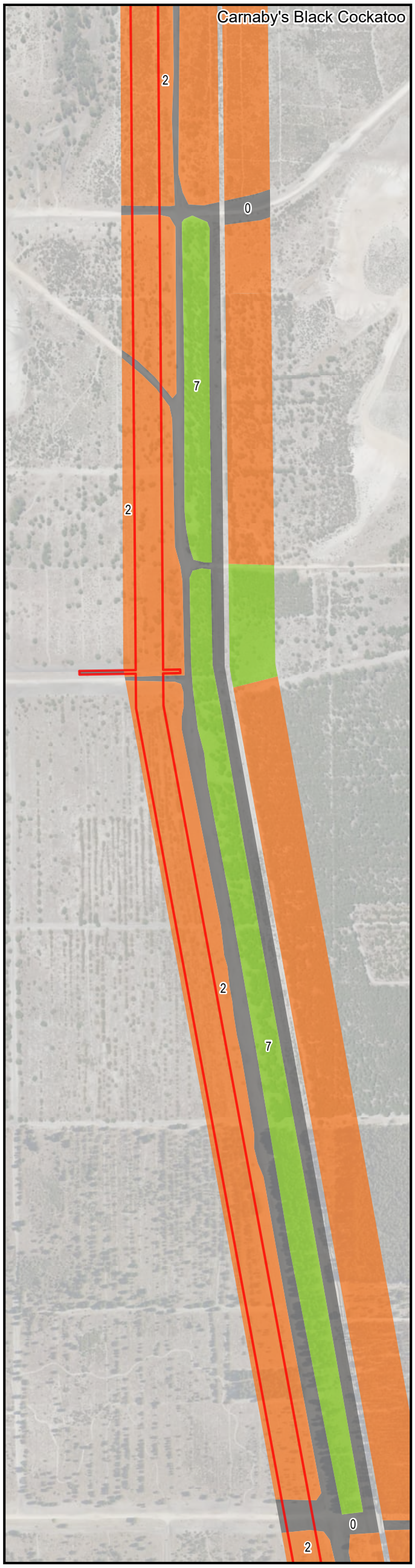

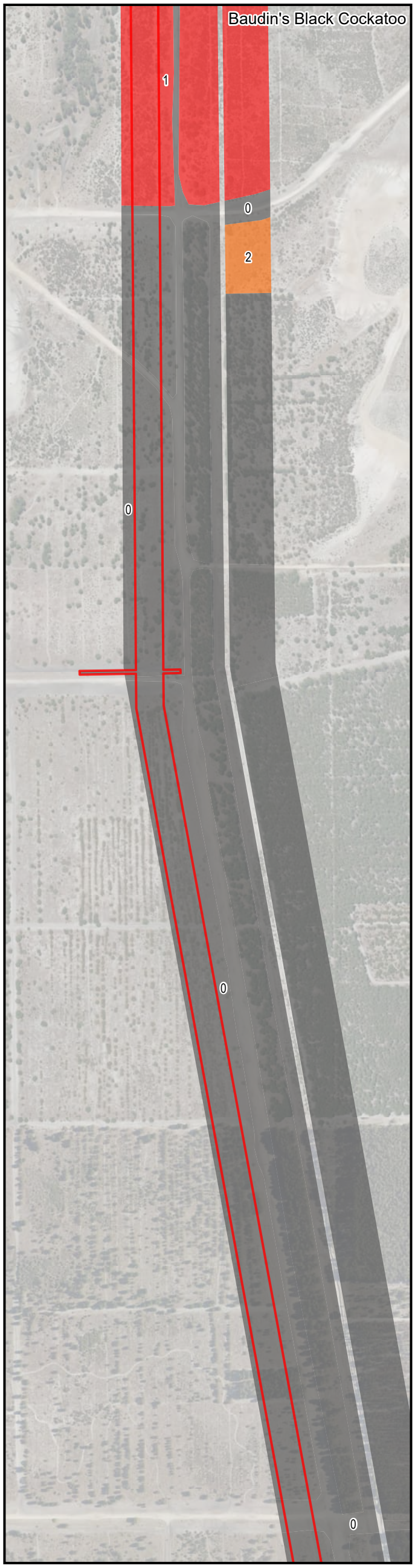

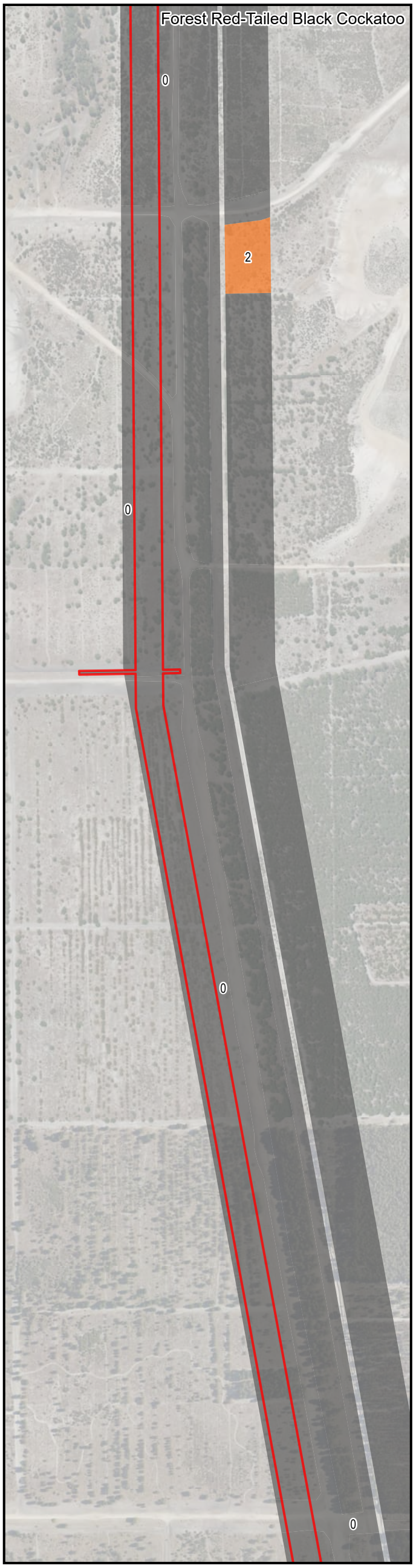

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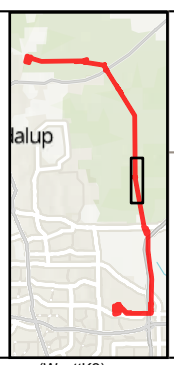

Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

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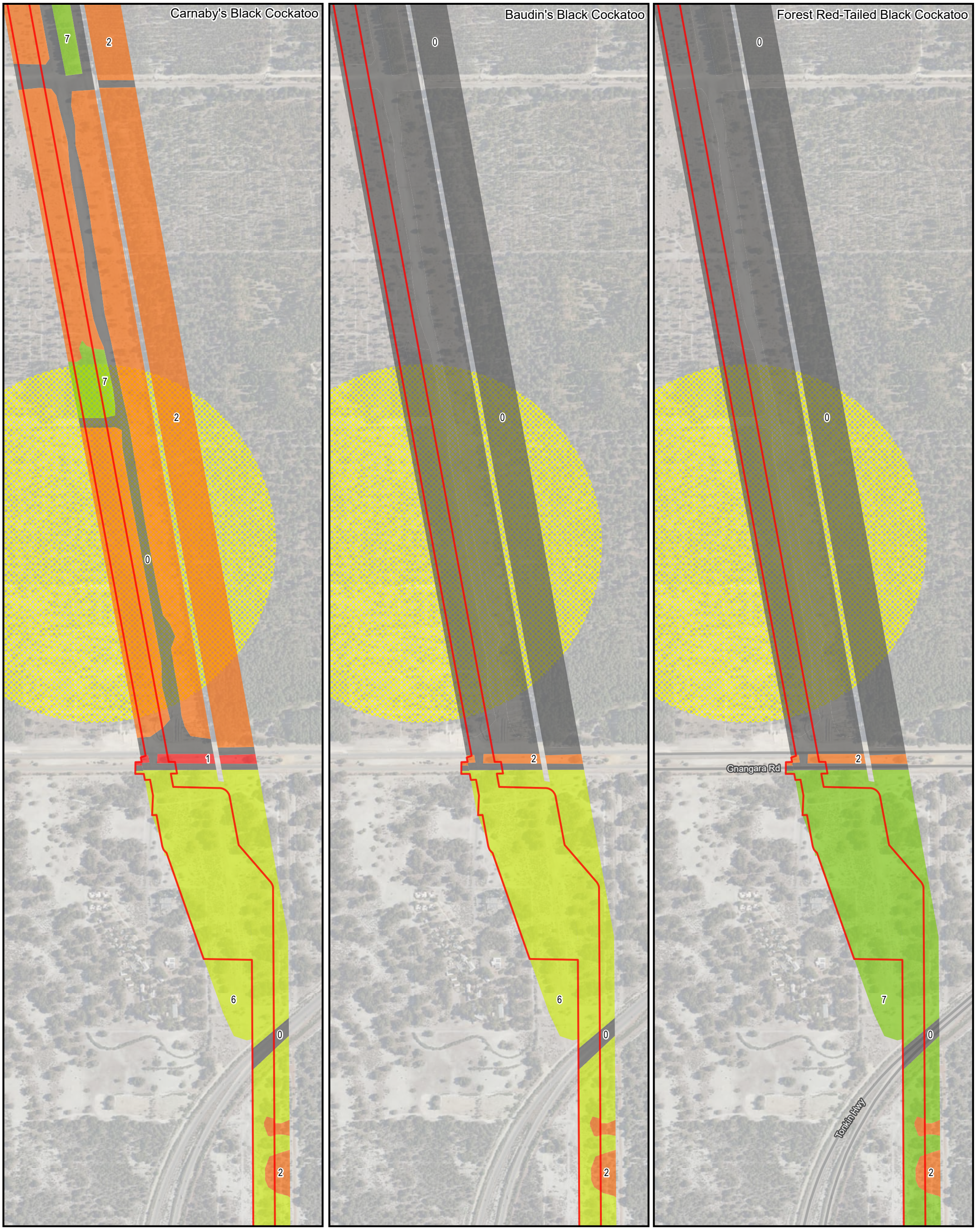

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GDA2020 MGA ZONE 50

LEGEND

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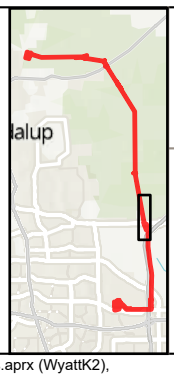
  - Negligible (1)
  - Low (2)
  - Low to Moderate (3)
  - Moderate (4-6)
  - Moderate to High (7)
  - High (8-10)
- Black Cockatoo Roosting Sites Buffered 500m



Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 9.7

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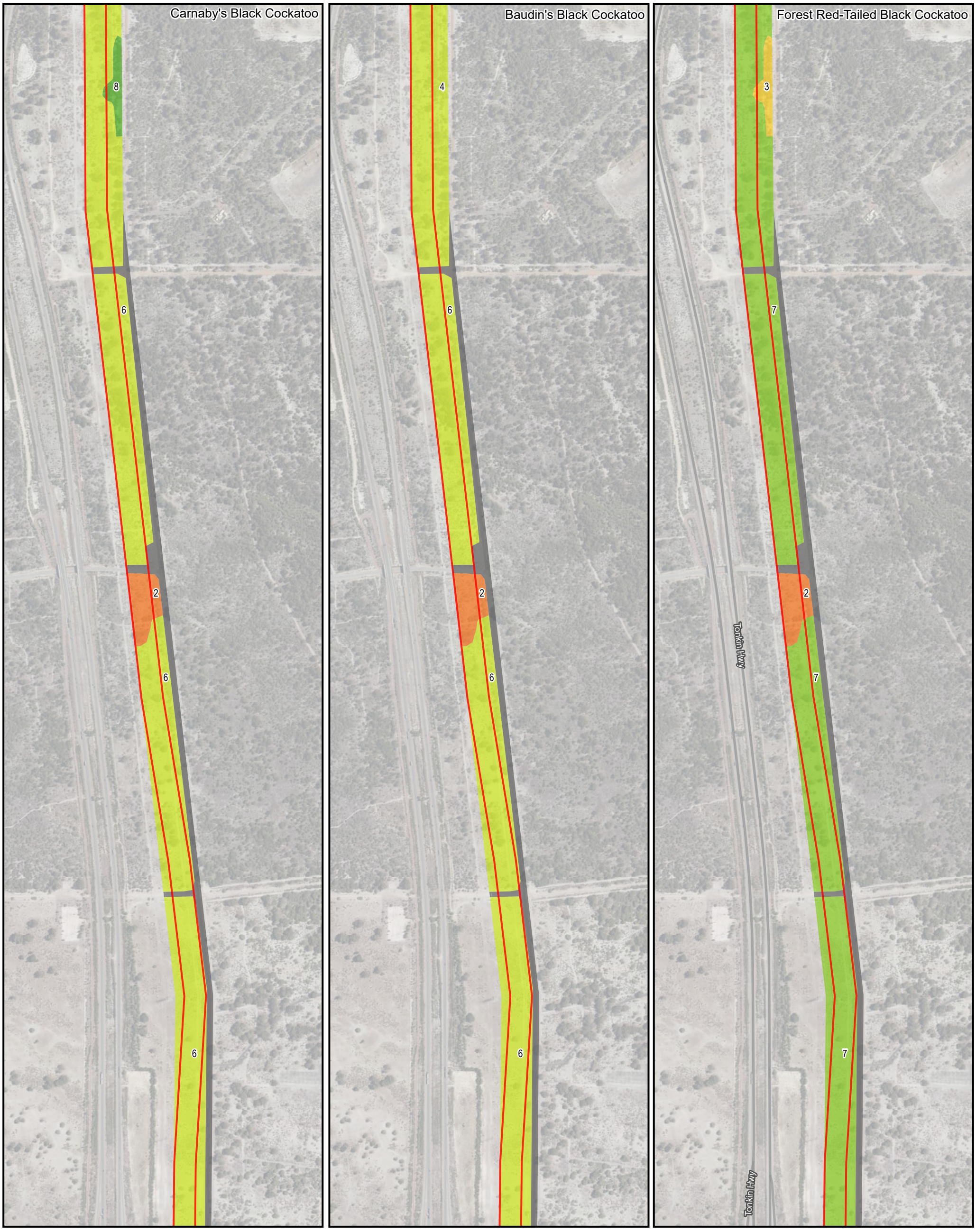

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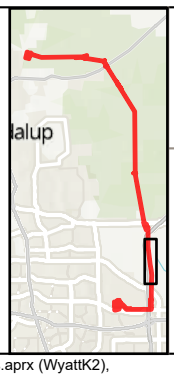

Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

9.8

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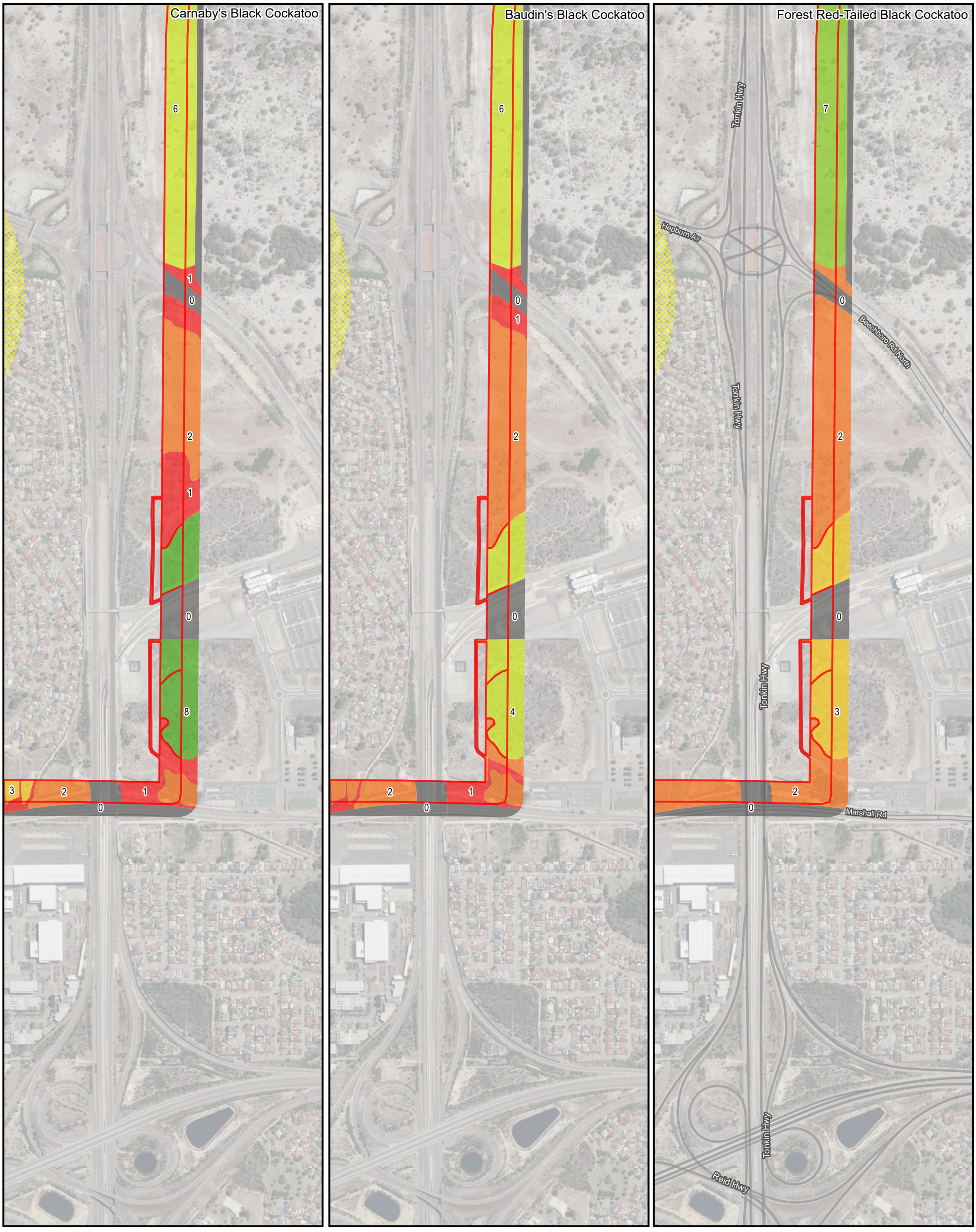

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  - Low (2)
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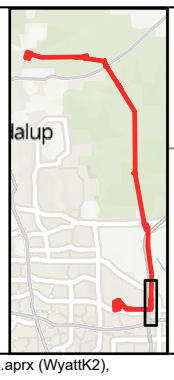
  - Moderate to High (7)
  - High (8-10)
- Black Cockatoo Roosting Sites Buffered
  - 500m



Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 9.9

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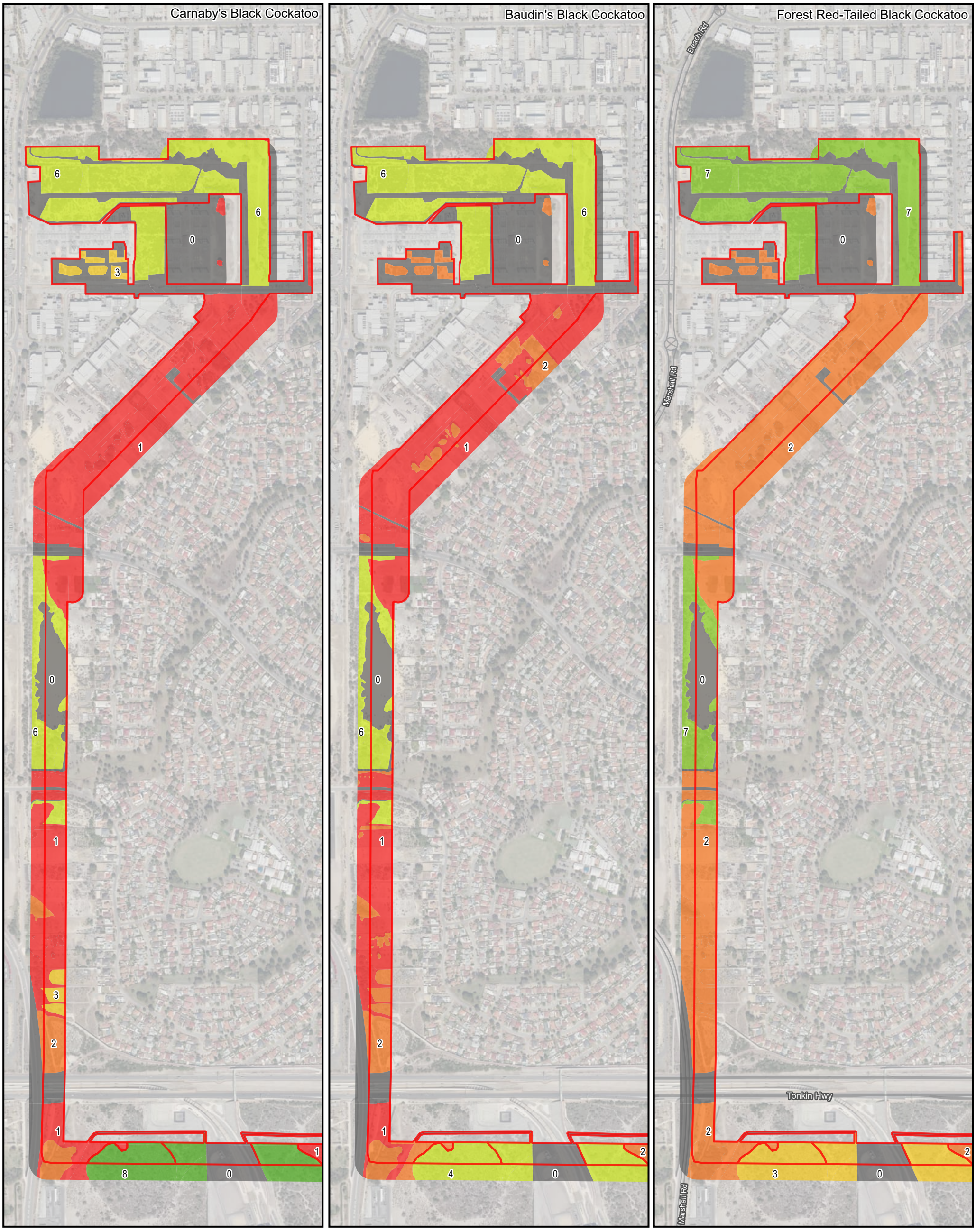

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Development Envelope

Black Cockatoo Foraging Score Category (Bamford, 2020)

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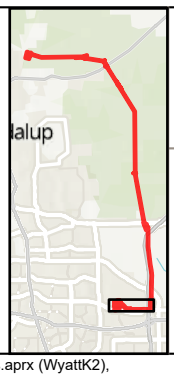

Black Cockatoo Foraging Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 9.10

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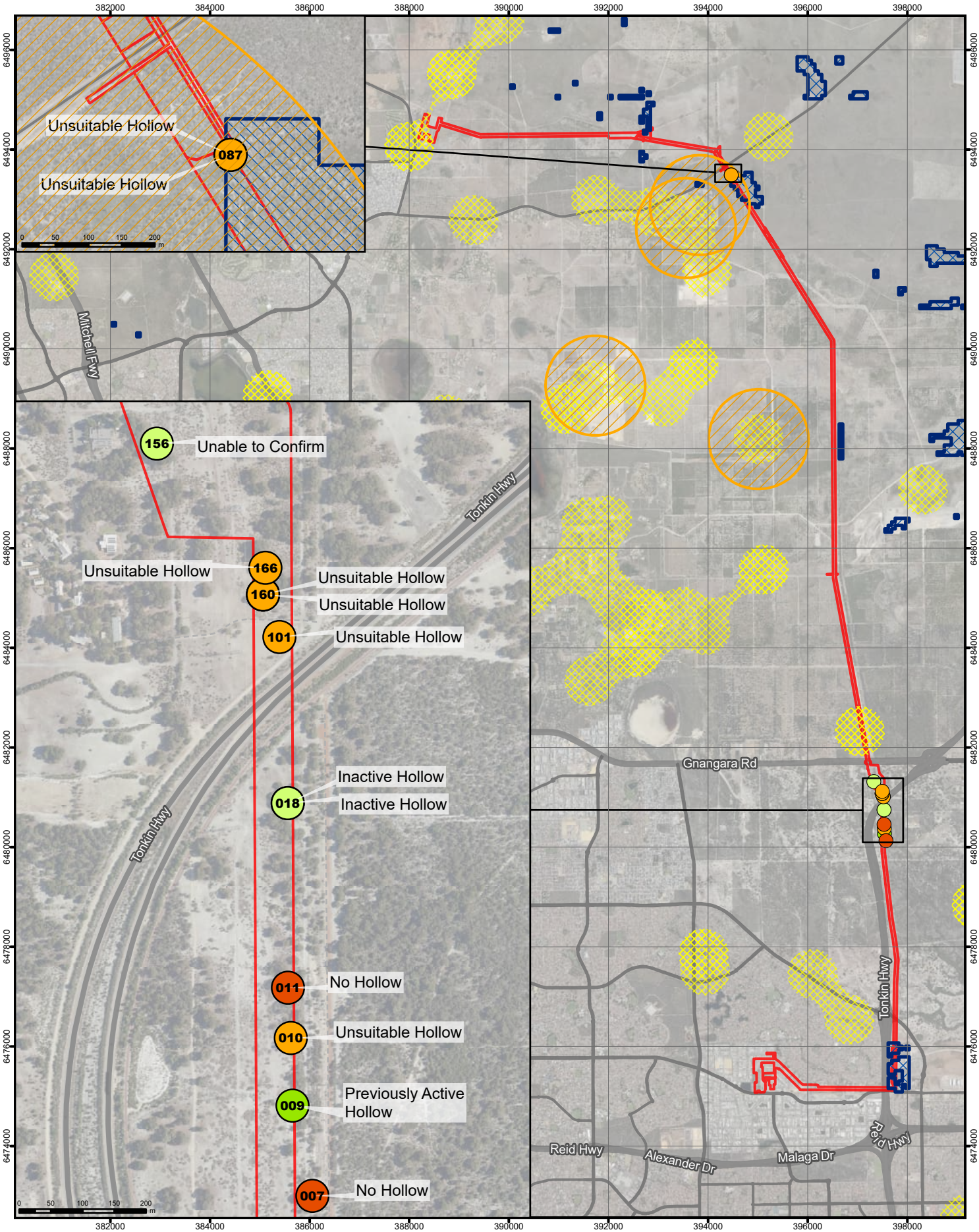
4.2.3 Roosting Habitat

Surveys were conducted exclusively between 07:00 and 17:00, outside of typical roosting hours. No roosting activity was observed within the survey area, and no roosting sites were identified. However, given the abundance of nearby water sources, including lakes, rivers, and urban systems as well as the survey area's proximity to urban environments, it is considered likely that roosting may occur opportunistically within the area, particularly where suitable habitat is available. The entire survey area is at least within 6km of known water source.

Therefore, roosting habitat within the survey area is considered to be present to some degree in all habitats that contain tall trees (DAWE, 2022). This represents 217.76 ha (36.10%). These habitats are listed below and mapped in Figure 10.

- Trees Over Cleared (6.19 ha, 1.03%)
- Banksia Woodland (71.48 ha, 11.85%)
- Mature Pine Plantation (50.83 ha, 8.43%)
- Eucalyptus Woodland (70.90 ha, 11.75%)
- Urban/Residential (21.16 ha, 3.51%)
- Burnt pine (48.03 ha, 7.96%).



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LEGEND

- Development Envelope
- Phytophthora Dieback Occurrence - Infested Only (DBCA-082)
- Black Cockatoo Roosting Sites Buffered
  - 500m
  - 1000m
- Black Cockatoo Potential Breeding Trees with Hollows reassessed in the 2025 survey (labelled with Tree ID)
- Nest Tree Score (BCE, 2024)
  - 2
  - 3
  - 4
  - 5

Black Cockatoo Breeding Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure 10

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4.3 Vegetation Review

Using insights collected during the 2025 surveys, a total of 20 vegetation communities were identified and aligned between the 2022 and 2023 surveys. The diversity of vegetation communities reflects the length of the linear corridor as well as the influence of historical disturbance and isolation of some patches.

Native vegetation was mapped for 176.35 ha, accounting for 29.24% of the total survey area. Modified and non-native vegetation was mapped for 351.80 ha (58.32%). Additionally, 69.50 ha (11.52%) were classified as cleared, while 5.56 ha (0.92%) remained un-surveyed due to restricted access. The vegetation is summarised below and mapped in Figure 11.

- three Banksia Woodlands
  - BaBeAn: 8.08 ha, 1.34%
  - BaXpPo: 20.90 ha, 3.47%
  - BaRcGt: 3.03 ha, 0.50%
- seven Eucalypt Woodlands
  - CcSxDf: 3.10 ha, 0.51%
  - CCXpEc: 1.17 ha, 0.19%
  - CcXpHg: 55.30 ha, 9.17%
  - EgGICe: 0.96 ha, 0.16%
  - EmHhMp: 0.76 ha, 0.13%
  - ErAcCc: 7.97 ha, 1.32%
  - EtHsLb: 41.87 ha, 6.94%
- five Wetlands
  - MpHaDb: 13.24 ha, 2.20%
  - MpKgDs: 4.10 ha, 0.68%
  - KmHg: 4.10 ha, 0.68%
  - MlCa: 5.30 ha, 0.88%
  - MpXpCe: 6.46 ha, 1.07%
- five disturbed areas
  - PpAcCe: 135.71 ha, 22.50% modified
  - Trees: 9.24 ha, 1.53% modified
  - Planted: 3.99 ha, 0.66% non
  - Plantation: 190.57 ha, 31.59% non
  - Paddock: 12.30 ha, 2.04%.non

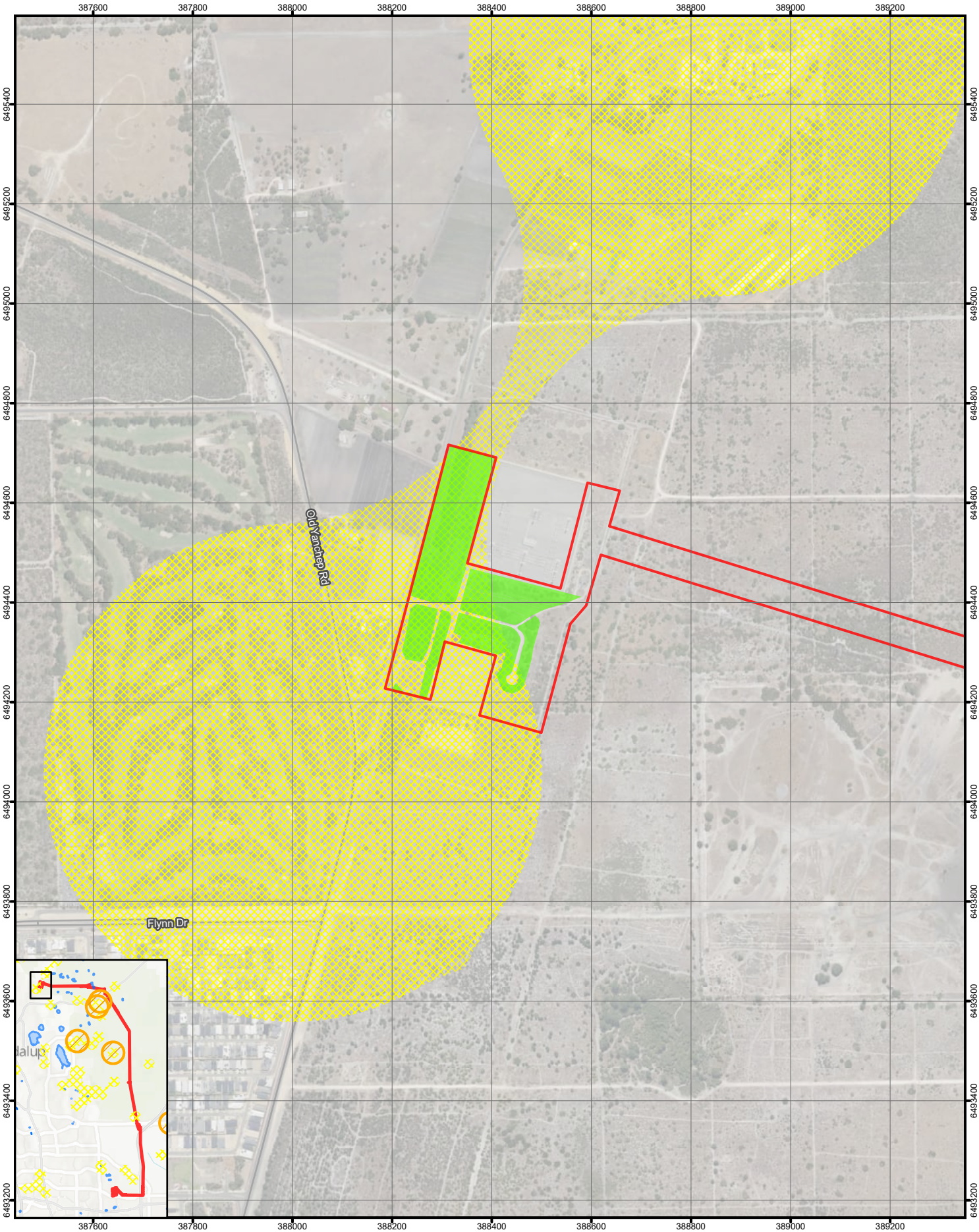
4.3.1 Conservation Significant Vegetation

Six of the 20 vegetation communities recorded represented a State or Commonwealth listed TEC or PEC, totalling 65.63 ha or 10.88% of the survey area. This is displayed in Figure 11 and Table 12.

Table 12 TEC/PEC mapped within the survey area

TEC	Cons Code[1]		Vegetation Association	Size (ha)
	BC Act	EPBC Act		
PEC Low lying *Banksia attenuata* woodlands or shrublands (floristic community type 21c)	P3	E (part)	MpHaDb (part)	1.18
TEC Banksia Woodlands of the Swan Coastal Plain; PEC Banksia Dominated Woodlands of the Swan Coastal Plain	P3	E	BaXpPo, EtHsLb BaRcGt	31.41
TEC Banksia Woodlands of the Swan Coastal Plain; PEC Banksia Dominated Woodlands of the Swan Coastal Plain; PEC Low lying *Banksia attenuata* woodlands or shrublands (floristic community type 21c)	P3	E	BaXpPo, EtHsLb	6.33
TEC Banksia Woodlands of the Swan Coastal Plain; PEC Banksia Dominated Woodlands of the Swan Coastal Plain; PEC Swan Coastal Plain *Banksia attenuata-Banksia menziesii* woodlands (floristic community type 23b)	P3	E	BaBeAn, BaXpPo, EtHsLb	26.11
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	P3	CE	EgGlCe	0.59
Total				**65.63**

1. E, Endangered, CE, Critically Endangered, P Priority



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m

GDA2020 MGA ZONE 50

LEGEND

- Development Envelope
- Roosting Habitat
- Lakes / Watercourses
- Black Cockatoo Roosting Sites Buffered
- 500m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.1

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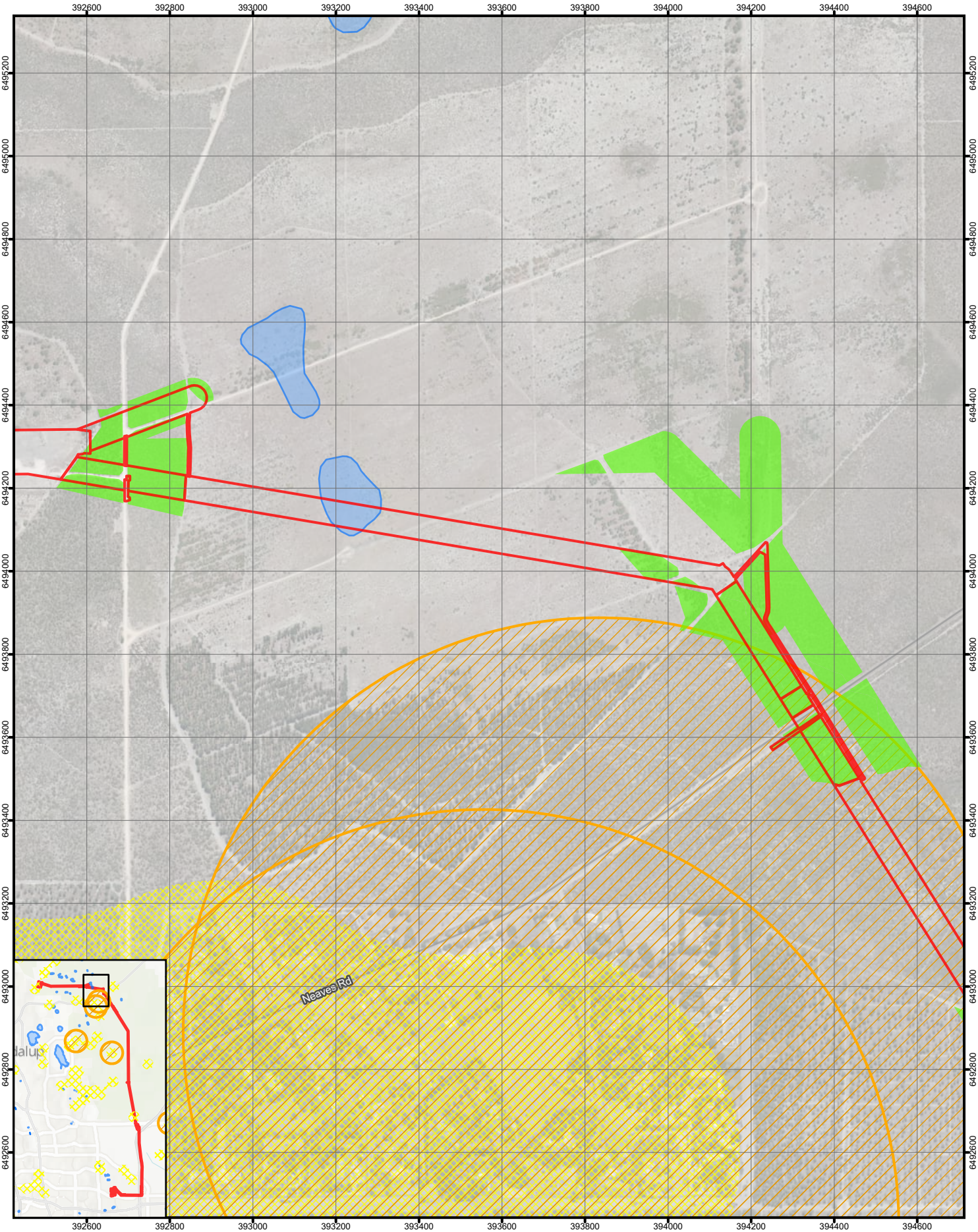

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LEGEND

- Development Envelope
- Roosting Habitat
- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.2

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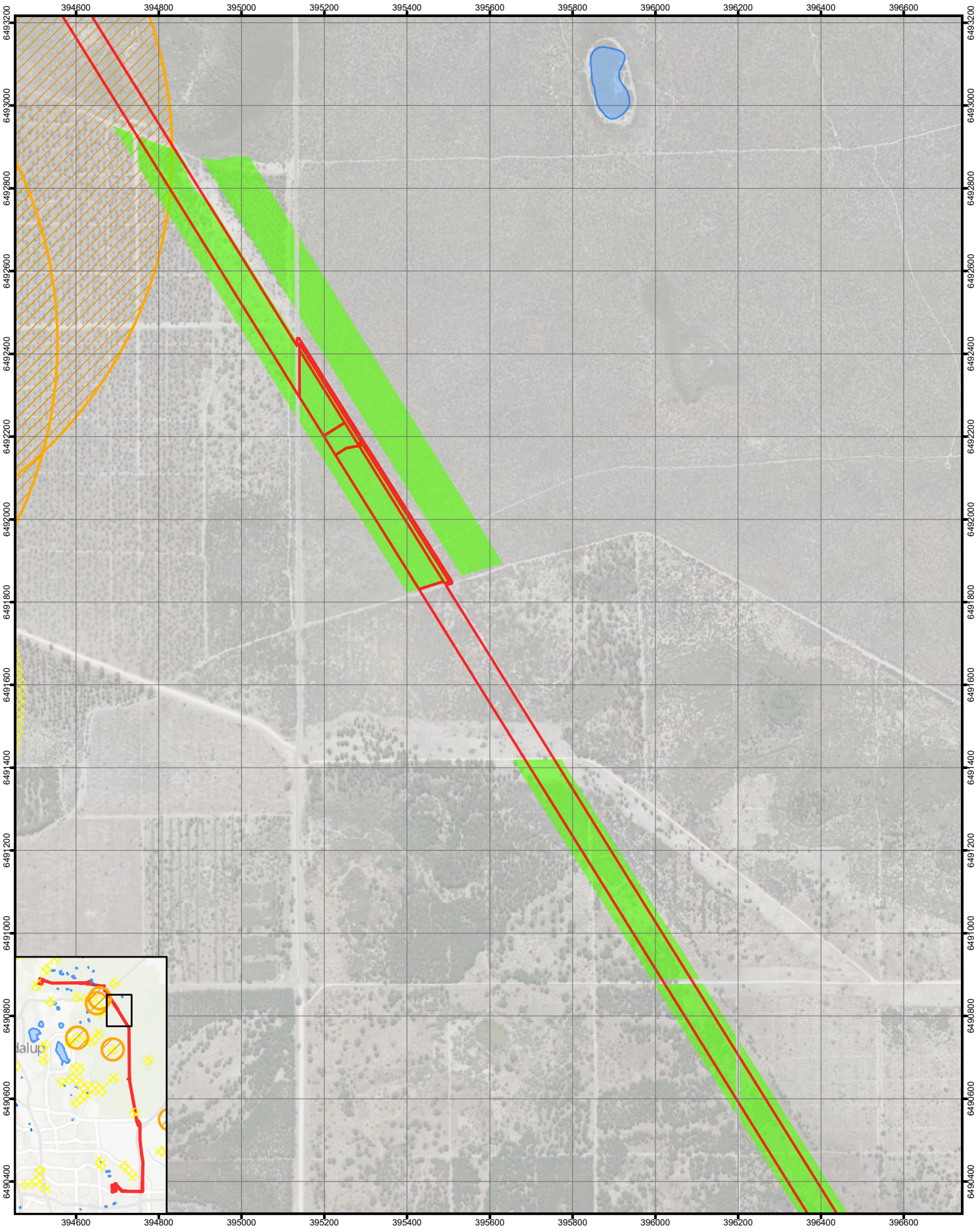

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LEGEND

- Development Envelope
- Roosting Habitat
- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.3

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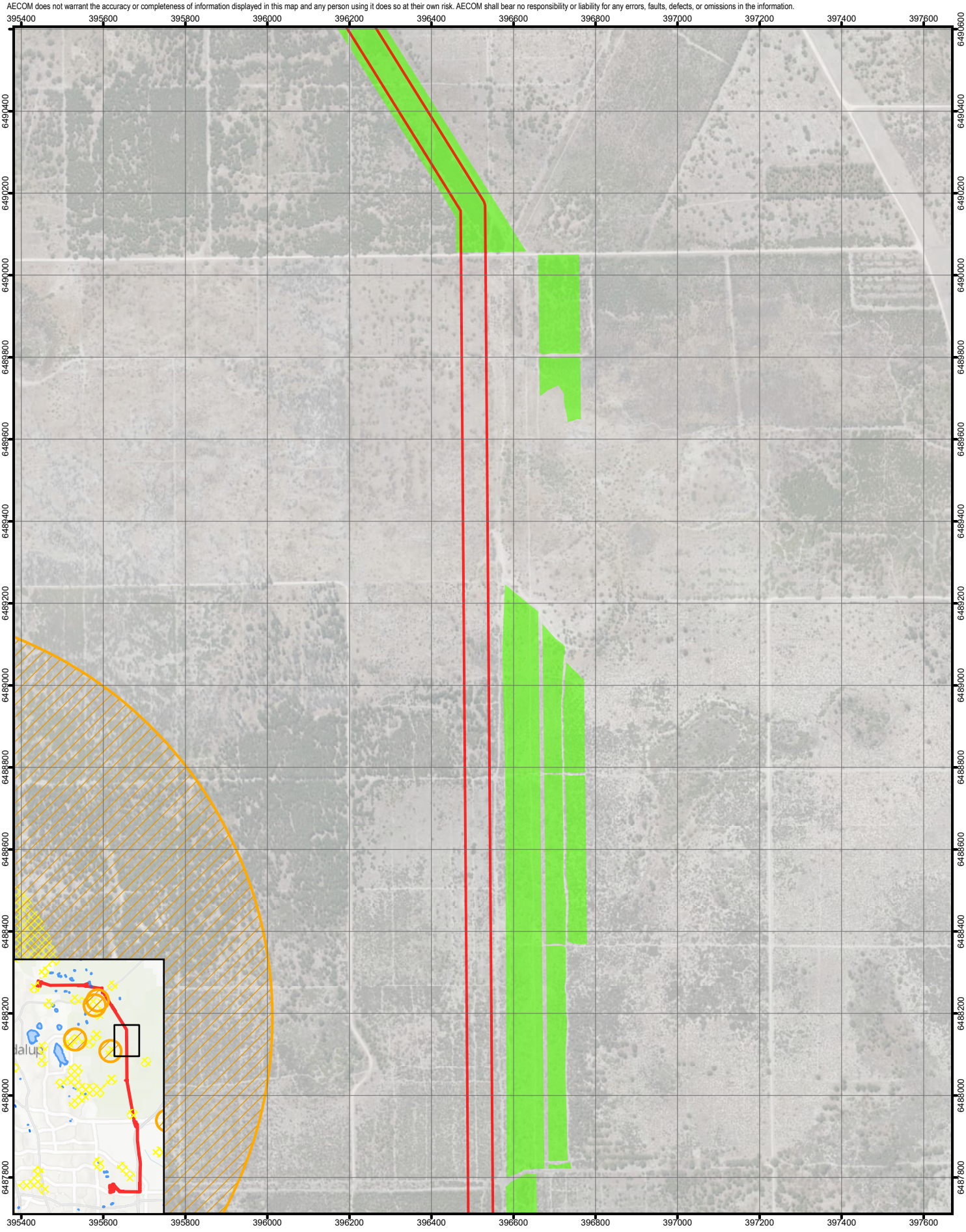

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LEGEND

- Development Envelope
- Roosting Habitat
- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.4

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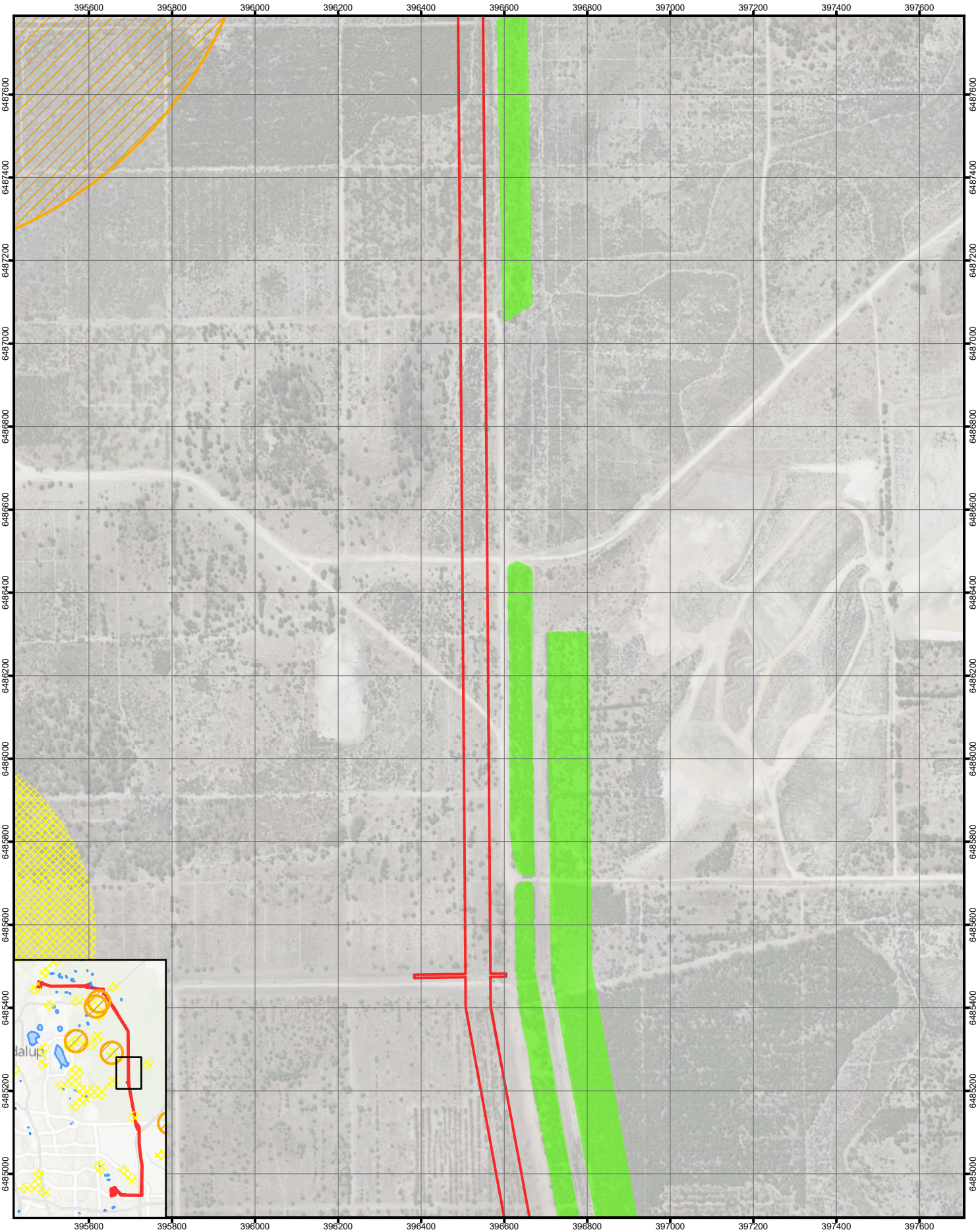

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LEGEND

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- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered

- 500m
- 1000m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.5

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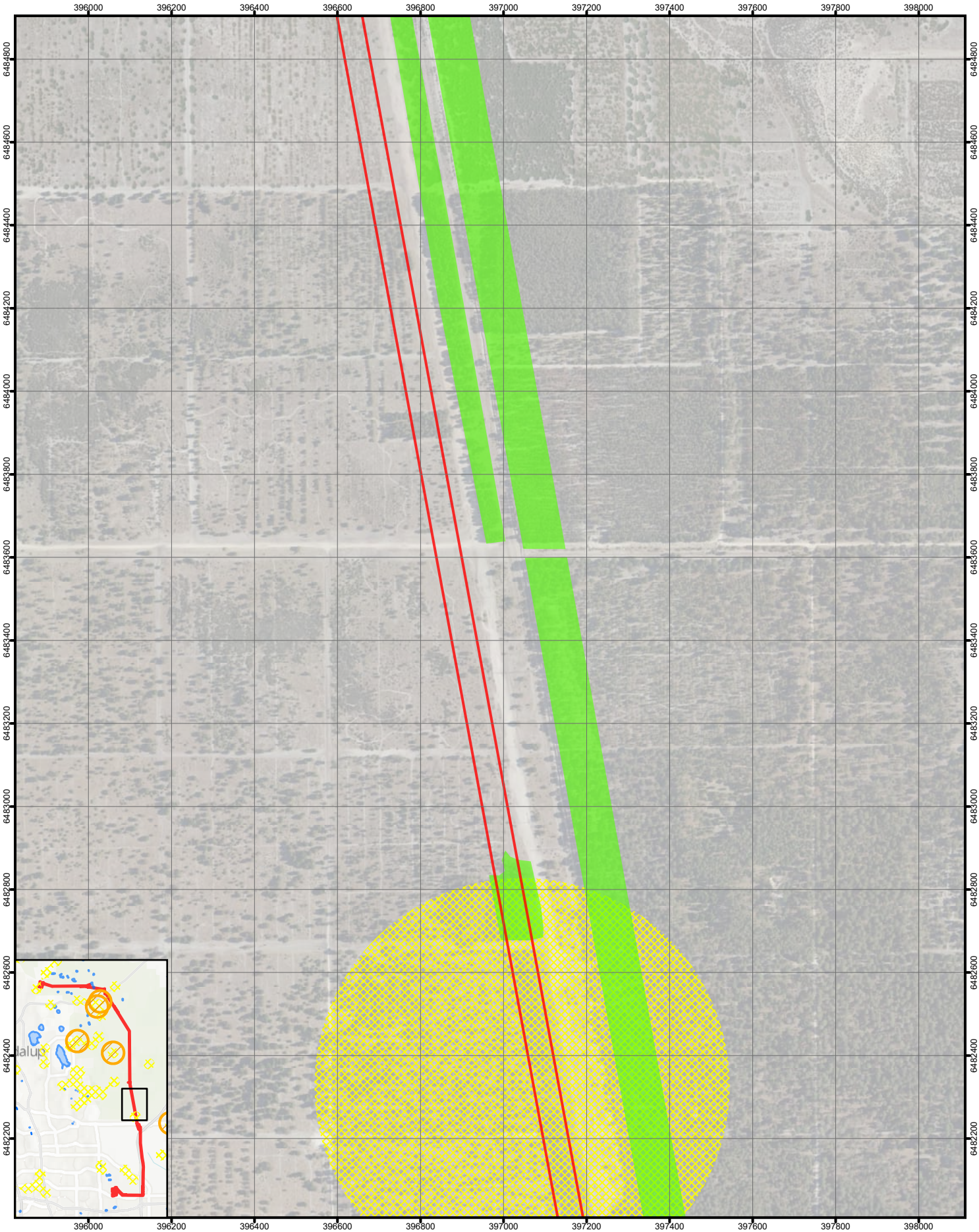

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Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.6

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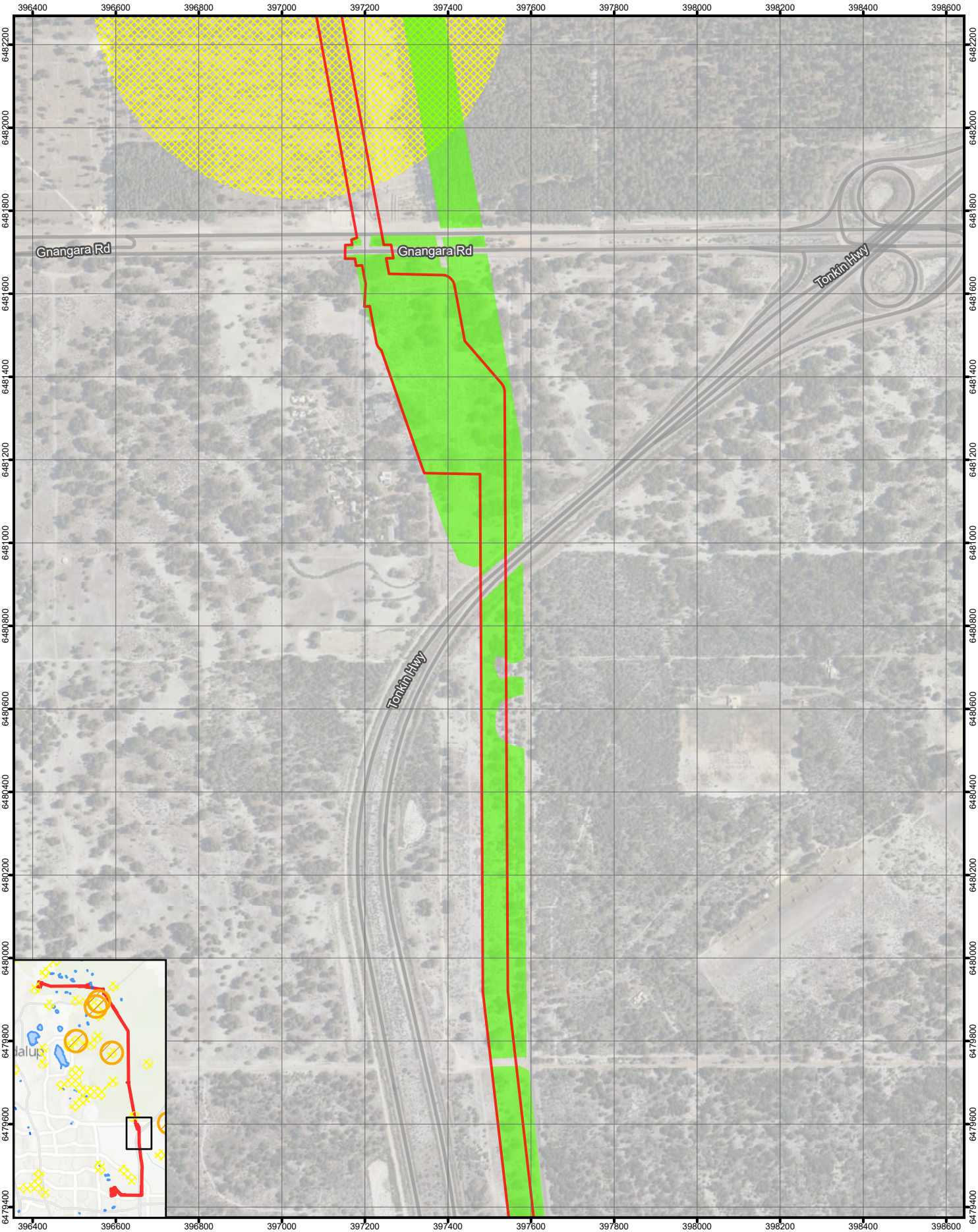

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- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered

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Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.7

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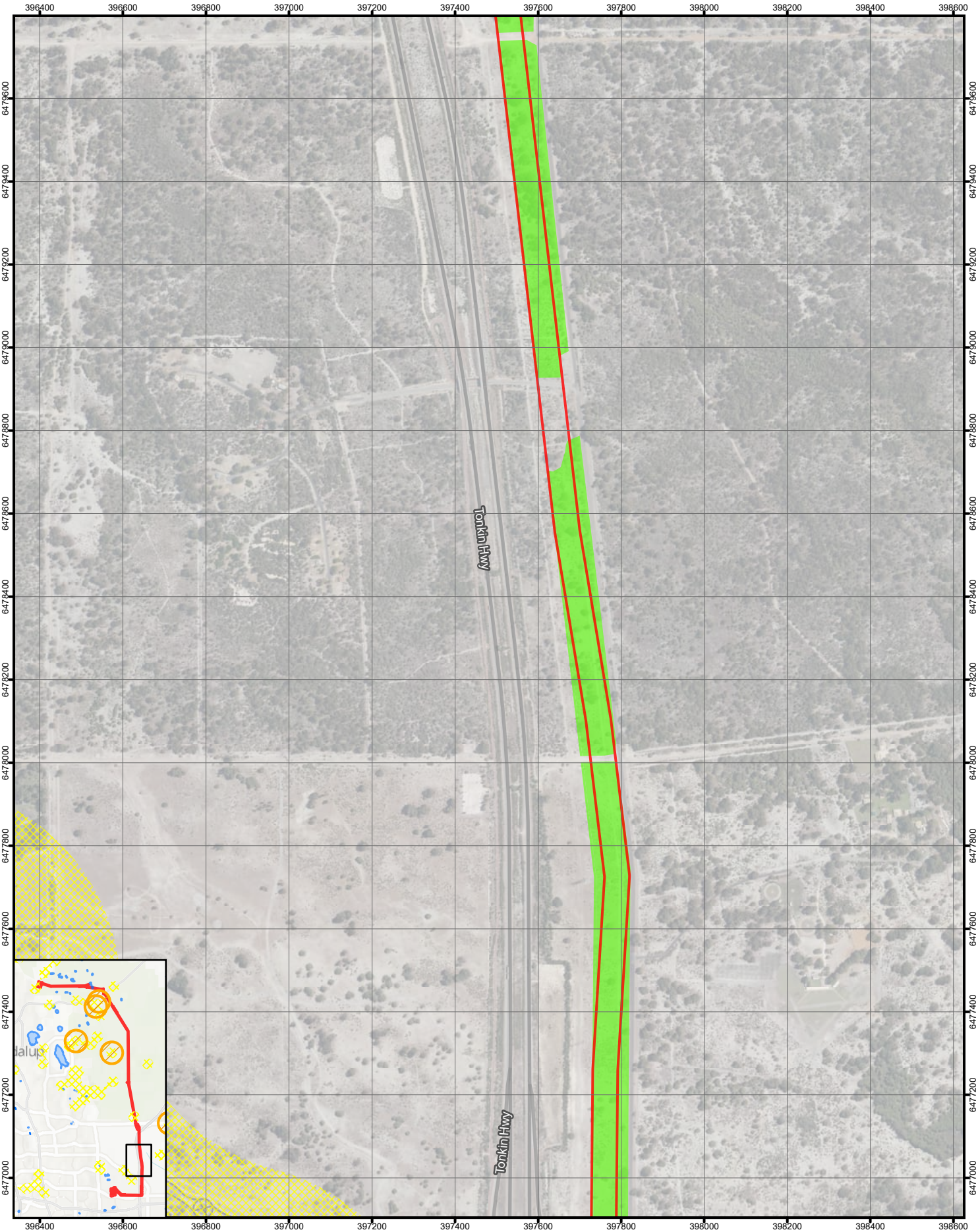

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LEGEND

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- Lakes / Watercourses
- Black Cockatoo Roosting Sites Buffered
- 500m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.8

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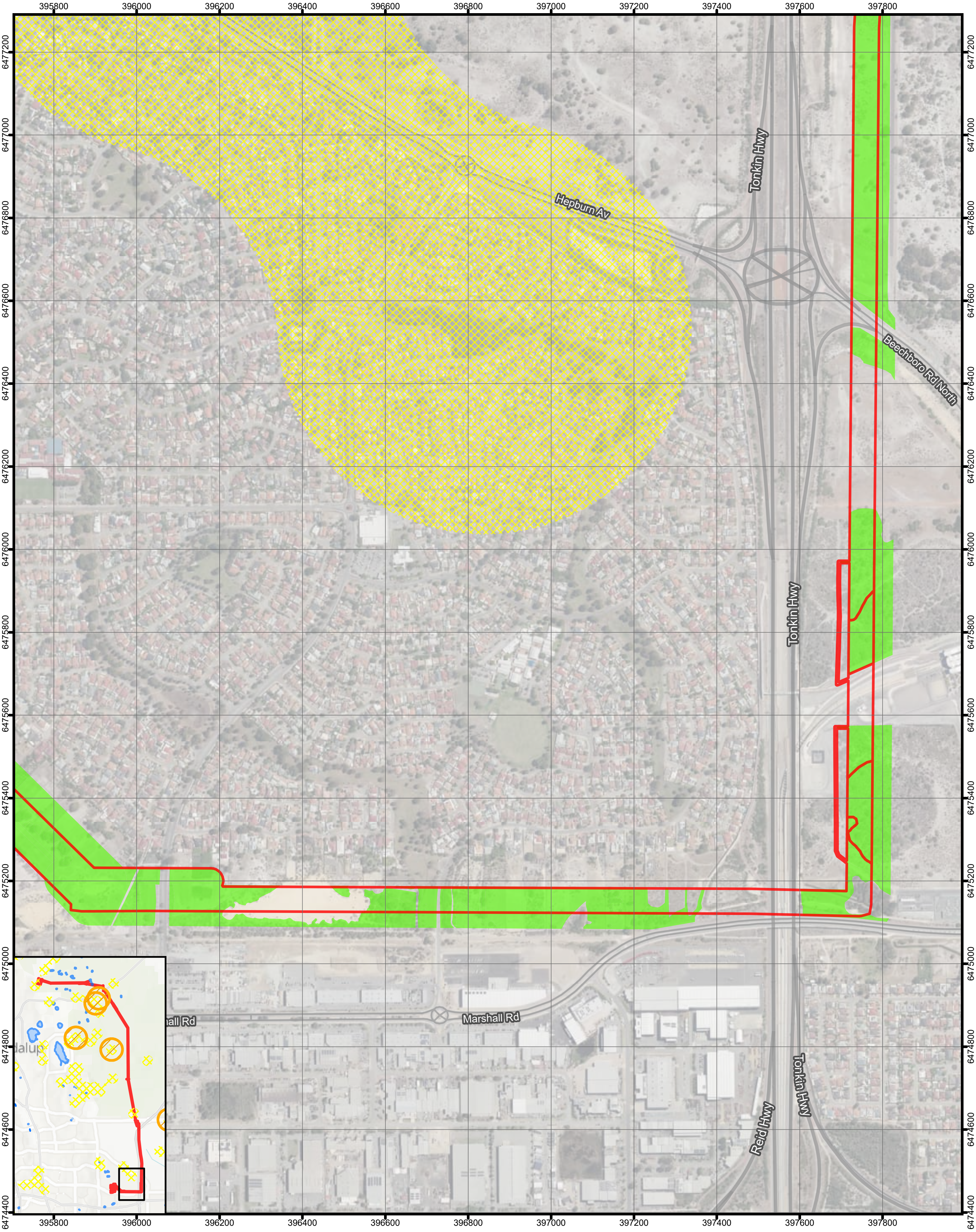

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GDA2020 MGA ZONE 50

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LEGEND
- Development Envelope
- Roosting Habitat
- Lakes / Watercourses

Black Cockatoo Roosting Sites Buffered
- 500m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure **11.9**

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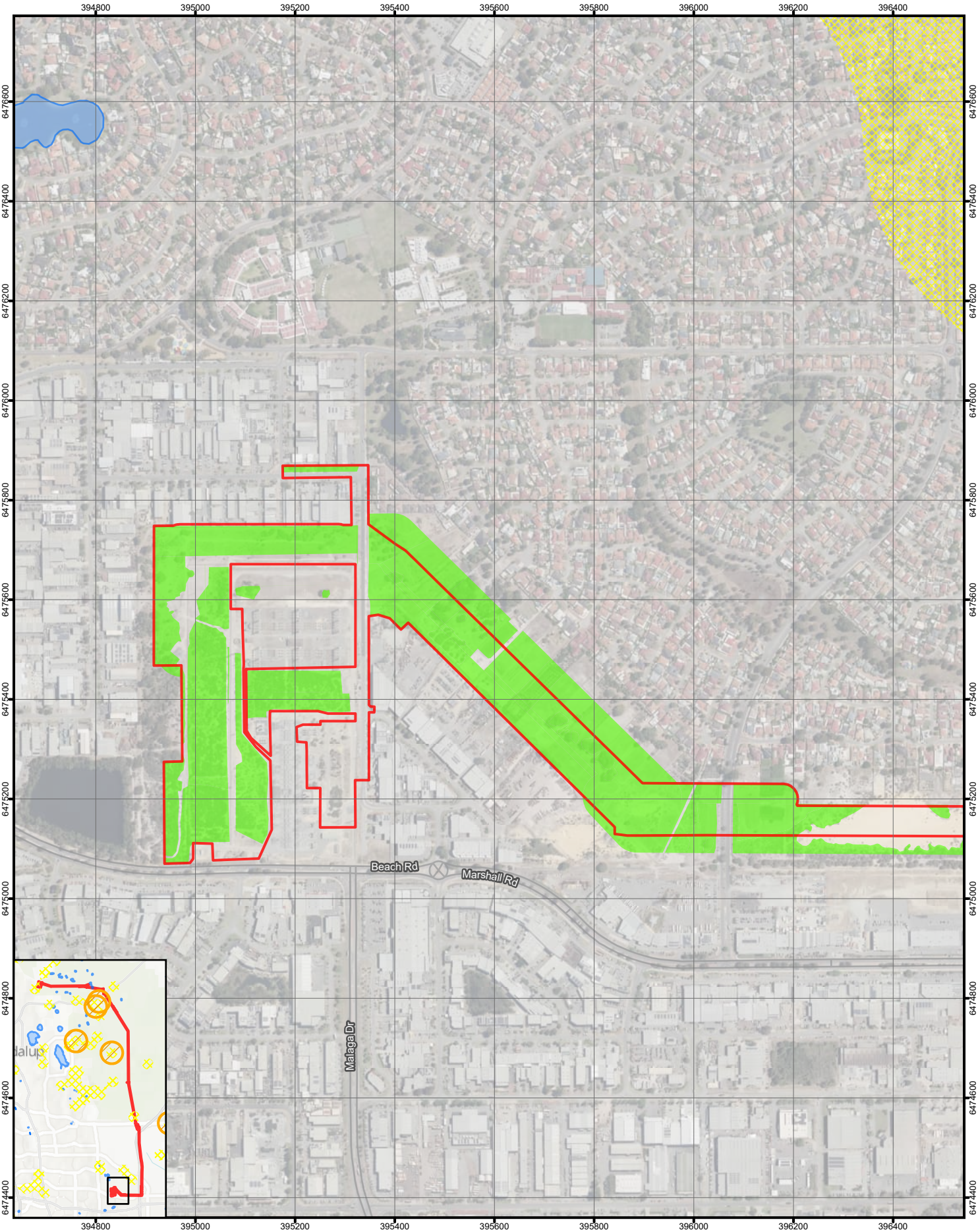

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GDA2020 MGA ZONE 50

LEGEND

- Development Envelope
- Roosting Habitat
- Lakes / Watercourses
- Black Cockatoo Roosting Sites Buffered
- 500m

Black Cockatoo Roosting Habitat

WESTERN POWER

ENVIRONMENTAL REVIEW AND BLACK COCKATOO REFINED ASSESSMENT

Figure

11.10

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5.0 Discussion

Direct and indirect evidence of Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) were documented across biological surveys conducted between 2022 and 2025.

Baudin's Cockatoo (*Zanda baudinii*) typically occurs within the survey area, which lies at the westernmost edge of the species' known range. The closest recorded sighting by the DBCA is located less than 500 m from the southern terminal. Foraging evidence identified during the surveys suggest occasional visitation from the species; however, it is likely to be vagrant within this habitat.

During the 2025 assessment, 14 trees previously identified in the 2022 survey as having potential black cockatoo breeding hollows were reassessed using drone imagery and expert input from Dr. Mike Bamford. Of these, two trees (Tree IDs 7 and 9) were confirmed to support hollows with suitable characteristics for black cockatoo breeding, as defined by Johnstone *et al.* (2010) and Groom (2010), totalling three suitable hollows. One of these (Tree 9) was identified as a previously active hollow. One tree (Tree 156) could not be reassessed due to its location on inaccessible private land. The remaining trees were found to contain hollows that were either unsuitable, inactive, or not present. These findings refine the initial assessment from the 2022 survey, in which 217 trees with suitable DBH (>500 mm) were recorded as potential breeding trees, including 172 Marri (*Corymbia calophylla*), 18 Jarrah (*Eucalyptus marginata*), 10 stags, nine Coastal Blackbutt *(Eucalyptus todtiana*), and a small number of other eucalypt and introduced species (AECOM Australia, 2023). No hollows were found to be currently active during the 2025 survey, highlighting the importance of follow-up assessments using aerial and expert analysis to validate ground-based observations and refine habitat suitability determinations.

The foraging score of vegetation within the survey area was revised based on the 2025 survey results and rated as 10 (High quality foraging) for all three species of black cockatoos as per DAWE (2022) guidelines. The score was elevated from an 8 (also High-quality foraging) for Baudin's Cockatoo to a 10, owing to the identification of foraging evidence for the species (Table 10). This score is reflective of the inclusion of foraging for all three cockatoos and therefore the importance of the habitat contained within the survey area for the conservation or recovery of the species. The DAWE (2022) foraging score tool does not incorporate variance in fauna habitat types within a survey area. Instead, it encourages one score to be applicable for an entire area.

The Bamford Scoring tool was applied to all polygons based on revised and aligned fauna habitats. Fauna habitats identified during the 2022 and 2023 surveys were reviewed and harmonised to create a cohesive understanding of the updated survey areas. Data collected in 2025 was used to supplement and refine the results.

To better understand the role of non-native foraging for black cockatoos in the region, the habitat representing pine plantations was split into three distinct habitat types based on age and burnt status. This approach allowed for a more detailed analysis of how different structural stages and disturbance regimes influence the suitability of these areas as foraging habitat. While pine plantations are not part of the species' native habitat, previous studies and local observations suggest that black cockatoos, particularly Carnaby's Black Cockatoo (*Zanda latirostris*), may utilise these areas opportunistically, especially where native foraging resources are scarce or degraded. The classification provided valuable context for interpreting survey data and supports a more informed understanding of how altered landscapes may still contribute to the ecological requirements of threatened species.

Adjustments were made to the refined foraging scores in line with the methodology provided by Bamford Consulting Ecologists (2024). Moderation and consideration of context is explicitly required when considering pine plantation. Therefore, context scores for the burnt and juvenile pine plantations were adjusted downward to align with those assigned to scattered pine areas, as represented by the Adenanthos/pine fauna habitat. Conversely, where surrounding vegetation held high value for black cockatoo species, scores were increased to better reflect the habitat's connectivity value. Habitats likely to contribute to ecological connectivity such as those linking adjacent patches or bordering high quality areas were assigned moderate to low context score (an increase), despite having low site condition scores. This is in line with the Bamford guidance and reflects the increased value and likelihood of use of the habitat (Bamford Consulting Ecologists, 2024).

Pine Plantation is the largest habitat type present and represents 27.75% (167.38 ha) of the survey area. The plantation present (included within the Gnangara Pines) is directly mentioned in the DAWE referral guidelines (2022) as suitable exotic foraging for the Carnaby's Black Cockatoos (*Zanda latirostris*) and night roosting habitat for black cockatoo species. Pines are considered 'Exotic foraging habitat' and is known to be utilised within the survey area (DAWE, 2022). In particular, the Gnangara pines region is considered to represent the main food source for the Carnaby's Black Cockatoos during their non-breeding season (January-June) and can provide up to 57% of the food resources available to the cockatoo on the Swan Coastal Plain (Finn, Stock, & Valentine, 2009) (Government of Western Australia, 2015). They provide roosting habitat, representing large trees, allowing birds to minimise travel to roosting and feeding areas. The mature pines are considered to have the highest roosting value, with the most 'roost-rest' points of all the habitats observed in the survey area (Finn, Stock, & Valentine, 2009). Given its abundance, year-round availability, ease of use and proximity to breeding trees, pine is likely to be a critical determinant of the survivorship of fledged and independent juveniles (i.e. immature and non-breeding) that may reside in the plantation year-round (Finn, Stock, & Valentine, 2009). Therefore, the pine plantations, as well as the pockets of native vegetation within provide core habitat that comprise a large proportion of habitat particularly for the Carnaby's Cockatoos on the Swan Coastal Plain.

Mature pine plantations (>10 but <30 years old), representing 50.83 ha (8.43%) are the most likely to be used by the Carnaby's Cockatoos, are the most abundant in the survey area and region, and provide the most benefit. This habitat has well-developed canopies providing good roost sites and also sustain relatively large abundances of cones that birds can feed on before leaving a roost (Finn, Stock, & Valentine, 2009). Finn, Stock, & Valentine, (2009) also note the high fidelity of flock to this mature pine, particularly those north of Gnangara Road, meaning the same birds return to the same crop of trees seasonally. This habitat represents core foraging and roosting habitat for black cockatoos. The absence of mature eucalyptus species precludes it from representing suitable breeding habitat.

Burnt pine plantations (48.03 ha, 7.96%) and Juvenile pine plantations (<10 years old) (68.52 ha, 11.36%) represent a reduced value to black cockatoos. Their absence or lack of foliage and/or simplified branch structure reduces the suitability and amount of 'roost-rests' offered to the birds. The height of the juvenile trees (largely under 8 m) makes them a less attractive roost site, with the birds preferring taller trees. Their foraging value is also reduced, with immature pine trees producing lower yields of feeding material. It is important to recognise that the juvenile pine plantations will increase in value if left to age (Bamford Consulting Ecologists, 2024). Burnt pine plantation may also regenerate to some degree depending on the severity of the fire. This habitat may represent exotic foraging and roosting habitat occasionally visited by black cockatoos, that may improve in value with time. Given the proximity to other suitable habitat, it is likely to serve as transitional habitat, aiding movement between patches of higher quality pine or woodland. The absence of mature eucalyptus species precludes it from representing suitable breeding habitat.

Adenanthos/Plantation was the second most dominant habitat type at 27.22% (164.18 ha). This habitat is a mixed habitat of Woollybush (*Adenanthos cygnorum* var. *cygnorum*) regrowth with scattered *Pinus pinaster*. Xanthorrhoea preissii* and *Macrozamia fraseri* are also scattered in this habitat type. Logs were infrequent and only that of the pine species. The pines present are scattered and considered juvenile; therefore, their foraging and roosting habitat potential is limited. Considering their typical proximity to the mature pine plantation, it is unlikely this habitat type will provide significant value to the Carnaby's Cockatoos.

Banksia Woodlands is the largest native fauna habitat (11.85%, 71.84 ha). The presence of Banksia, Jarrah and Marri species in high density would provide primary foraging habitats for all the Carnaby's Cockatoo and the Baudin's Cockatoo. Marri and Jarrah species would also represent potential nesting habitat with large mature eucalypt trees present that have the potential to form hollows if left undisturbed. These trees, being in proximity to a water source also provide roosting habitat, suitable for all three species of black cockatoo. This habitat is likely to represent core foraging, nesting and roosting habitat for black cockatoos.

Eucalyptus Woodlands (70.90 ha, 11.75%) represents primary foraging, breeding and roosting habitat for all three species of black cockatoo. Two suitable nest trees, representing three potential hollows were recorded within this habitat type. It represents core foraging, nesting and roosting habitat for all three species of black cockatoo and therefore is considered to be of high value. It's proximity to other high quality habitat including pine, increases its likelihood of use by the species.

Mixed Shrubland and Wetlands provides limited foraging value to black cockatoo species in the scattered native shrubs present. This habitat lacks a tree canopy and therefore the habitat type would be of limited use to black cockatoos for roosting or breeding. It may provide some benefit as a transitional habitat, providing a small amount of foraging habitat for birds as the move between habitat patches. This habitat does not represent core habitat for any of the three black cockatoo species.

The Trees over Cleared habitat represents scattered native tree species in paddocks. Tree species include *Eucalyptus*, *Banksia* and *Acacia*. This habitat also included scattered *Xanthorrhoea* and *Hypocalymma*. The mature eucalypt and banksia trees in this habitat represent suitable foraging and roosting habitat for Black Cockatoos and potential breeding habitat if left undisturbed.

The Urban/Residential habitat represents a variety of scattered native and non-native species (a mix of planted and remnant vegetation), typically on private property or road reserves. It is likely to provide scattered native and exotic foraging habitat for black cockatoo species. It Includes some tall mature trees that may be suitable for black cockatoo foraging and/or roosting. Is likely to represent marginal or transient habitat only, not core habitat. Large portions of this habitat type were inaccessible during the 2025 survey and therefore the value has been inferred.

The survey area intersects with 8.29 ha of mapped Phytophthora Dieback (*Phytophthora cinnamomi*) infested locations (DBCA, 2024), predominantly within the Wetland and Eucalyptus woodland habitat, the latter of which represents core black cockatoo foraging, roosting and breeding habitat. Both of these habitats contain vegetation that represent PEC and TEC. Small portions of the Mature Pine Plantation and Banksia woodland habitats bordering the Wetland and Eucalyptus woodland habitat types are also affected. The potential spread of dieback within the Eucalyptus woodland Habitat could drastically reduce the core habitat available to the cockatoos with many of the susceptible species present in the habitats. In field identification of affected vegetation was complicated by the recent fires.

6.0 Conclusion

Western Power has engaged AECOM Australia Pty Ltd (AECOM) to assess the ecological values within a planned transmission line installation spanning approximately 29 km between Northern Terminal in Malaga and Neerabup Terminal in Pinjar. A refined black cockatoo assessment was completed, involving refined hollow assessments and further works to accurately characterise the habitat quality (specifically foraging, roosting and breeding for black cockatoos) and ecological significance, and aligning existing data. Key findings included:

- Evidence of all three black cockatoo species were recorded, Carnaby's Cockatoo (*Zanda latirostris*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) were seen and heard, as well as recorded through foraging evidence. Baudin's Cockatoo (*Zanda baudinii*) were recorded to be present exclusively through foraging evidence.
- Two trees, totalling three hollows were determined to possess dimensions and characteristics suitable to support black cockatoo nesting. One previously active hollow was confirmed during the refined hollow assessment. This hollow received a BCE score of 2 and was located in a stag with a DBH of 980mm.
- A total of 169.73 ha (28.14%) of the survey area is considered to have the potential to support black cockatoo breeding.
- Primary foraging habitat for all three species of black cockatoo was represented by 70.90 ha of Eucalyptus Woodland habitat. Mature Pine Plantation represented exotic foraging for the Carnaby's Cockatoo (50.83 ha). Primary foraging for Baudins and Carnaby's cockatoos was also represented by Banksia Woodlands 71.48 ha.
- Although no roosting activity or sites were recorded during surveys conducted between 07:00 and 17:00 (outside typical roosting hours), the proximity of the entire survey area to water sources (within 6 km) and the presence of tall trees suggest that roosting habitat is likely present opportunistically across 217.76 ha (36.10%) of the area.
- Six of the 20 vegetation communities recorded represented a state or federally listed TEC or PEC, totalling 65.63 ha or 10.88%.
- Ten habitats were consolidated and allocated to the linear corridor, representing 535.74 ha (88.82%). Four native fauna habitats and six modified fauna habitats were recorded, including three refined habitats representing Pine Plantation.
- Dieback (*Phytophthora* Dieback) is mapped for 8.29 ha (1.37%) of the survey area.

Survey limitations included seasonal constraints, site accessibility, and potential under-detection of cryptic nesting sites. These limitations are acknowledged and addressed in the methodology section.

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