# BHP Pilbara Strategic Assessment

## Draft

## Northern Flank and Packsaddle

## Validation Notice

**6 November 2026**

# Foreword

## Document Version

| Rev | Description Of Amendment | Date | Date Validation Notice Effective From |
|---|---|---|---|
| Rev 0 | Draft Validation Notice for Public Comment | | |

# Executive Summary

This Validation Notice documents the validation process for the proposed BHP Iron Ore Pty Ltd Northern Flank and Packsaddle Activity (the Activity) within the existing Mining Area C South Flank (MACSF) Iron Ore Mine in the Pilbara region of Western Australia. The Activity comprises the expansion of existing open-pit mining operations, including pit development, overburden storage areas, haul roads, associated mine infrastructure, drilling activities and related operational works within an Activity Area of approximately 593 ha.

This Validation Notice is in additional to the 2018 *Mining Area C Validation Notice* and 2026 *Central Pilbara Hub Surplus Water 1 Validation Notice* and has been prepared in consultation with the National Environmental Protection Agency (National EPA).

The Validation Notice has been prepared in accordance with the requirements of the endorsed BHP Iron Ore Pilbara Strategic Assessment Program (the Program) and the Assurance Plan and Offsets Plan (APOP). The purpose of the validation process is to determine whether the Activity is a Notifiable Action, assess potential impacts to Program Matters, apply the mitigation hierarchy and identify any residual impacts requiring offsets.

The Activity Area and surrounding 500 m buffer have been subject to extensive historical and contemporary survey effort, including multiple targeted surveys completed between 2021 and 2026. These surveys incorporated habitat assessments, targeted searches, camera trapping, acoustic monitoring, cave assessments and environmental DNA investigations to establish the occurrence and habitat requirements of relevant Program Matters. Contemporary survey information was supplemented by historical datasets and ongoing fauna monitoring programs within the MACSF area.

Assessment against the Notifiable Action Triggers determined that the Activity meets the trigger criteria for two Program Matters:

- Ghost Bat (*Macroderma gigas*)
- Pilbara Olive Python (*Liasis olivaceus barroni*).

The Activity does not meet the Notifiable Action Triggers for:

- Northern Quoll (*Dasyurus hallucatus*)
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)
- Greater Bilby (*Macrotis lagotis*)
- Grey Falcon (*Falco hypoleucos*)
- Night Parrot (*Pezoporus occidentalis*)

While suitable habitat for one or more of these species occurs within the Activity Area and/or the surrounding 500 m buffer of the Activity Area, no evidence of resident populations, colonies or other relevant trigger conditions was identified during the review of contemporary and historical survey data.

For the Ghost Bat, the assessment identified approximately 430.4 ha of critical foraging and dispersal habitat and 156.8 ha of supporting habitat within the Activity Area. Evidence of Ghost Bat use was recorded within the Activity Area and surrounding buffer through direct observations, cave usage records, scats, acoustic recordings and camera detections. The Activity therefore meets the relevant Notifiable Action Trigger for Ghost Bat.

For the Pilbara Olive Python, approximately 45.0 ha of critical habitat and 24.4 ha of supporting habitat occur within the Activity Area. Records of Pilbara Olive Python within the surrounding 500 m buffer indicate the presence of a local population or resident individuals, resulting in the relevant Notifiable Action Trigger being met.

The Activity has been designed to avoid and minimise impacts to Program Matters wherever practicable. Key mitigation measures include:

- Retention and protection of the isolated Category 3 Ghost Bat cave CEPA-37 through implementation of a 150 m Disturbance Management Zone.
- Application of a 500 m Mining Management Zone around Category 3 and unclassified caves where blast management and vibration controls are required.
- Targeted monitoring of Ghost Bat caves and Pilbara Olive Python habitat.
- Weed, fire and feral animal management programs.
- Vehicle speed controls and environmental awareness requirements for personnel.

Following application of the mitigation hierarchy, residual impacts requiring offsets remain and comprise:

| Program Matter | Critical Habitat (ha) | Supporting Habitat (ha) |
|---|---|---|
| **Ghost Bat** | 430.4 | 156.8 |
| **Pilbara Olive Python** | 45.0 | 24.4 |

To address these residual impacts, BHP proposes to provide financial contributions to the Pilbara Environmental Offset Fund (PEOF) in accordance with the APOP offset framework. Based on current offset rates, the estimated total offset liability is $1,871,196 (excluding GST), including an advance payment of 10% upon the Validation Notice becoming effective and subsequent biennial payments based on actual disturbance reconciliation reporting.

Based on the assessment findings, implementation of the proposed mitigation measures and provision of offsets for residual impacts, BHP considers that the Activity can be undertaken in a manner that will achieve the relevant Program Matter Objectives and support the long-term persistence and viability of the Ghost Bat and Pilbara Olive Python within the Strategic Assessment Area. The Activity is therefore considered consistent with the requirements of the Program and associated approval framework.

## Glossary and Abbreviations

| Term | Meaning |
|---|---|
| $/ha or $ per ha | Australian dollar amount per hectare |
| Activity | The Activity as described in Sections 1.4 and 2.1. |
| Activity Area | The Activity Area (as described in Section 1.5) is the spatial extent within which the Activity may be undertaken. It represents the maximum area within which direct disturbance may occur. |
| AER | Annual Environmental Reporting |
| APOP | Pilbara Strategic Assessment Assurance Plan and Offsets Plan, Revision 2.3. |
| Approval | The approval of the taking of an action or class of actions granted by the Minister on 19 June 2017 in accordance with the Program given under section 146B of the EPBC Act. |
| Approval Holder | Any person or persons named in an Approval as an Approval Holder who may take action in accordance with the Program. |
| BHP | BHP Iron Ore Pty Ltd |
| Biennial | Every 2 years |
| Clearing Extent | The maximum amount of native vegetation to be cleared |
| CPI | Consumer Price Index |
| DBCA | Department of Biodiversity, Conservation and Attractions |
| National EPA | National Environmental Protection Agency (formerly known as the Department of Climate Change, Energy, the Environment and Water [DCCEEW]) |
| Department, the | The Australian Government Department responsible for the administration of the EPBC Act or successors. |
| Direct Disturbance | The clearing of native vegetation and/or moving of earth as a result of activities undertaken within the Strategic Assessment Area in accordance with the Program. |
| DMPE | Department of Mines, Petroleum and Exploration (formerly Department of Energy, Mines, Industry Regulation and Safety [DEMIRS]) |
| DoE | Department of the Environment |
| DWER | Department of Water and Environment Regulation |

| Term | Meaning |
|---|---|
| EP Act | *Environmental Protection Act 1986* |
| EPA | Environmental Protection Authority |
| EPBC or EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* |
| GST | Goods and Services Tax |
| Impact or impacts | As defined in section 527E of the EPBC Act. |
| Important population | A population that is necessary for a species' long-term survival and recovery (N.B. variations of this definition may exist for the Program Matters - See Section 4.1.1). |
| IRR | Impact Reconciliation Report |
| km | Kilometre |
| mbgl | Metres below ground level |
| MACSF | Mining Area C Southern Flank |
| Minister | Minister responsible for administering the EPBC Act (being, at the date of this Validation Notice, the Minister for the Environment). |
| mm | Millimetre |
| MNES | Matters of National Environmental Significance |
| MS | Ministerial Statement |
| New Listing | Any new listed threatened species or existing species that have been included in a higher endangerment category identified in accordance with section 4.1.2 of the Program |
| Notifiable Action | An activity that is considered likely to have a relevant impact on a Program Matter based on an assessment of the proposed Activity against the thresholds defined for Program Matters in the Assurance Plan and Offset Plan. In relation to the voluntary part of the Program, this includes an activity that is considered likely to have a relevant impact on a New Listing or a New Matter. |
| NVCP | Native Vegetation Clearing Permit |
| Offsets Plan | The plan that provides further detail on the processes that will be implemented to identify and deliver offsets associated with a Notifiable Action, as approved by the Minister on 15 May 2023. Supersedes BHP (2018b) version. |

| Term | Meaning |
|---|---|
| PEOF | Pilbara Environmental Offset Fund |
| PMO | Program Matter Outcomes |
| Program | The BHP Billiton Iron Ore Pilbara Strategic Assessment Program endorsed by the Minister on 11 May 2017. Whilst the Agreement refers to a Plan, it was agreed with the Department that the term Program is a better reflection of the systems and processes to be delivered by BHP. |
| Program Matters | The listed threatened species Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*), Northern Quoll (*Dasyurus hallucatus*), Greater Bilby (*Macrotis lagotis*), Ghost Bat (*Macroderma gigas*), Pilbara Olive Python (*Liasis olivaceus barroni*), Night Parrot (*Pezoporus occidentalis*), and Grey Falcon (*Falco hypoleucos*), as detailed in the Pilbara Strategic Assessment Assurance Plan and Offsets Plan (BHP 2023). |
| Residual impacts | Unavoidable impacts which remain after avoidance and mitigation measures have been implemented. |
| SAA or Strategic Assessment Area | Strategic Assessment Area: The geographical extent of the assessment and boundaries within which the Program must be implemented, as depicted in Appendix 1. |
| SEA | Strategic Environmental Approval |
| Study Area | The geographical extent of survey boundaries. |
| Triggers | Species-specific decision-making criteria which initiate the requirement for a specific Validation Action (i.e. Validation Notice or Decision Report) when met. Requirements of the Validation Action are dictated by which Triggers have been met. |
| TSSC | Threatened Species Scientific Community |
| Validation Notice | This Validation Notice under Part C of the program. |
| WA | Western Australia |

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# 1 Introduction

## 1.1 Background

BHP Iron Ore Pty Ltd (BHP) currently operates a network of iron ore mines, along with associated rail and port infrastructure, in the Pilbara region of Western Australia (WA). The current mining operations include:

- Newman Operations - located approximately 2 kilometers (km) west and 5 km east of the Newman township, comprising of Mount Whaleback, Orebodies 29, 30 and 35, as well as the Eastern Ridge and Western Ridge deposits.
- Mining Area C - South Flank Operations - situated approximately 100 km north-west of the Newman township.
- Jimblebar Operations - located approximately 35 km east of the Newman township and consisting of Orebody 18, Orebody 31 and Jimblebar.
- Yandi (Marillana Creek) Operations - located approximately 100 km north north-west of Newman township.

Ore from these operations is transported by rail to Port Hedland via the BHP Newman to Port Hedland Mainline and associated spur lines. From there, it is then exported overseas via BHP port facilities at Nelson Point and Finucane Island in Port Hedland.

BHP proposes to expand current operations in Mining Area C within the Packsaddle and Northern Flank (PNF) orebodies (the Activity) including above and below water table mining of the PNF iron ore deposits, construction and operation of overburden storage areas (OSA), haul roads, and other associated infrastructure within the existing Mining Area C-South Flank (MACSF) Iron Ore Mine.

This Validation Notice has been prepared in consultation with the National EPA and documents the validation process for the Activity, as required under the Program (BHP 2017) (see Section 1.2 below).

## 1.2 Framework

BHP has a strategic approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Strategic Approval). The Program (BHP Billiton 2017) was endorsed by the Minister for Environment and Energy on 11 May 2017 and an Approval Decision (with conditions) for taking actions in accordance with the Program was issued on 19 June 2017. The Strategic Approval covers future activities (actions) within the Strategic Assessment Area, which is the same as the State Strategic Activity boundary. The relevant Program Matters are Matters of National Environmental Significance (MNES) and include the following listed threatened fauna species: Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*), Northern Quoll (*Dasyurus hallucatus*), Greater Bilby (*Macrotis lagotis*), Ghost Bat (*Macroderma gigas*), Olive Python (Pilbara subspecies) (*Liasis olivaceus barroni*), Grey Falcon (*Falco hypoleucos*) and Night Parrot (*Pezoporus occidentalis*).

The Strategic Approval applies to the development of new iron ore mines and associated infrastructure, and the expansion of existing iron ore mines and associated infrastructure, within the defined Strategic Assessment Area (SAA) (Figure 1-1).

All actions within the scope of the Strategic Approval must be taken in accordance with the Program. BHP administers a non-statutory validation decision process under Part C of the endorsed Program to decide whether an action will have an impact on Program Matters. BHP has determined that the Activity is a Notifiable Action, given the Notifiable Action Trigger is met for the Activity.

Key commitments of the Program and conditions of approval include:

- preparation and approval of an Assurance Plan (BHP 2018a) and Offsets Plan (BHP 2018b), and
- undertaking a validation process, including preparation of a Validation Notice for each Notifiable Action carried out under the Program.

The original versions of the Assurance Plan (BHP 2018a) and Offset Plan (BHP 2018b) have been revised and consolidated into a single document titled 'the Assurance Plan and Offsets Plan' (APOP) (BHP 2023), which was endorsed by the Minister on 15 May 2023.

The APOP outlines the environmental objectives, procedures and governance arrangements to ensure that all future activities within the scope of the Program are conducted in accordance with the endorsed Program and achieve the Program's objectives. It includes:

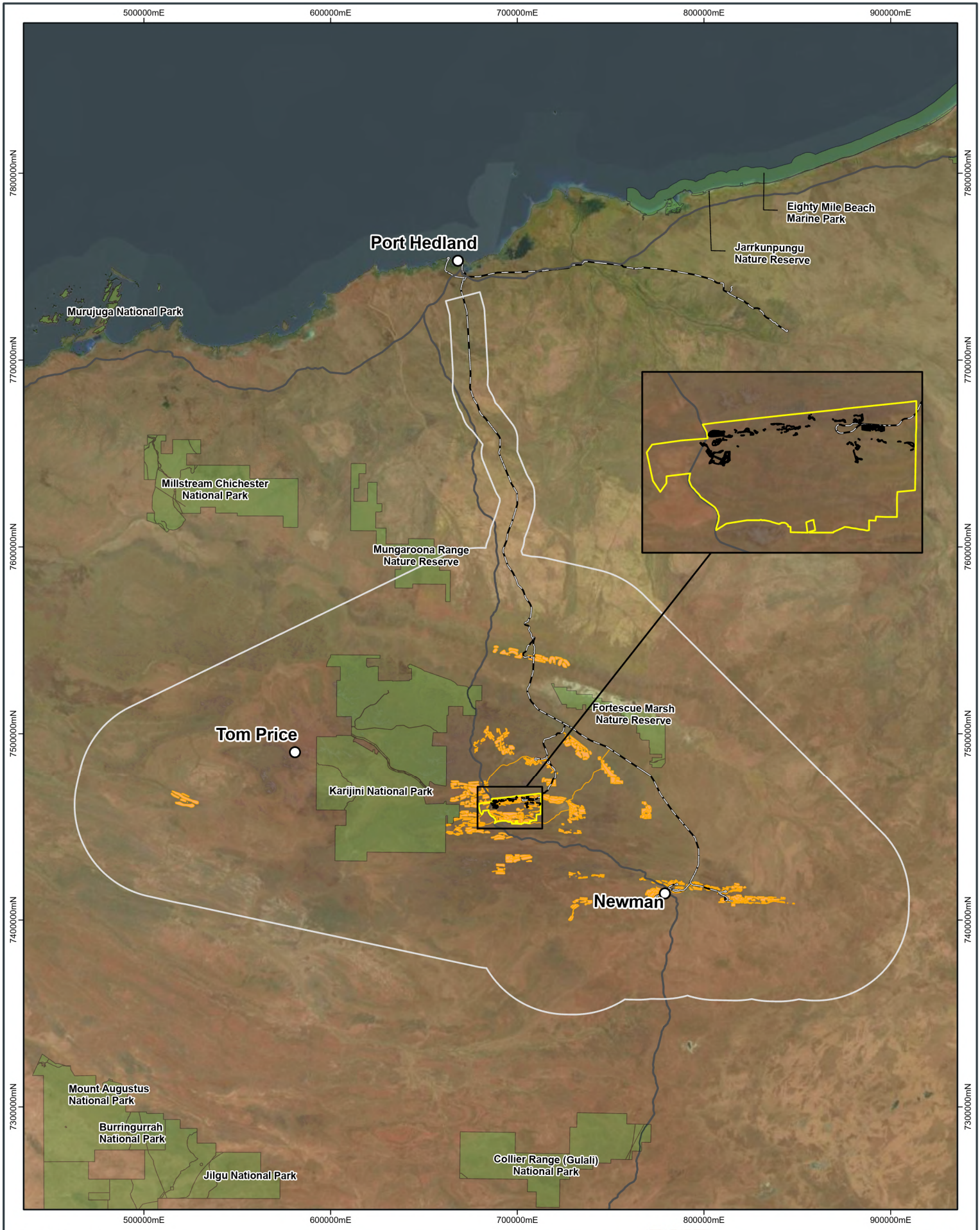
- Program Matter Outcomes (PMO) – measurable outcomes that BHP must meet to achieve the objectives developed for each Program Matter.
- Notifiable Action Triggers – criteria within the APOP that determine when a Validation Notice is required.

During the validation process for Notifiable Actions, BHP must apply the mitigation hierarchy to the Activity. If residual impacts to Program Matters cannot be avoided or mitigated to an acceptable level, BHP will implement an offsets pathway.

In accordance with Part C of the Program and the requirements of the APOP, BHP has prepared this Validation Notice for the Activity to ensure that the PMOs are achieved across the SAA.

This Activity is considered to require a Validation Notice, as it:

- falls within the scope of the Program, as it is considered an expansion to an existing mine, and
- meets one or more of the Notifiable Action Triggers defined in the APOP (refer to Table 1-2).




- Activity Area
- Mining Area C Validation Notice
- Strategic Proposal Area (7,650,074 ha)
- Strategic Proposal Full Conceptual Development Scenario (98,500 ha)
- Conservation Area
- Townsite
- Major Roads
- Rail (BHP)

N

0 25 50 75 100

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## REGIONAL LOCATION

WAIO PLANNING, TECHNICAL & ENVIRONMENT

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A4: | 1:2,600,000 | REQUESTOR: | ENV. APPROVALS | FIGURE: | 1-1 |
| DATE: | 15/10/2026 | PREPARED: | GEOMATICS | NO: | A1469_001C |
| | | REVIEWED: | ENV. APPROVALS | | |

Document Path: Y:\Jobs\A1001_A1500\A1469\3Project\A1469_001_MACVN_RegionalLocation_RevA.aprx

## 1.3 Program, Assurance Plan and Offsets Plan requirements

The endorsed Program and APOP specify the requirements and content of the Validation Notice. A summary of where the specified requirements and contents are addressed in this Validation Notice are provided in Table 1-1.

**Table 1-1: Content of Validation Notice**

| Requirement | Strategic Assessment Program Offsets Plan Requirements | Sections which address these Requirements |
|---|---|---|
| 1 | Decision on whether a Validation Notice is required for the Activity | 1.7 |
| 2 | Authorisation and date the Validation Notice will take effect | Foreword |
| 3 | Program Matters and triggers relevant to the Validation Notice | Table 1-2 and 5 |
| 4 | Activity description including Activity location, map illustrating the boundary of the Activity Area and area of Direct Disturbance and timeframes for the duration of activities | 2 |
| 5 | Stakeholder engagement and public consultation | 3 |
| 6 | Review of Program Matters relevant to the Activity including baseline and contemporary data with a description of the direct and indirect impacts | 5 |
| 7 | Estimates of disturbance and residual impacts | 2, 5.2.7, and 5.3.7 |
| 8 | Application of the mitigation hierarchy to avoid impacts on Program Matters | 5.2.6 and 5.3.6 |
| 9 | Outline the objective/s of the offset project/s, consistent with the scope of actions to offset impacts stated in the Program and APOP | 7 and 8 |
| 10 | Outline how the offset project/s will support the long-term persistence and viability of the relevant Program Matters | 7 and 8 |
| 11 | Commitment to measurable offset project milestones | 8.4 |
| 12 | Key monitoring, management, clearing, offset, contingency and corrective action commitments. | 8 |

## 1.4 Activity overview

Mining in proximity to the Activity Area has been underway since 2003 and is documented within the Program (BHP 2017). Operational elements and the general arrangement at Mining Area C is shown in Figure 1-2.

The proposed Activity consists of open pit mining including the expansion of existing mine pits, the construction and operation of overburden storage areas (OSAs) and associated infrastructure required for the expansion of the existing MACSF mining hub.

Further detail regarding the Activity is provided in Section 2.

## 1.5 Activity Area

The Activity Area is the spatial extent within which the Activity may be undertaken. It represents the maximum area within which direct disturbance may occur. The Activity Area (Figure 1-3) encompasses a total of 593 ha.

The Activity Area consists of native vegetation with existing disturbed/cleared areas (noting these areas were approved for clearing in 1998 in accordance with Part IV of the WA *Environmental Protection Act 1986* (EP Act) under Ministerial Statement (MS) 491 (refer to Section 2.3) and within the 'Exemption Area' within the Mining Area C Validation Notice (BHP 2018).

## 1.6 Timeframes

This Validation Notice takes effect 20 business days from the date of authorisation (refer to the Foreword page). If the Notifiable Action has not substantially commenced within a period of five years from that authorisation date, BHP or a subsequent Approval Holder must not implement the Notifiable Action unless:

- the Department of Climate Change, Energy, the Environment and Water (DCCEEW) authorises commencement of the action by BHP or the Approval Holder, or
- BHP issues a new Validation Notice for the action in accordance with this Program, thereby extending the commencement timeframe by an additional five years.

The Activity is forecast to commence in early 2027. The Activity is forecast to be completed within 43 years from the date of this Validation Notice. This timeframe reflects the predicted life span of the Activity including construction, operation, decommissioning and rehabilitation at closure of MACSF.

## 1.7 Decision for a Validation Notice

A Validation Notice is required for actions that are a Notifiable Action, in accordance with Notifiable Action Triggers set out in the APOP (BHP 2023) and reproduced in Table 1-2. The Activity is a Notifiable Action as it meets the trigger criteria for the following Program Matters: Ghost Bat and Pilbara Olive Python.

This Validation Notice will demonstrate how the implementation and operation of the Activity will meet the PMOs by undertaking an impact assessment, applying the mitigation hierarchy and evaluating residual impacts for the following Program Matters:

- Ghost Bat
- Pilbara Olive Python.

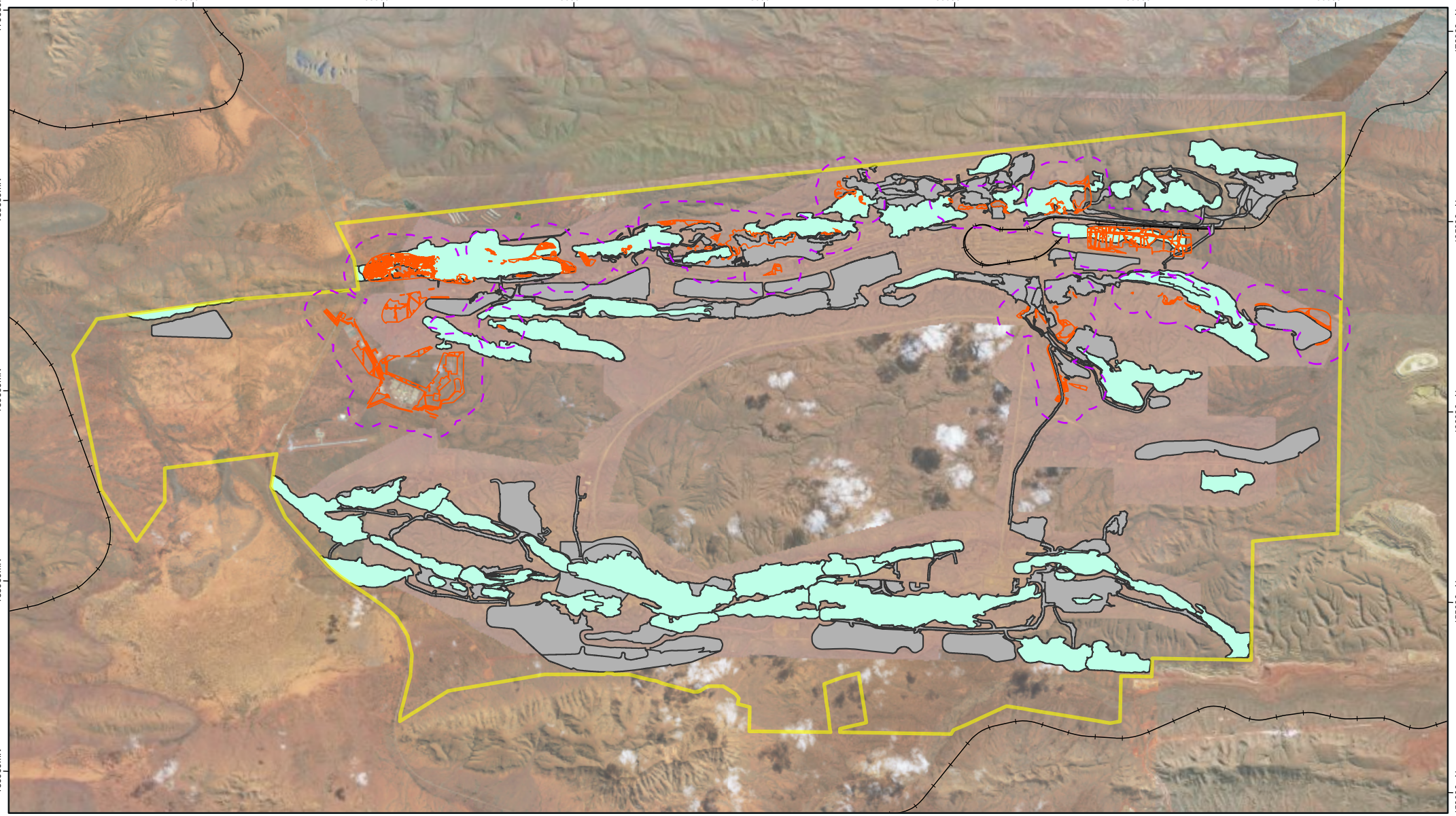
This section satisfies the requirements of Section 6.2 of the APOP. This decision to issue a Validation Notice will also be reported in the Annual Environmental Report (AER).

The Activity does not meet the Notifiable Action Triggers for the following Program Matters:

- Northern Quoll
- Pilbara Leaf-nosed Bat
- Greater Bilby
- Grey Falcon
- Night Parrot.

As such, these species are not applicable to this Activity (refer to Table 1-2). However, general information regarding these species, including the absence of suitable habitat and/or records, is provided to support the assessment in Table 1-2. Sections 5.2 to 5.8 outline the findings for each species to support this determination.

The Activity Area and an associated 500 m buffer have been subject to a comprehensive historical and contemporary survey effort. Five targeted MNES surveys and one targeted Pilbara Olive Python survey have been undertaken within the last five years to provide coverage of the Activity Area (see Table 4-1 in Section 4.2.1. However, there is a gap in survey coverage within the Activity Area due to access constraints associated with culturally sensitive areas and tenure access constraints (Table 4-1, Figure 4-1). Surveys and limitations are detailed in Section 4.2.1.




Activity Area
500m Buffer
Mining Area C - South Flank Validation Notice
Recommended Pit Design
Overburden Storage Area
Rail

N

0 1 2 3 4 5
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

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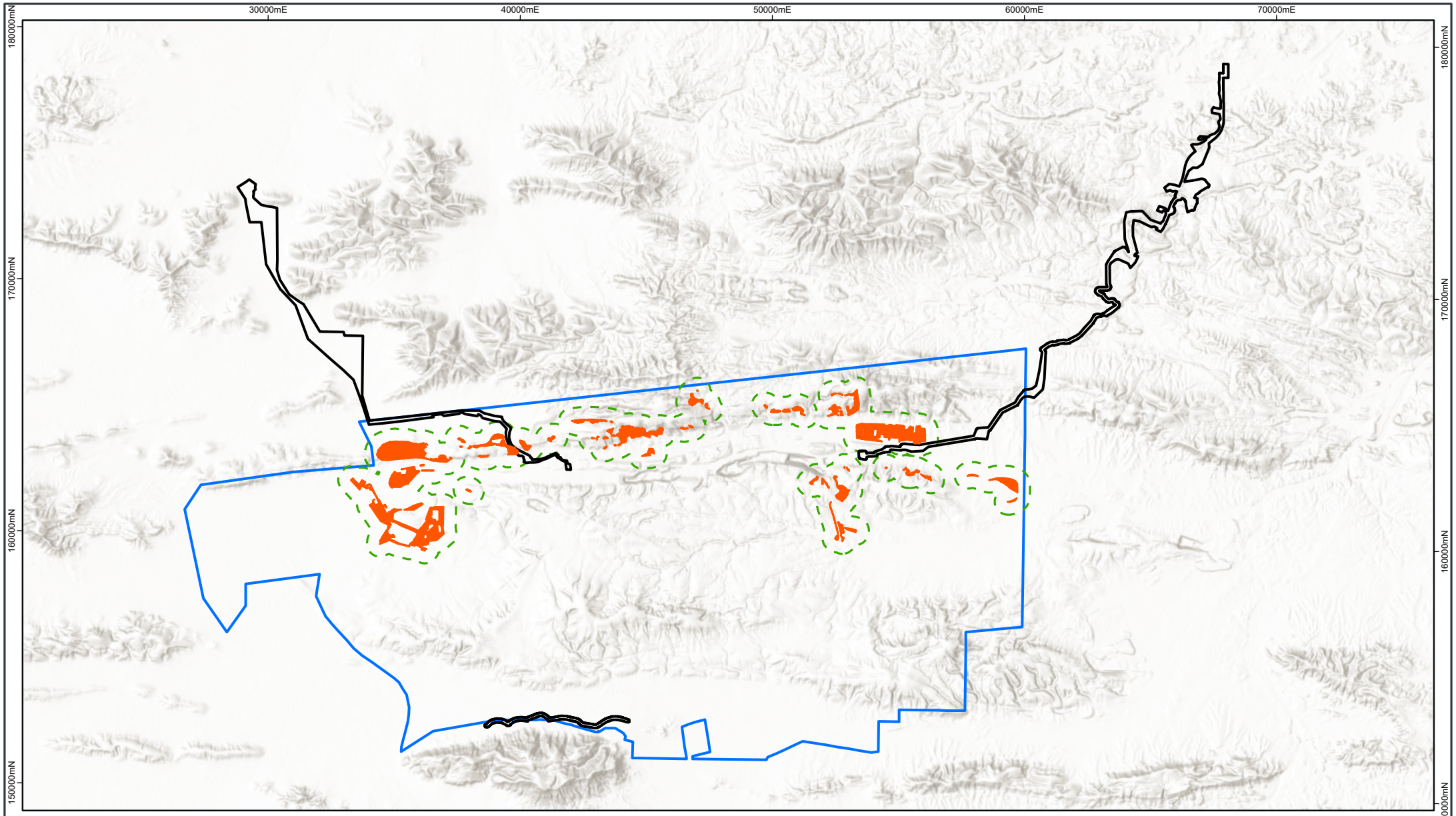
# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## MINING AREA C OPERATIONAL ELEMENTS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:135,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 1-2 |
| DATE: | 5/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-002 RevC |

Document Path: Y:\Jobs\A1001_A1500\A1469\3Project\A1469_002_Mining Area_C_Operational_Elements_RevA.aprx




Activity Area
500m Buffer
Mining Area C - South Flank Validation Notice
CPHSW1 Validation Notice

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KILOMETRES

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BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## THE ACTIVITY AREA

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:200,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 1-3 |
| DATE: | 6/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-002 RevD |

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**Table 1-2: Notifiable Action Triggers for the Activity**

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| Ghost Bat (*Macroderma gigas)* | Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is:<br>Presence of Ghost Bat critical habitat and or supporting habitat<br>**AND**<br>Presence or sign/s of Ghost Bat colony or residing individuals | Ghost Bat critical foraging habitats where it occurs within 12 km of critical roosting habitat is present in the Activity Area and 500 m buffer. The following habitat types are considered critical; Gorge/Gully, Breakaway/Cliff, Medium Drainage Line, Minor Drainage Line, Drainage Area/Floodplain, Mulga Woodland, Stony Plain, and Undulating Low Hills. Hillcrest/Hillslope is considered supporting habitat for the Ghost Bat.<br>There are three Ghost Bat records within the Activity Area and 16 Ghost Bat records within the 500 m buffer of the Activity Area including sighted individuals, calls recorded, a camera sighting and scats. These represent signs of a Ghost Bat colony or residing individuals.<br>There are seven Ghost Bat caves within the Activity area. There are 25 caves within a 500 m buffer of the Activity Area. These caves (excluding the Category 5 caves) represent supporting habitat. There are no Category 1, 2 or 3 (apartment block) caves within the Activity Area or the 500 m buffer.<br>Eleven Category 2 Caves are present beyond the 500 m buffer but within 12 km of the Activity Area and influence the presence of critical foraging habitat. | **Yes**<br>Critical and supporting habitat is present within the Activity Area and the 500 m buffer.<br>Numerous records provide evidence of Ghost Bat colony or residing individuals within the Activity Area and a 500 m buffer of the Activity Area.<br>Based on the above, the Notifiable Action Trigger for Ghost Bat has been met. |
| | Within the Activity Area there is: | Ghost Bat critical foraging habitats where it occurs within 12 km of critical roosting habitat is present in the Activity Area and 500 m buffer. The following habitat types are | **Yes** |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | Presence of Ghost Bat critical habitat and/or supporting habitat<br>**AND**<br>Presence or sign of Ghost Bat transient, infrequent or dispersing individual/s | considered critical; Gorge/Gully, Breakaway/Cliff, Medium Drainage Line, Minor Drainage Line, Drainage Area/Floodplain, Mulga Woodland, Stony Plain, and Undulating Low Hills. Hillcrest/Hillslope is considered supporting habitat for the Ghost Bat<br>There are seven Ghost Bat caves within the Activity area. These caves (excluding the Category 5 caves) represent supporting habitat. No Category 1, 2 or 3 (apartment block) caves are within the Activity Area.<br>Eleven Category 2 Caves are present beyond the 500 m buffer but within 12 km of the Activity Area and influence the presence of critical foraging habitat.<br>There are three Ghost Bat records within the Activity Area including a direct sighting of an individual and scats. These represent signs of a Ghost Bat colony or residing individuals. | Critical and supporting habitat is present within the Activity Area.<br>Numerous records provide evidence of Ghost Bat colony (or colonies) or residing individuals within the Activity Area, but may also include transient or dispersing individuals.<br>On this basis, the Notifiable Action Trigger for Ghost Bat has been met as critical and/or supporting habitat and records of Ghost Bat are present within the Activity Area. |
| Pilbara Olive Python<br>*(Liasis olivaceus barroni)* | Within the Activity Area and/or within a 500 m buffer of the Activity boundary, there is:<br>Presence of Pilbara Olive Python critical habitat and or supporting habitat<br>**AND**<br>Presence or sign/s of a Pilbara Olive Python population or residing individuals | Critical and supporting Pilbara Olive Python habitat is present within the Activity Area and a 500 m buffer.<br>The following habitat types are considered critical: Gorge/Gully and Breakaway Cliff.<br>The following habitat types are considered supporting; Minor Drainage Line, and Medium Drainage Line.<br>There are two records of Pilbara Olive Python within the 500 m buffer of the Activity Area. Due to the small home | **Yes**<br>Critical and supporting Pilbara Olive Python habitat is present within the Activity Area and a 500 m buffer.<br>Records within the 500 m buffer indicate that a Pilbara Olive Python population or residing individuals are present.<br>As a result, the notifiable action trigger for Pilbara Olive Python has been met. |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | | range of the species (e.g. 80-450 ha), these records likely represent a population or residing individuals. | |
| | Within the Activity Area there is:<br>Presence of Pilbara Olive Python critical habitat and/or supporting habitat<br>**AND**<br>Presence or sign of Pilbara Olive Python transient, infrequent or dispersing individual/s | Critical and supporting Pilbara Olive Python habitat is present within the Activity Area.<br>The following habitat types are considered critical: Gorge/Gully and Breakaway Cliff.<br>The following habitat types are considered supporting: Minor Drainage Line and Medium Drainage Line<br>There are no records of Pilbara Olive Python within the Activity Area despite survey effort. | **No**<br>Critical and supporting Pilbara Olive Python habitat is present within the Activity Area.<br>There are no signs of transient, infrequent or dispersing individual Pilbara Olive Python within the Activity Area.<br>As a result, the notifiable action trigger for Pilbara Olive Python has not been met. |
| Northern Quoll<br>(*Dasyurus hallucatus*) | Within the Activity Area or within a 500 m buffer of the Activity Area there is:<br>Presence of Northern Quoll critical habitat and/or supporting habitat<br>**AND**<br>Presence or sign/s of Northern Quoll colony or residing individuals | Critical and supporting Northern Quoll habitat is present within the Activity Area and 500 m buffer.<br>Gorge/Gully and Breakaway/Cliff habitats are critical habitat whilst Drainage Area/Floodplain, Hillcrest/ Hillslope, Minor Drainage Line and Medium Drainage Line habitat types represent supporting habitat.<br>There is no direct or indirect evidence of the Northern Quoll within the Activity Area or 500 m buffer. The closest records are approximately 4 km south of the Activity Area which represent transient or dispersing individuals. | **No**<br>Critical and supporting Northern Quoll habitat is present within the Activity Area and 500 m buffer; however, there are no signs of a colony or residing individuals of Northern Quoll within either the Activity Area or 500 m buffer.<br>As a result, the notifiable action trigger for Northern Quoll has not been met. |
| | Within the Activity Area:<br>Presence of Northern Quoll critical habitat and/or supporting habitat | Critical and supporting Northern Quoll habitat is present within the Activity Area. | **No**<br>Critical and supporting Northern Quoll habitat is present within the Activity Area; however, there are |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | **AND**<br><br>Presence or sign of Northern Quoll transient, infrequent or dispersing individual/s. | Gorge/Gully and Breakaway/Cliff habitats are critical habitat whilst Drainage Area/Floodplain, Hillcrest/ Hillslope, Minor Drainage Line and Medium Drainage Line habitat types represent supporting habitat for the Northern Quoll.<br><br>There are no signs of transient, infrequent or dispersing Northern Quoll individual/s within the Activity Area. The closest records are approximately 4 km south of the Activity Area. | no records of transient, infrequent or dispersing individuals within the Activity Area despite survey effort.<br><br>As a result, the notifiable action trigger for Northern Quoll has not been met. |
| Pilbara Leaf-nosed Bat<br><br>*(Rhinonicteris aurantia)* | Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is:<br><br>Presence of Pilbara Leaf-nosed Bat critical habitat and/or supporting habitat<br><br>**AND**<br><br>Presence or sign/s of Pilbara Leaf-nosed Bat colony or residing individuals | There is no critical habitat for the Pilbara Leaf-nosed Bat present in the Activity Area or 500 m buffer. Supporting habitat for the Pilbara Leaf-nosed Bat is present within the Activity Area and 500 m buffer within Breakaway/ Cliff, Gorge/ Gully, Drainage Area/ Floodplain, Stony Plain, Hillcrest/ Hillslope, Minor Drainage Line, Medium Drainage Line, Mulga Woodland and Undulating Low Hills habitats.<br><br>There are seven Category 4 Pilbara Leaf-nosed Bat caves within the Activity Area and a further 14 Category 4 caves, one Category 5 cave and 10 unclassified caves within the 500 m buffer.<br><br>These caves (except for the Category 5 cave) represent supporting habitat. There are no known Category 1, 2 or 3 caves within the Activity Area or 500 m buffer, and it is considered unlikely that any of the unclassified caves within the Activity Area, 500 m buffer or 10 km buffer represent Category 1, 2 or 3 caves given the limited number of Pilbara Leaf-nosed Bat records within 10 km. | **No**<br><br>There is no critical habitat within the Activity Area or 500 m buffer.<br><br>Supporting Pilbara Leaf-nosed Bat habitat is present within the Activity Area and 500 m buffer; however, there are no signs of a colony or residing individuals.<br><br>As a result, the notifiable action trigger for Pilbara Leaf-nosed Bat has not been met. |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | | There are no signs of a Pilbara Leaf-nosed Bat colony or residing individuals within the Activity Area or 500 m buffer. | |
| | Within the Activity Area there is:<br>Presence of Pilbara Leaf-nosed Bat critical habitat and/or supporting habitat<br>**AND**<br>Presence or sign of Pilbara Leaf-nosed Bat transient, infrequent or dispersing individual/s | There is no critical habitat for the Pilbara Leaf-nosed Bat present in the Activity Area.<br>Supporting habitat for the Pilbara Leaf-nosed Bat is present within the Activity Area within Breakaway/ Cliff, Gorge/ Gully, Drainage Area/ Floodplain, Stony Plain, Hillcrest/ Hillslope, Minor Drainage Line, Medium Drainage Line, Mulga Woodland and Undulating Low Hills habitats.<br>There are seven Category 4 Pilbara Leaf-nosed Bat caves within the Activity Area. These caves represent supporting habitat. There are no known Category 1, 2 or 3 caves within the Activity Area and it is considered unlikely that any of the unclassified caves within the Activity Area, 500 m buffer or 10 km buffer represent Category 1, 2 or 3 caves given the limited number of Pilbara Leaf-nosed Bat records within 10 km. There are no signs of Pilbara Leaf-nosed Bat transient, infrequent or dispersing individual/s within the Activity Area. | **No**<br>There is no critical habitat within the Activity Area or 500 m buffer.<br>Supporting Pilbara Leaf-nosed Bat habitat is present within the Activity Area; however, there are no signs of Pilbara Leaf-nosed Bat transient, infrequent or dispersing individual/s.<br>As a result, the notifiable action trigger for Pilbara Leaf-nosed Bat has not been met. |
| Greater Bilby<br>(*Macrotis lagotis*) | Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is:<br>Presence of Greater Bilby critical habitat and/or supporting habitat<br>**AND** | There is no critical habitat for the Greater Bilby present within the Activity Area or 500 m buffer. Some marginal supporting habitat is present within the Sand Plain and Drainage Area/Floodplain habitats that occur within the Activity Area and 500 m buffer. Areas of marginal | **No**<br>There is no critical habitat within the Activity Area or 500 m buffer.<br>Supporting, but marginal, Greater Bilby habitat is present in the Activity Area and 500 m buffer; |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | Presence or sign/s of Greater Bilby residing individuals | supporting habitat are isolated, relatively small and lack connectivity to other areas of suitable habitat.<br><br>There is no direct or indirect evidence of presence or sign/s of Greater Bilby residing individuals within the Activity Area or 500 m buffer. The nearest records are 23 km southwest and 33 km southeast of the Activity Area and are over 40 years old. The closest, most recent records occur over 45 km away. | however, there are no signs of residing individuals within the Activity Area or 500 m buffer.<br><br>As a result, the notifiable action trigger for Greater Bilby has not been met. |
| | Within the Activity Area there is:<br><br>Presence of Greater Bilby critical habitat and/or supporting habitat<br><br>**AND**<br><br>Presence or sign of Greater Bilby transient, infrequent or dispersing individual/s | There is no critical habitat for the Greater Bilby present within the Activity Area with only some marginal supporting habitat present within the Sand Plain and Drainage Area/Floodplain habitats. Areas of marginal supporting habitat are isolated, relatively small and lack connectivity to other areas of suitable habitat.<br><br>There are no signs of presence or evidence of transient, infrequent or dispersing Greater Bilby individuals within the Activity Area. The nearest, most recent (and reliable) records occur over 45 km away. | **No**<br><br>There is no critical habitat within the Activity Area.<br><br>Supporting, but marginal, Greater Bilby habitat is present in the Activity Area; however, there is no presence or sign of Greater Bilby transient, infrequent or dispersing individuals.<br><br>As a result, the notifiable action trigger for Greater Bilby has not been met. |
| Grey Falcon<br><br>*(Falco hypoleucos)* | Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is Presence of Grey Falcon critical habitat and or supporting habitat<br><br>**AND**<br><br>Presence or sign of Grey Falcon residing individuals | Within the Activity Area and/or 500 m buffer, Medium Drainage Line habitat represents critical habitat for the Grey Falcon, whilst supporting foraging and dispersal habitat occurs within Drainage Area/Floodplain, Minor Drainage Line and Stony Plain habitats.<br><br>There are no records of presence or signs of residing individuals of Grey Falcon within the Activity Area or 500 m | **No**<br><br>Critical and supporting Grey Falcon habitat is present in the Activity Area and 500 m buffer; however, there are no records or signs of residing Grey Falcon individuals despite survey effort.<br><br>As a result, the notifiable action trigger for Grey Falcon has not been met. |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | | buffer despite survey effort. The closest records of Grey Falcon occur approximately 6 km south of the Activity Area. | |
| | Within the Activity Area there is:<br>Presence of Grey Falcon critical habitat and or supporting habitat<br>**AND**<br>Presence or sign/s of Grey Falcon transient, infrequent or dispersing individual/s | Within the Activity Area, Medium Drainage Line habitat represents critical habitat for the Grey Falcon, whilst supporting foraging and dispersal habitat occurs within Drainage Area/Floodplain, Minor Drainage Line and Stony Plain habitats.<br>There is no direct or indirect evidence of Grey Falcon transient, infrequent or dispersing individuals within the Activity Area. The closest records of Grey Falcon occur approximately 6 km south of the Activity Area. | **No**<br>Critical and supporting Grey Falcon habitat is present in the Activity Area; however, there is no presence or sign of Grey Falcon transient, infrequent or dispersing individuals.<br>As a result, the notifiable action trigger for Grey Falcon has not been met. |
| Night Parrot<br>(*Pezoporus occidentalis*) | Within the Activity Area and or within a 500 m buffer of the Activity boundary there is:<br>Presence of Night Parrot critical habitat and or supporting habitat<br>**AND**<br>Presence or sign(s) of Night Parrot population(s) or residing individuals | There is no critical habitat for the Night Parrot present within the Activity Area or 500 m buffer due to the lack of old growth *Triodia* present, given the high levels of disturbance and fragmentation and given the lack of connectivity between areas of potentially suitable habitat.<br>Stony Plain habitat may provide marginal supporting habitat; however, it is sub-optimal at best (Biologic 2026a, 2025a, b).<br>There is no direct or indirect evidence of Night Parrot populations or residing individuals within the Activity Area or a 500 m buffer. There is one historical record of the species approximately 69 km northeast of the Activity | **No**<br>There is no critical habitat within the Activity Area or 500 m buffer.<br>Potential (marginal) supporting Night Parrot habitat is present in the Activity Area and 500 m buffer; however, there is no presence or sign of Night Parrot populations or residing individuals within the Activity Area or 500 m buffer.<br>As a result, the notifiable action trigger for Night Parrot has not been met. |

| Program Matter | Notifiable Action Trigger | Activity Area Program Matter Data | Applicable Trigger? Yes/No |
|---|---|---|---|
| | | Area, with most recent records occurring over 350 km away. | |
| | Within the Activity Area there is:<br><br>Presence of Night Parrot critical habitat and or supporting habitat<br><br>**AND**<br><br>Presence or sign(s) of Night Parrot transient, infrequent or dispersing individual/s | There is no critical habitat for the Night Parrot present within the Activity Area due to the lack of long unburnt, old growth *Triodia* present, given the high levels of disturbance and fragmentation and given the lack of connectivity between areas of potentially suitable habitat.<br><br>Stony Plain habitat may provide marginal supporting habitat; however, it is sub-optimal at best (Biologic 2026a, 2025a, b).<br><br>There is no evidence of presence or sign(s) of transient, infrequent or dispersing individual Night Parrot within the Activity Area or a 500 m buffer. There is only one historical record of the species within 50 km, with most recent records occurring over 350 km away. | **No**<br><br>There is no critical habitat within the Activity Area.<br><br>Potential (marginal) supporting Night Parrot habitat is present in the Activity Area.<br><br>There is no presence or sign of transient, infrequent or dispersing Night Parrot individuals.<br><br>As a result, the notifiable action trigger for Night Parrot has not been met. |

# 2 Project description and disturbance

Section 2.1 describes the Activity in detail while Section 2.2 summarises the proposed disturbance for the Activity. Figure 1-3 illustrates the location of the proposed works comprising the Activity described in this Validation Notice.

## 2.1 Activity description

The Activity is required to expand iron ore mining at MACSF. Operations at MACSF involve conventional open-cut mining methods including drilling, blasting and categorisation of blasted material into iron ore or waste rock. The Activity Area is in proximity to an active and operational mine site where considerable existing disturbance and mining infrastructure exists.

The proposed Activity involves an expansion of existing mining including the following key activities and elements:

- clearing of up to 593 ha of native vegetation
- drilling for resource definition, hydrogeology and mine planning
- open-cut mining methods including drilling, blasting and categorisation of blasted material into iron ore or waste rock
- mine pit excavation and above and below water table mining
- overburden storage areas
- dewatering and surplus water infrastructure including bores and pipelines
- haul roads and access tracks
- operation and construction of associated mine infrastructure
- ore stockpiles and topsoil stockpiles and associated stacking, reclaiming and loading activities
- construction and operation of associated and supporting infrastructure
- water management installations such as culverts
- laydown areas and borrow pits
- ancillary infrastructure including, workshops, offices, hydrocarbon storage area, water treatment plants, wastewater treatment plants
- communications infrastructure including communications towers
- closure, decommissioning and rehabilitation.

### 2.1.1 Clearing and ground disturbance

Clearing of up to 593 ha of native vegetation will be undertaken for the construction and operation of the Activity within the Activity Area.

The existing approvals associated with the Activity Area is provided in Section 2.3.

### 2.1.2 Pits and overburden storage areas

The expansion of P1 West, P1 East, P2, P3, P4, A and B deposits comprise sequential mining across the MAC area. Overburden/waste rock excavated from the proposed pits will be stored in OSAs.

### 2.1.3 Mine dewatering and surplus water discharge

Mine dewatering is proposed as part of the Activity; the potential impacts associated with groundwater drawdown and surplus water discharge are included in Mining Area C Validation Notice (BHP 2018c) and the CPHSW1 Validation Notice (BHP 2026). BHP 2018c and BHP 2026 assessed groundwater drawdown as a result of mine pit dewatering and groundwater abstraction for potable water and the potential impacts to Program Matters. The assessment included dewatering from all mine pits in MACSF operations including the Activity Area.

As such, impacts from dewatering drawdown are not discussed further in this Validation Notice.

### 2.1.4 Rehabilitation and closure

Rehabilitation, decommissioning and closure will be undertaken in accordance with the Mining Area C Hub Mine Closure Plan (BHP 2025b). Rehabilitation will be undertaken progressively when disturbed areas are no longer required for operations and use specified seed mix, including the use of local provenance native seed and species of ethnobotanical value, where possible.

In addition, vegetation types used in rehabilitation will be diverse to improve habitat value and encourage colonisation by a range of fauna. At closure, fauna habitats will be constructed into rehabilitated areas. The Mine Closure Plan also addresses how pits and constructed landforms (principally OSAs) will be designed, constructed and rehabilitated, to ensure they are safe, stable and non-polluting. This includes potential management strategies and processes for monitoring the risk indicators for surface water and groundwater quality.

## 2.2 Proposed disturbance

### 2.2.1 Native vegetation clearing

The proposed Activity will result in the disturbance of up to 593 ha of native vegetation and fauna habitat within the Activity Area, as depicted in Figure 1-3.

The disturbance associated with this Validation Notice and the cumulative disturbance remaining against the SAA upper disturbance limit of 110,000 ha, is detailed in Table 2-1.

**Table 2-1: SAA Disturbance Allocation**

| Project Name | Decision Made | Date Decision Documented | Proposed Disturbance (ha) | Overall Cumulative Program Disturbance Remaining (ha) |
|---|---|---|---|---|
| MAC/South Flank | Validation Notice | May-18 | 16,000 | 94,000 |
| Jimblebar OSA1 Stage 1 | Not a Notifiable Action | Aug-18 | 95 | 93,905 |
| Western Creek Diversion | Not a Notifiable Action | Feb-20 | 15 | 93,890 |
| MAC Surplus Water | Not a Notifiable Action | Apr-20 | 0 | 93,890 |
| Jimblebar Optimisation Project | Validation Notice | Jun-20 | 2,000 | 91,890 |
| OB31 Stage 1 clearing | Not a Notifiable Action | Dec-22 | 5 | 91,885 |
| Mooka Rail Siding | Validation Notice | April-23 | 23 | 91,862 |
| Revised Jimblebar Optimisation Project | Validation Notice | May-23 | 1,042 | 90,820 |
| Western Ridge | Validation Notice | Jul-23 | 4,266 | 86,554 |
| Yeerabiddy Rail Works | Validation Notice | Aug-23 | 60 | 86,494 |
| Thirteen Creek Drilling Program | Not a Notifiable Action | Aug-23 | 11 | 86,483 |
| Rail decarbonisation electrification Project | Not a Notifiable Action | Aug-23 | 0 | 86,482.98 |
| Orebody 32 Below Water Table | Not a Notifiable Action | Sep-23 | 224 | 86,259 |
| Newman West (Mount Whaleback Mine) | Not a Notifiable Action | Nov-23 | 155 | 86,104 |
| Newman Water Treatment Plant Tank Replacement and Upgrades | Not a Notifiable Action | Nov-23 | 7 | 86,097 |
| Jimblebar Met Mast Decision Report | Not a Notifiable Action | Nov-23 | 2 | 86,095 |

| Project Name | Decision Made | Date Decision Documented | Proposed Disturbance (ha) | Overall Cumulative Program Disturbance Remaining (ha) |
|---|---|---|---|---|
| Jimblebar Validation Notice | Validation Notice | Feb-24 | 2067 | 84,028 |
| East Pilbara Surplus Water Drilling Validation Notice | Validation Notice | May-24 | 45 | 83,983 |
| Jugari (Yandicoogina) Gorge Supplementation Trial Project | Not a Notifiable Action | May-24 | 1 | 83,982 |
| Whaleback Hub Landfarm | Not a Notifiable Action | Apr-25 | 12 | 83,970 |
| Newman Water Treatment Plant Tank Replacement and Upgrades (Rev 2) | Not a Notifiable Action | May-25 | 1 | 83,969 |
| Homestead Bore 46 | Not a Notifiable Action | Jun-25 | 38 | 83,931 |
| Yandicoogina Gorge Mitigation Trial Additional Bore Installation | Not a Notifiable Action | Jun-25 | 5.4 | 83,925 |
| Orebody 29/30/25 | Validation Notice | Aug-25 | 116 | 83,809 |
| Yarnima IPG1 Project | Not a Notifiable Action | Sep-25 | 3 | 83,806 |
| Orebody 25 West | Validation Notice | Mar-26 | 175 | 83,631 |
| Newman Source Water Upgrade | Not a Notifiable Action | Dec-25 | 29 | 83,602 |
| Orebody 32 BWT Creek Discharge | Not a Notifiable Action | Jul-26 | 40 | 83,562 |
| Ministers North Enabling Communications | Not a Notifiable Action | Mar-26 | 1.1 | 83,561 |
| Ministers North 132kV Relocation | Not a Notifiable Action | Mar-26 | 64.5 | 83,496 |
| Mesa Gap | Not a Notifiable Action | Apr-26 | 60 | 83,437.40 |
| OB32 Go Line | Not a Notifiable Action | May 25 | 9.8 | 83,427.6 |
| Ministers North | Validation Notice | Jun-26 | 1,848 | 81,580 |

| Project Name | Decision Made | Date Decision Documented | Proposed Disturbance (ha) | Overall Cumulative Program Disturbance Remaining (ha) |
|---|---|---|---|---|
| Marillana Creek (Yandi) | Validation Notice | Jun-26 | 95 | 81,485 |
| Yarnima IPG1 Project Amendment | Not a Notifiable Action | Jun-26 | 1.2 | 81,483 |
| Ministers North Fleet Access – Rail Access Widening | Not a Notifiable Action | Jul-26 | 2.9 | 81,480 |
| Central Pilbara Hub Surplus Water Stage 1 | Validation Notice | Oct-26 | 1,076 | 80,417 |
| Northern Flank and Packsaddle Validation Notice | Validation Notice | TBC | 593 | 79,824 |

## 2.3 Existing approvals

### Commonwealth Environment Approvals

At a Commonwealth level, the Activity is within the scope of BHP's Pilbara Strategic Assessment (2017), and the Activity Area is located within the corresponding SAA, approved under the EPBC Act.

The existing MACSF mine is authorised under the EPBC Act via the Mining Area C Validation Notice (BHP 2018c). A disturbance of approximately 16,000 ha is approved for the following activities:

- open-cut mining and overburden storage areas (OSAs) at the Mining Area C expansion pits and Southern Flank satellite orebody
- primary crushing of ore at the Southern Flank satellite orebody
- transportation of ore mined at Southern Flank via overland conveyor to stockpiles and ore handling facilities located at the Mining Area C hub
- dewatering of the satellite orebody aquifers and the preferential use of the water for operational purposes, otherwise to manage the surplus volumes via managed aquifer recharge or infiltration basins as outlined in the Central Pilbara Water Resource Management Plan (CPWRMP) and its revisions
- mobile equipment maintenance precinct, including a warehouse delivery and laydown area, tyre storage and exchange facility, wastewater tanks, maintenance workshop, wash-down facility and parking
- Southern Flank ammonium nitrate products and facility
- access and haul roads.

The Mining Area C Validation Notice (BHP 2018c) identifies an 'Exemption Area' for which the Validation Notice does not apply. The rationale, as stated in the Validation Notice, for including an 'Exemption Area" is that at the time of publication it was considered outside the scope of the Program via the following:

- The areas were authorised under Part IV of the *Environmental Protection Act 1986* (WA) (EP Act) under Ministerial Statement 491 dated 24 December 1998 prior to the EPBC Act coming into effect.
- The Mining Area C existing operations did not impact the listed matters of National Environmental Significance at the time of approval.

Consultation with the National EPA informed the preparation of the Northern Flank and Packsaddle Validation Notice, which documents the validation process for new clearing of Program Matter fauna habitat associated with the Activity within the Exemption Area in accordance with Program requirements (BHP 2017).

#### State Environment Approvals

Mining Area C was approved by the Western Australian Minister for Environment in 1998 under Ministerial Statement (MS) 491, issued in accordance with Part IV of the WA *Environmental Protection Act 1986* (EP Act).

The Mining Area C expansion and South Flank mining were approved under MS 1072 in 2018, whilst the Central Pilbara Surplus Water Project as a Significant Amendment, was approved on 18 September 2026 resulting in the issue of MS 1278, which supersedes MS 1072.

MS1278 includes the following activities and elements across MACSF Operations:

- mine pit excavation above and below the water table
- groundwater abstraction to dewater mine deposits and operational water supply
- dewatering and surplus water infrastructure, including bores, infiltration ponds and pipelines
- provision of environmental water requirements to Yandicoogina Gorge groundwater dependent ecosystem
- surplus water management, including controlled discharge to creeks, infiltration ponds and injection to aquifers

- surface water management infrastructure including culverts and creek diversions
- installation of communication towers to support mine operation
- ore stockpiles and topsoil stockpiles and associated stacking, reclaiming and loading activities
- mineral waste management, including overburden storage areas
- haul and access roads
- borrow pits and laydown areas
- ore processing and blending infrastructure, including crushers
- ore transportation infrastructure, including overland conveyor and rail
- ancillary infrastructure, including workshops, offices, hydrocarbon storage areas, accommodation villages, water treatment plant, wastewater treatment plant.

Other relevant Western Australian government approvals are listed in Table 2-2.

## Tenure and State Agreements

BHP manages tenure holdings and legal structures on behalf of the Mount Goldsworthy Mining Associates Joint Venture, as the party to the *Iron Ore (Mount Goldsworthy) Agreement Act 1964 (*Mount Goldsworthy State Agreement). The Mount Goldsworthy Mining Associates Joint Venture comprises of BHP Minerals Pty Ltd, Mitsui Iron Ore Corporation Pty Ltd, and Itochu Minerals and Energy of Australia Pty Ltd.

The Activity is located on Mineral Lease ML281SA which is granted pursuant to the Mount Goldsworthy State Agreement.

**Table 2-2: Other Western Australian government approvals**

| Decision-making authority | Legislation or Agreement regulating the activity | Approval required (and relevant proposal element) | Statutory decision-making process can mitigate impacts on the environment |
|---|---|---|---|
| Department of Water and Environmental Regulation (DWER) | *Environmental Protection Act 1986* (EP Act) - Part V | Works Approval and Licence (Processing, mining dewatering, surplus water management, waste management, bulk storage of chemicals etc.) | **Yes**<br>Licence contains limits and conditions to mitigate impacts on the environment.<br>Impacts related to discharges and emissions can be regulated through an amendment to existing MACSF licence. |
| DWER | *Rights in Water and Irrigation Act 1914* (WA) (RiWI Act) | 26D & 5C Licence to construct bores and take water (Groundwater abstraction, including for dewatering)<br>Permit to interfere with bed and banks (Creek diversions) | **Yes**<br>Licenses contain limits and conditions (Groundwater operating strategy) to mitigate impacts on water resources and the environment.<br>Impacts related to drawdown and abstraction will be regulated through an amendment to the MACSF groundwater licences. |
| Department of Planning, Lands and Heritage (DPLH) | *Aboriginal Heritage Act 1972* (WA) (AH Act) | AH Act s. 18 consent to disturb, if previously unidentified sites are recorded and cannot be avoided | **Yes**<br>s. 18 of the AH Act authorises impacts to Aboriginal sites. Impacts which are already approved under s. 18 will continue to apply. |

| Decision-making authority | Legislation or Agreement regulating the activity | Approval required (and relevant proposal element) | Statutory decision-making process can mitigate impacts on the environment |
|---|---|---|---|
| Minister for State Development | *Iron Ore (Mount Goldsworthy) Agreement Act 1964* (WA) | In place Agreement Proposal(s) are required under the relevant legislation (that being Mount Goldsworthy State Agreement) prior to commencement of activities. | **Yes**<br>State agreement requires approval under Part IV of the EP Act (Section 2.3) prior to being granted. |
| Department of Mines, Petroleum and Exploration (DMPE) | *Mining Act 1978* (WA) | Mine Closure Plan | **Yes**<br>Risks associated with decommissioning, rehabilitation and closure will be regulated through a mandatory Mine Closure Plan. Amendment to the existing MACSF Mine Closure Plan will be required. |

# 3 Stakeholder engagement

BHP's commitment to community engagement is articulated in BHP's *Communications, Community and External Engagement Our Requirements* (BHP 2019), which states:

> '*Working openly with the communities in which we operate and with governments contributes to economic and social development and enhancement of BHP's reputation and social licence to operate...*'

To support this commitment, BHP has comprehensive company standards and dedicated resources to ensure its activities are underpinned by continuous community engagement and feedback.

## 3.1 Stakeholder consultation

BHP is required to maintain a register of interested parties for the purpose of stakeholder consultation, under the Strategic Assessment Program. Interested parties listed on this register have been identified through the formal Strategic Assessment public consultation period or have self-identified after the consultation period. Community members and groups may self-identify through local stakeholder engagement activities such as Community Consultative Groups in Port Hedland and Newman, regular meetings with Traditional Owner groups, or through www.bhp.com/contact. The BHP community team manages enquiries and requests to be included in stakeholder engagement activities relating to the Strategic Assessment.

Key regulatory authorities, including the National EPA, were consulted during the development of the draft Validation Notice. Consultation included an overview of the SAA, the proposed submission, including a description of proposed activities of the Notifiable Action, potential impacts on Program Matters and the proposed management approach.

The stakeholders consulted and level of stakeholder engagement undertaken were determined based on the location, complexity, size and risk profile of the Activity, as well as the level of stakeholder interest.

Table 3-1 summarises the relevant consultation undertaken by BHP regarding the aspects of this Validation Notice.

## 3.2 Public consultation

This draft Validation Notice is available for public comment for a period of 28 days from the date of revision. Comments can be made via email to: environmentapprovals-waio@bhp.com. Registered stakeholders have been notified via email that the consultation period has commenced. A summary of the engagement undertaken as relevant to the preparation of the Validation Notice is provided in Table 3-1.

Stakeholders listed in this table will be notified of the draft Validation Notice public comment period.

**Table 3-1: Relevant Stakeholder Engagement for the Activity**

| Stakeholder | Date | Topics/Issues Discussed | BHP Response and Outcome |
|---|---|---|---|
| National EPA | 21 October 2026 | Pre-advertising meeting regarding the draft Validation Notice | BHP presented the key elements of the draft Validation Notice for comment. No comments received. |
| Banjima Traditional Owners | 20 October 2026 | BHP advised Banjima Traditional Owners at the Heritage Advisory Committee that this draft Validation Notice will be available for public comment in November and Banjima are invited to comment. | BHP to advise when draft Validation Notice available for public comment. |

# 4 Validation process

## 4.1 Guidance

The most recent Commonwealth guidance considered in the preparation of this Validation Notice include:

- DCCEEW (2026) National Recovery Plan for the Ghost Bat *Macroderma gigas*
- DCCEEW (2023) Recovery Plan for the Greater Bilby (*Macrotis lagotis*)
- DCCEEW (2024) Threat abatement plan for predation by feral cats
- DotE (2013) Matters of National Environmental Significance Significant Impact Guidelines 1.1 EPBC Act
- DotE (2016) EPBC Act referral guideline for the endangered Northern Quoll
- DEWHA (2008a) Threat abatement plan for predation by the European red fox
- DEWHA (2008b) Approved Conservation Advice for *Liasis olivaceus barroni* (Olive Python – Pilbara subspecies)
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2010) Survey guidelines for Australia's threatened bats
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2011a) Survey guidelines for Australia's threatened mammals
- DSEWPaC (2011b) Survey guidelines for Australia's threatened reptiles
- DSEWPaC (2011c) Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads
- Threatened Species Scientific Committee (TSSC) (2020) Conservation Advice Falco hypoleucos Grey Falcon
- TSSC (2005) Commonwealth Listing Advice on Northern Quoll (*Dasyurus hallucatus*)
- TSSC (2016a) Conservation Advice *Macroderma gigas* Ghost Bat
- TSSC (2016b) Conservation Advice *Macrotis lagotis* Greater Bilby
- TSSC (2016c) Conservation Advice *Rhinonicteris aurantia* (Pilbara form) (Pilbara Leaf-nosed Bat)
- TSSC (2016d) Conservation Advice *Pezoporus occidentalis* Night Parrot.

The most recent Western Australian guidance considered included:

- EPA (2020) *Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment.*

Other guidance considered included:

- Bat Call WA (2021a) *A review of Ghost Bat ecology, threats and survey requirements*. DWER
- Bat Call WA (2021b) *A review of Pilbara leaf-nosed bat ecology, threats and survey requirements*. DWER
- Southgate *et al.* (2018) *Verifying bilby presence and the systematic sampling of wild populations using sign-based protocols – with notes on aerial and ground-based techniques and asserting absence*. Australian Mammalogy
- Department of Biodiversity, Conservation and Attractions (DBCA) (2017) *Guidelines for surveys to detect the presence of bilbies and assess the importance of habitat in Western Australia*. DBCA

- DBCA (2024) *Guidelines for determining the likely presence and habitat usage of Night Parrot (Pezoporus occidentalis) in Western Australia*.

### 4.1.1 Important population

For the purpose of this Validation Notice, and following EPBC Act guidance (DoE 2013), an important population for all Program Matters, with exception of Northern Quoll, is defined as:

*'a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:*

- *key source populations either for breeding or dispersal,*
- *populations that are necessary for maintaining genetic diversity, and/or*
- *populations that are near the limit of the species range.'*

An important population for the long-term survival of the Northern Quoll is specifically defined by DoE (2016) as including:

- *'high density quoll populations, which occur in refuge-rich habitat critical to the survival of the species, including where cane toads are present*
- *occurring in habitat that is free of cane toads and unlikely to support cane toads upon arrival i.e. granite habitats in WA, populations surrounded by desert and without permanent water*
- *subject to ongoing conservation or research actions i.e. populations being monitored by government agencies or universities or subject to reintroductions or translocation.'*

### 4.1.2 Critical habitat

Critical habitat is defined by DoE (2013) as '*Habitat critical to the survival of a species or ecological community*' and refers to areas that are necessary:

- *for activities such as foraging, breeding, roosting, or dispersal*
- *for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)*
- *to maintain genetic diversity and long-term evolutionary development*
- *for the reintroduction of populations or recovery of the species or ecological community.*

Critical habitat and supporting habitats for the seven Program Matters are defined in Sections 5.1 to 5.7 and Table 12.1 of the APOP (BHP 2023) and are based on relevant published conservation guidance. Note that critical and supporting habitats may also be further refined during field surveys.

## 4.2 Surveys and studies

The contemporary and historical surveys which form the baseline data for the Activity Area are considered adequate for validating impacts to Program Matters in line with the requirements of Section 7.1 (Contemporary Information and Data) of the Program.

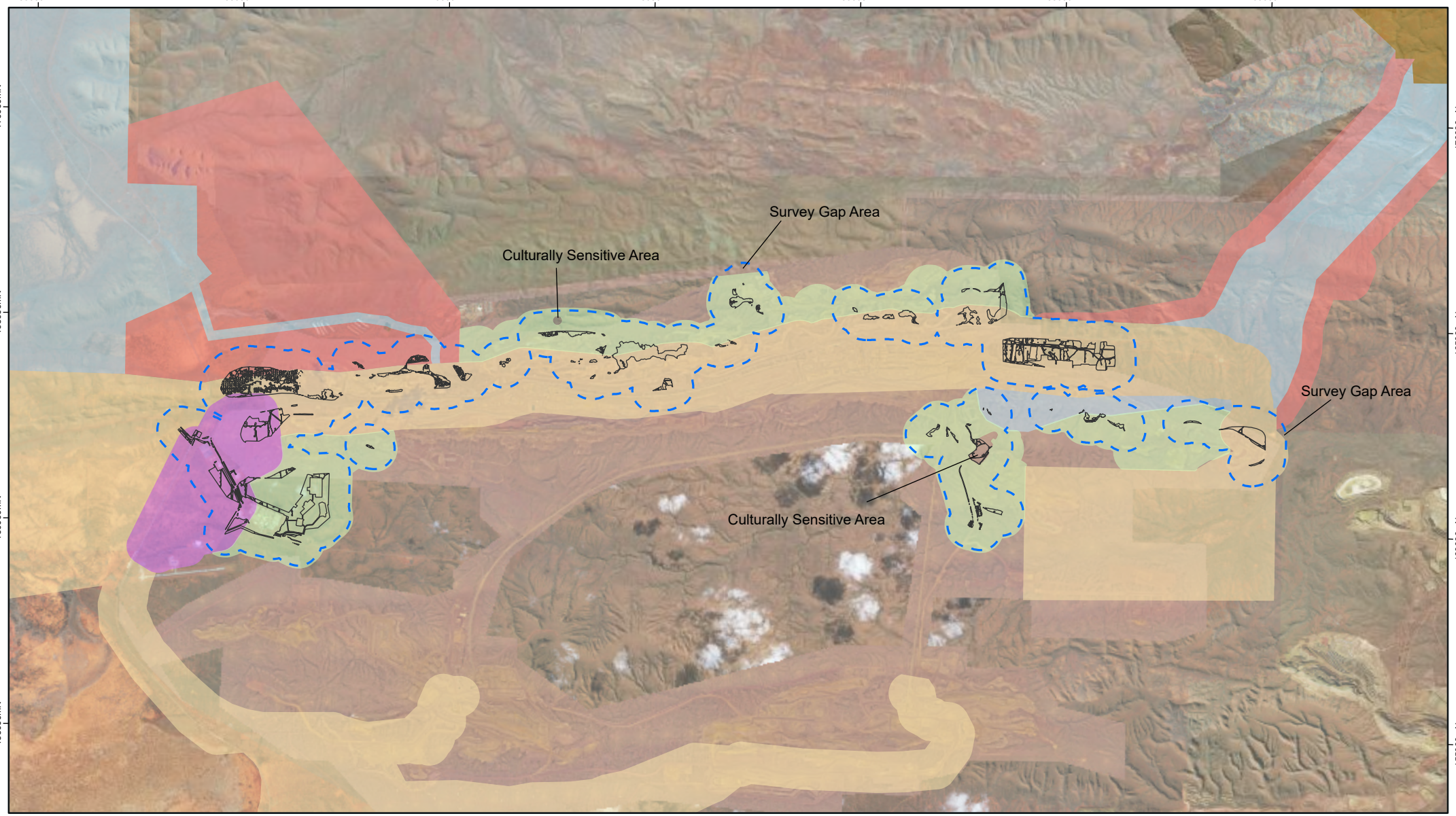
### 4.2.1 Contemporary surveys

Surveys undertaken within the last five years to inform assessment of the Activity Area are presented in Figure 4-1 and Table 4-1, and the reports are provided in Appendix 1. The fauna survey summaries provided in Table 4-1 below consider the results of the entire survey area for context but in most cases the survey covers a much wider area than the Activity Area and the 500 m buffer of the Activity Area.

A contemporary survey coverage gap of 18 ha remains within the Activity Area which is approximately 3% of the total area. Access was not granted due to the area's cultural sensitivity as identified by Traditional Owners. Historic survey data was available and was used to confirm the habitat types present within these areas (Figure 5-2 and Figure 5-3). The survey gap over cultural heritage areas is not considered to be a limitation for this Validation Notice as habitat assessment could be undertaken based on historical surveys. Targeted searches to assess the absence/presence of Progarm were able to be performed in areas surrounding the culturally sensitive areas.t

The 500 m buffer of the Activity Area has near complete survey coverage; however, approximately 5 ha has not been surveyed due to limited access to culturally sensitive areas, and a further 22 ha is located on adjacent tenure where access for survey could not be secured. The area without survey represents approximately 0.5% of the 500 m buffer of the Activity Area. The areas with no survey data or fauna habitat mapping are shown in Figure 5-2 and Figure 5-3. The gap due to tenure access consists of areas bound by existing survey or slivers on the boundaries which limits the likelihood of Program Matters occurring in these areas.

Surveys were undertaken in a manner consistent with the requirements of the Commonwealth and Western Australia guidance for surveys listed in Section 4.1 and fulfil the requirement of Section 7.1 of the Program for contemporary targeted on-ground surveys.




Activity Area

500m Buffer

Vertebrate Fauna Surveys

Northern Flank Targeted Vertebrate Fauna Survey (Biologic 2026)

Central Pilbara solar basic and targeted vertebrate fauna survey (Biologic, 2025c)

MAC to Yandi Corridor & Runaway Valley North Targeted Vertebrate MNES Fauna Survey (Biologic, 2025a)

Mining Area C Targeted Vertebrate MNES Fauna Survey (Biologic, 2025b)

Consolidated Ministers North Targeted Significant Vertebrate Fauna Surveys (Astron, 2024)

Central Pilbara Hub Targeted MNES Vertebrate Fauna Survey (Biologic, 2023a)

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## CONTEMPORARY TERRESTRIAL VERTEBRATE FAUNA SURVEYS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
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| SCALE @ A3: | 1:125,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 4-1 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-003 RevD |

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**Table 4-1: Terrestrial Fauna – contemporary studies and surveys**

| Title | Survey Dates | Survey type | Summary |
|---|---|---|---|
| North Flank Targeted MNES Survey (Biologic 2026a)* | June 2026 | Targeted MNES Survey | A single phase survey targeting vertebrate fauna and comprised targeted searches, camera trap transects, ultrasonic recorders, acoustic recorders and habitat assessments. The Survey Area covers approximately 156 ha of the Activity Area and the entire 500 m buffer.<br><br>One Program Matter species was recorded within the Survey Area:<br><br>• Ghost Bat: recorded on six occasions within the Survey Area, one recorded on a camera trap and secondary evidence including scats and foraging evidence within roost caves. A total of 23 caves, including six caves already known to the Survey Area and 17 new caves were recorded during the survey. Six caves were deemed unsafe entry by a geotechnical engineer, of these three were able to be assessed from the cave entrance and three could not be classified. Of the 20 caves that were classified, two were classified as Category 3 roosts, nine as Category 4 roosts and nine as Category 5 roosts. |
| MAC to Yandi Corridor & Runaway Valley North: Target Vertebrate MNES Fauna Survey (Biologic, 2025a) | May 2025 | Targeted MNES Survey | A single-phase survey targeting eight MNES fauna species undertaken to support the development of the CPHSW1 Validation Notice (BHP 2026). The Survey Area covers 21 ha of the Activity Area and 330 ha of the 500 m buffer.<br><br>Sampling methods included habitat and habitat feature assessments, ultrasonic and acoustic sound recordings, camera trap transects, targeted searches, and nocturnal searches.<br><br>One Program Matter species, the Ghost Bat, was recorded twice during the survey; one Ghost Bat scat and a single Ghost Bat call was recorded via ultrasonic recorder. |
| Mining Area C Targeted Vertebrate MNES Fauna Survey (Biologic 2025b) | May 2024 | Targeted MNES Survey | A single season targeted vertebrate fauna survey of Mining Area C and adjacent tenements encompassing a Survey Area of 15,235 ha. Sampling methods included species-specific targeted sampling during the field survey comprised habitat and habitat feature assessments, ultrasonic and acoustic sound recordings, camera trap transects, targeted searches and nocturnal searches. The survey covered the 359 ha of the Activity Area and 2,805 ha of the 500 m buffer. |

| Title | Survey Dates | Survey type | Summary |
|---|---|---|---|
| | | | Three Program Matter species were recorded within the Survey Area including:<br>• Ghost Bat: recorded on six occasions including scats observed in caves CMAC-014, CEPA-037, CEPA-038 and CEPA-039, as well as two opportunistic sites. Individual Ghost Bats were also sighted at CEPA-037, CEPA-038 and CEPA-039. Ghost Bats were recorded on ultrasonic recorders over four nights with a total of 15 recorded calls.<br>• Ten potential Ghost Bat caves recorded within the Study Area, three (CEPA-037, CEPA-038 and CEPA-039) were classified as Category 3 and five (CMAC-012, CMAC-014, CMAC-016, CMAC-017 and CMAC-013) were classified as Category 4 (nocturnal roost caves with opportunistic usage).<br>• Pilbara Olive Python: a single live individual was recorded at water feature (WEPA-004) within Breakaway/ Cliff habitat. An eDNA sample taken from the same water feature also identified the presence of Pilbara Olive Python.<br>• Grey Falcon: observed opportunistically (two individuals) within the Survey Area within a Cleared/ Disturbed area. |
| Central Pilbara Solar Basic and Targeted Vertebrate Fauna Survey (Biologic 2025c) | May 2025 | Basic and targeted survey | A single-phase survey was completed across an area in the northwest corner of the MACSF site covering an area of approximately 1000 ha including 98 ha of the Activity Area and 620 ha of the 500 m buffer.<br>Sampling methods included habitat assessment, active foraging, avifauna sampling using Song Meters and avifauna census, nocturnal surveys, targeted searches, Night Parrot Acoustic recording, Ghost Bat and Pilbara Leaf-nosed Bat Ultrasonic Recorders, camera traps and opportunistic recordings. No Program Matter species were recorded during the survey. |
| CPH Targeted Matters of National Environmental Significance Vertebrate Fauna Survey (Biologic 2023a) | Nov 2021<br>Apr – May 2022 | Targeted MNES Survey | A two-phase targeted vertebrate fauna survey covering the Central Pilbara Hub area including Mudlark Well, Pineapple Hill and Camp Hill and the MAC to Yandi Rail Corridor encompassing an area of over 60,000 ha including 112 ha of the Activity Area and 704 ha of the 500 m buffer. |

| Title | Survey Dates | Survey type | Summary |
|---|---|---|---|
| | | | Sampling methods included habitat and habitat feature (i.e. cave and water features) assessments, ultrasonic and acoustic sound recordings, camera trap transects, targeted searches and nocturnal searches.<br><br>Two Program Matter species were recorded during the survey:<br><br>• Ghost Bat was acoustically detected on 33 nights at four locations; the Study Area also contains several Category 2 Ghost Bat roost caves (e.g., CMUD-01, CMUD-02, CMUD-10, CMIN-03, CACW-31), supporting local use.<br><br>• Pilbara leaf-nosed bat: 15 ultrasonic calls at four locations, consistent with foraging individuals; no diurnal roost caves (Categories 1–3) were identified—caves assessed were Category 4 (nocturnal refuge) only. |
| Targeted Pilbara Olive Python Survey: South Flank and Mining Area C (Biologic 2023b) | March 2023 | Targeted Pilbara Olive Python Survey | A single season targeted Pilbara Olive Python survey. The survey area was wholly within the Activity Area and the 500 m buffer. Sampling methods included targeted searches and environmental DNA (eDNA) sampling at a water feature.<br><br>Pilbara Olive Python were recorded on three occasions within Gorge/Gully habitat during survey including one visual observation and one eDNA detection of the same individual at the water feature and the third record from eDNA detection at a separate water feature.<br><br>The survey also opportunistically detected the presence of Northern Quoll through eDNA sampling at a water feature within the Survey Area. |

* note that this survey report is a draft and has not yet been finalised. The final report will be provided to support the final Validation Notice.

# 5 Existing environmental values

## 5.1 Fauna habitats

Detailed fauna habitat mapping of the Activity Area has been completed during the surveys and studies described in Section 4.2. The type and extent of fauna habitats present in the Activity Area are provided in Table 5-1 and shown in Figure 5-1, Figure 5-2, and Figure 5-3.

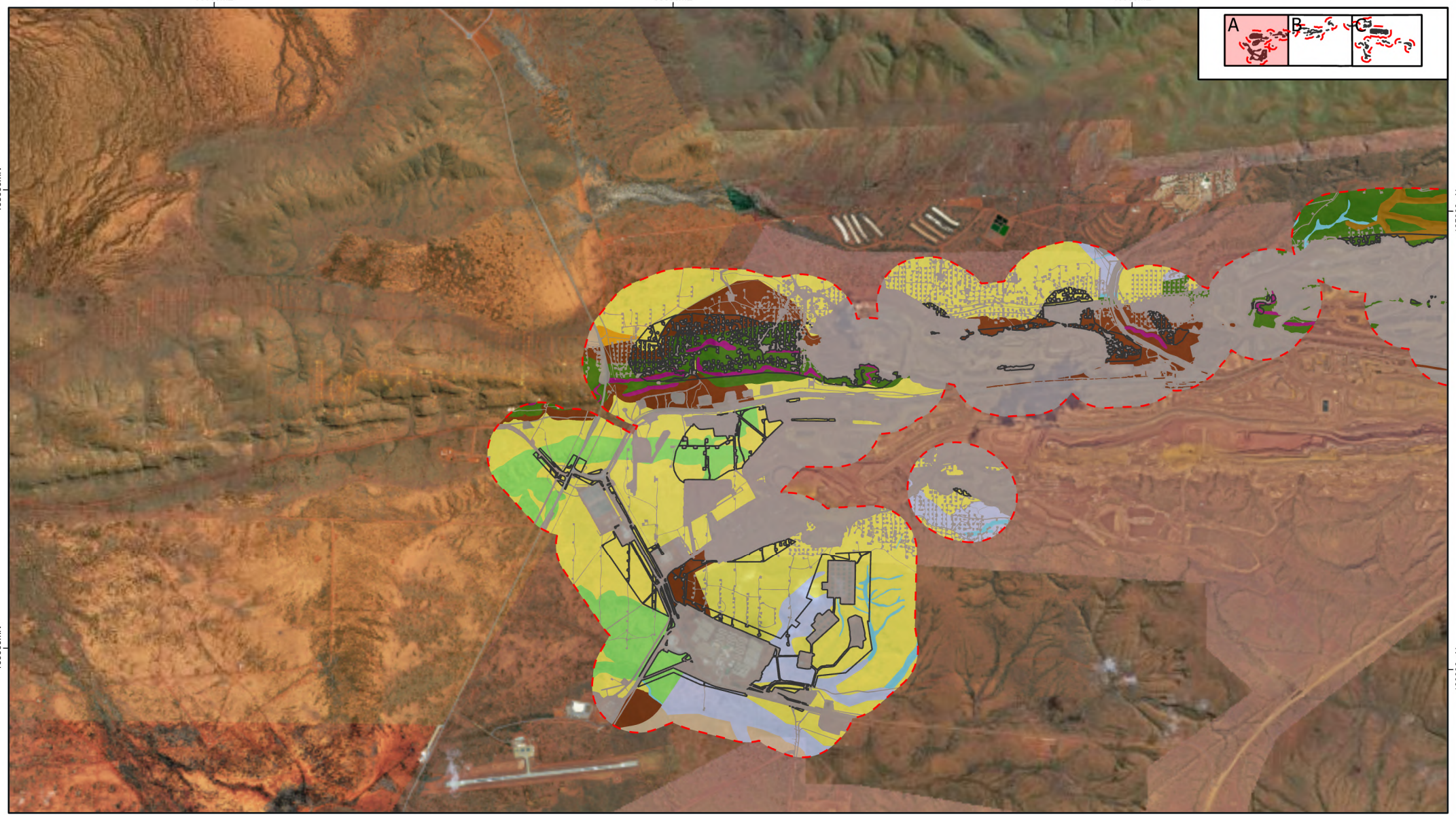
**Table 5-1: Fauna habitats in the Activity Area**

| Habitat Type | Description | Value to significant fauna* | Extent in Activity Area to be cleared (ha) | Extent in 500 m buffer (ha) |
|---|---|---|---|---|
| Gorge/Gully | Gorges and gullies are rugged, steep-sided valleys incised into the surrounding landscape. Gorges tend to be deeply incised, with vertical cliff faces, while gullies are more open (but not as open as Minor Drainage Lines). Caves and rock pools are most often encountered in this habitat type. Vegetation can be dense and complex in areas of soil deposition or sparse and simple where erosion has occurred. | Provides **critical** breeding, roosting, denning (where suitable caves and overhangs exist) and/or foraging and dispersal habitat for Northern Quoll, Pilbara Olive Python and Ghost Bat.<br>Where no suitable caves or overhangs exist, **supporting** foraging and dispersal habitat for Ghost Bat and Pilbara Leaf-nosed Bat. | 21.8 | 222.4 |
| Breakaway/Cliff | The Breakaway/ Cliff habitat comprised a single sided rock face, within the steep mid-upper slope comprising bare rock outcrops or cliffs. Does not comprise the entire slope. | Provides **critical** breeding roosting, denning (where suitable caves or overhangs exist) and/or foraging and dispersal habitat for Northern Quoll, Ghost Bat, and Pilbara Olive Python**.**<br>Provides **supporting** habitat for Pilbara Leaf-nosed Bat. | 23.2 | 69.1 |
| Drainage Area/Floodplain | Lower lying plain often subjected to sheet flow following large rainfall events. Vegetation and substrates of this habitat was variable, often comprising scattered Eucalyptus over *Acacia* and/or *Grevillea* shrubs with an understory dominated by *Triodia* hummock grasses and/or mixed tussock grasses on alluvial substrates, often comprising heavy clays and gravel. | Provides **critical** foraging habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **supporting** habitat for Grey Falcon.<br>Provides **supporting** habitat for Pilbara Leaf-nosed Bat, and Northern Quoll.<br>Potential **supporting** habitat for the Night Parrot and Bilby. | 39.3 | 266.0 |

| Habitat Type | Description | Value to significant fauna* | Extent in Activity Area to be cleared (ha) | Extent in 500 m buffer (ha) |
|---|---|---|---|---|
| Stony Plain | Stony Plain comprise low-lying open plains and the rolling hills below upland areas, with very slight to no gradient. The substrate consists of gravel and pebbles, with vegetation dominated by *Triodia*, although scattered trees also occur. Vegetation within this habitat varied in composition but was generally dominated by scattered Mulga and *Acacia* forming an over-storey, with patches of various small to medium shrub species, over low hummock grasslands of *Triodia*. Scattered *Corymbia* and *Eucalyptus* are usually present. | Provides **critical** foraging habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **supportin**g habitat for Pilbara Leaf-nosed Bat and Grey Falcon.<br>Provides potential **supporting (but marginal)** habitat for the Night Parrot. | 137.6 | 835.2 |
| Hillcrest / Hillslope | The Hillcrest/ Hillslope habitat comprised a rocky substrate, often with exposed bedrock, on moderate to steep slopes leading into lower footslopes. This habitat was characterised by steep slopes with a high proportion of coarse fragments dominated by ironstone. These can contain cracks and crevices. This habitat is usually dominated by open *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* low hummock grasslands. | Provides **supporting** habitat for Ghost Bat, Pilbara Leaf-nosed Bat, and Northern Quoll. | 156.8 | 887.8 |
| Minor Drainage line | Minor Drainage Line habitat usually lacks a tall dense upper storey, but with a dense mid storey, including sparse *Eucalyptus* sp., and *Acacia* sp. over tussock grasses and *Triodia* sp. hummock grasses. Is a common habitat type, primarily surrounding areas of higher elevation, particularly within the Hillslope habitat. | Provides **critical** foraging and dispersal habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **supporting** habitat for Ghost Bat, Northern Quoll, Pilbara Leaf-nosed Bat, Pilbara Olive Python and Grey Falcon. | 22.3 | 70.8 |

| Habitat Type | Description | Value to significant fauna* | Extent in Activity Area to be cleared (ha) | Extent in 500 m buffer (ha) |
|---|---|---|---|---|
| Medium Drainage Line | Medium Drainage Line habitat is comprised of scattered *Eucalyptus* and *Acacia,* or Mulga woodland, with an understorey dominated by tussock grasses. The structure and condition of vegetation often varies seasonally, particularly following rainfall events. This habitat type is prone to ponding and pooling in areas. | Provides **critical** foraging and dispersal habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **critical** breeding, foraging and dispersal habitat for Grey Falcon.<br>Provides **supporting** habitat for Pilbara Leaf-nosed Bat, Northern Quoll, and Pilbara Olive Python. | 2.1 | 8.5 |
| Mulga Woodland | Mulga Woodland comprises stands of Mulga (*Acacia aneura)* over clay or stony substrates. Differs from other plains by having a monoculture of Mulga compared to a diversity of other *Acacia* species. | Provides **critical** foraging and dispersal habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **supporting** habitat for Pilbara Leaf-nosed Bat. | 36.4 | 151.7 |
| Undulating Low Hills | Undulating Low Hills comprises low hills and undulating stony plains of higher elevation than Stony Plain. The habitat supports hard spinifex with a mantle of gravel and larger rocks with occasional outcropping or minor breakaway. Vegetation is dominated by hard *Triodia* hummock grasslands with scattered *Eucalyptus* tress and *Acacia, Eremophila* and/or *Grevillea* shrubs. | Provides **critical** foraging and dispersal habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>Provides **supporting** habitat for Pilbara Leaf-nosed Bat. | 147.7 | 333.9 |
| Hardpan Plain | Hardpan Plain habitat comprised flat low lying clay based plain dominated by stands of mulga, with a high proportion of the substrate comprising bare soil. Often sparsely vegetated with large areas often void of vegetation. | Nil | 0 | 4.1 |

| Habitat Type | Description | Value to significant fauna* | Extent in Activity Area to be cleared (ha) | Extent in 500 m buffer (ha) |
|---|---|---|---|---|
| Sand Plain | Comprises low-lying plains or elevated sandy landforms with deep, unconsolidated sandy substrates. Vegetation typically consists of open Acacia shrublands over Triodia hummock grasslands, with hummocks representing a range of growth stages.<br>Only a small area of isolated Sand Plain habitat occurs in the south west corner of the 500 m buffer. | Provides **critical** foraging and dispersal habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat.<br>**Supporting** habitat for Pilbara leaf-nosed bat and Grey Falcon.<br>Potential suitable (but marginal) habitat for Greater Bilby, | 0 | 28.0 |
| Rehabilitated Area | Previously cleared or disturbed area (i.e. tracks, laydown areas, drill pads) that have been seeded or prepared for natural vegetation colonization but is not yet regenerated. | N/A | 0.9 | 0.96 |
| No survey data | Small areas off tenure that have not been surveyed. | | 0 | 22.4 |
| Disturbed | Previously disturbed areas included areas where the natural vegetation and microhabitats have been disrupted or devoid vegetation due to roads, access tracks or due to surrounding mining activity. | N/A | 4.6 | 868.3 |
| **Total Habitat** | | | **592.8** | **5549.6** |




Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Cleared/ Disturbed
Drainage Area/ Floodplain
Gorge/ Gully
Hardpan Plain
Hillcrest/ Hillslope
Minor Drainage Line
Mulga Woodland
Sand Plain
Stony Plain
Undulating Low Hills

N

0 0.5 1 1.5 2 2.5
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## FAUNA HABITAT

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-1 |
| DATE: | 29/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-004 RevC |

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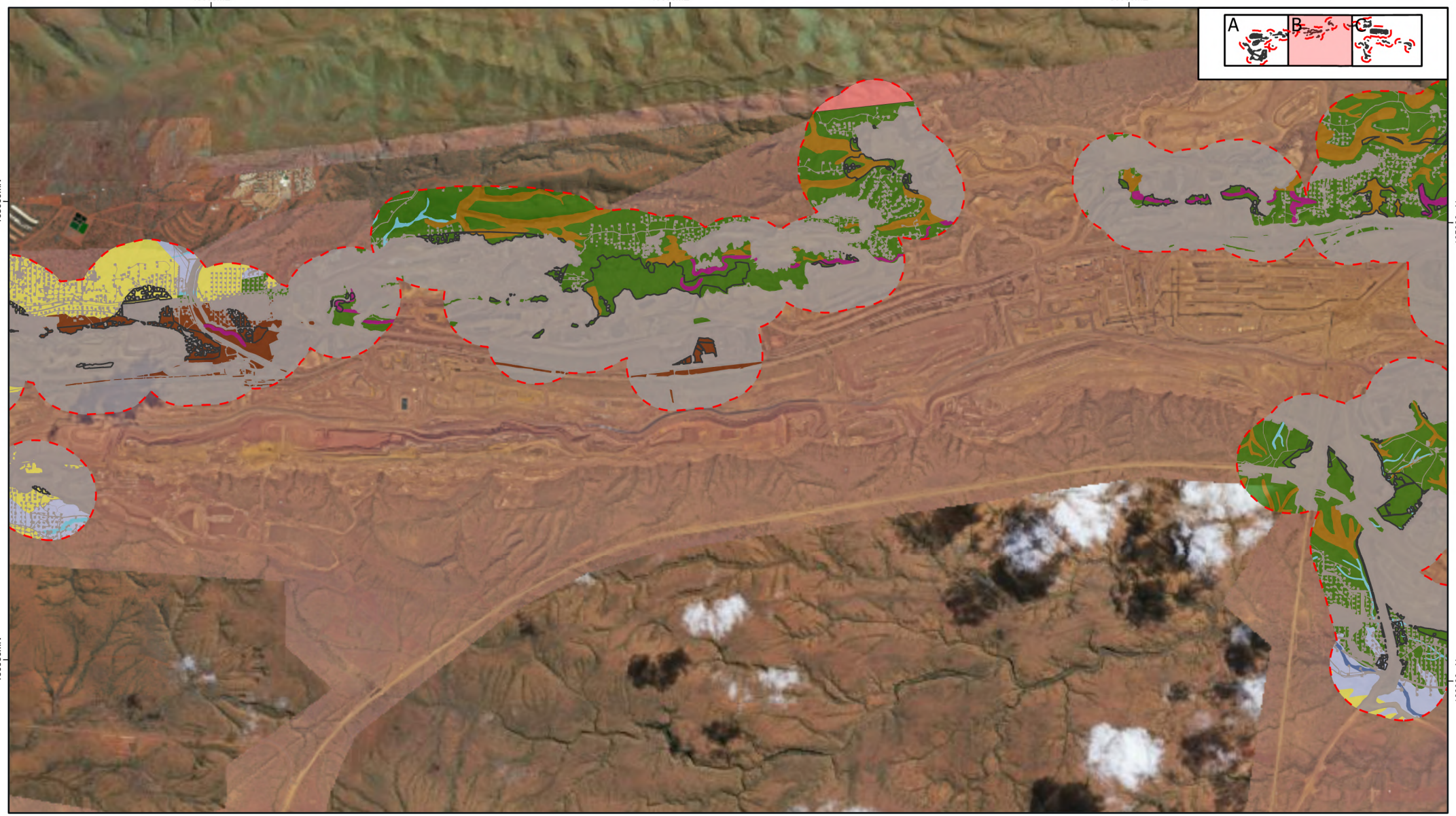


Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Cleared/ Disturbed
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Medium Drainage Line
Minor Drainage Line
Stony Plain
Undulating Low Hills
No Survey Data

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GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## FAUNA HABITAT

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-2 |
| DATE: | 29/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-004 RevC |

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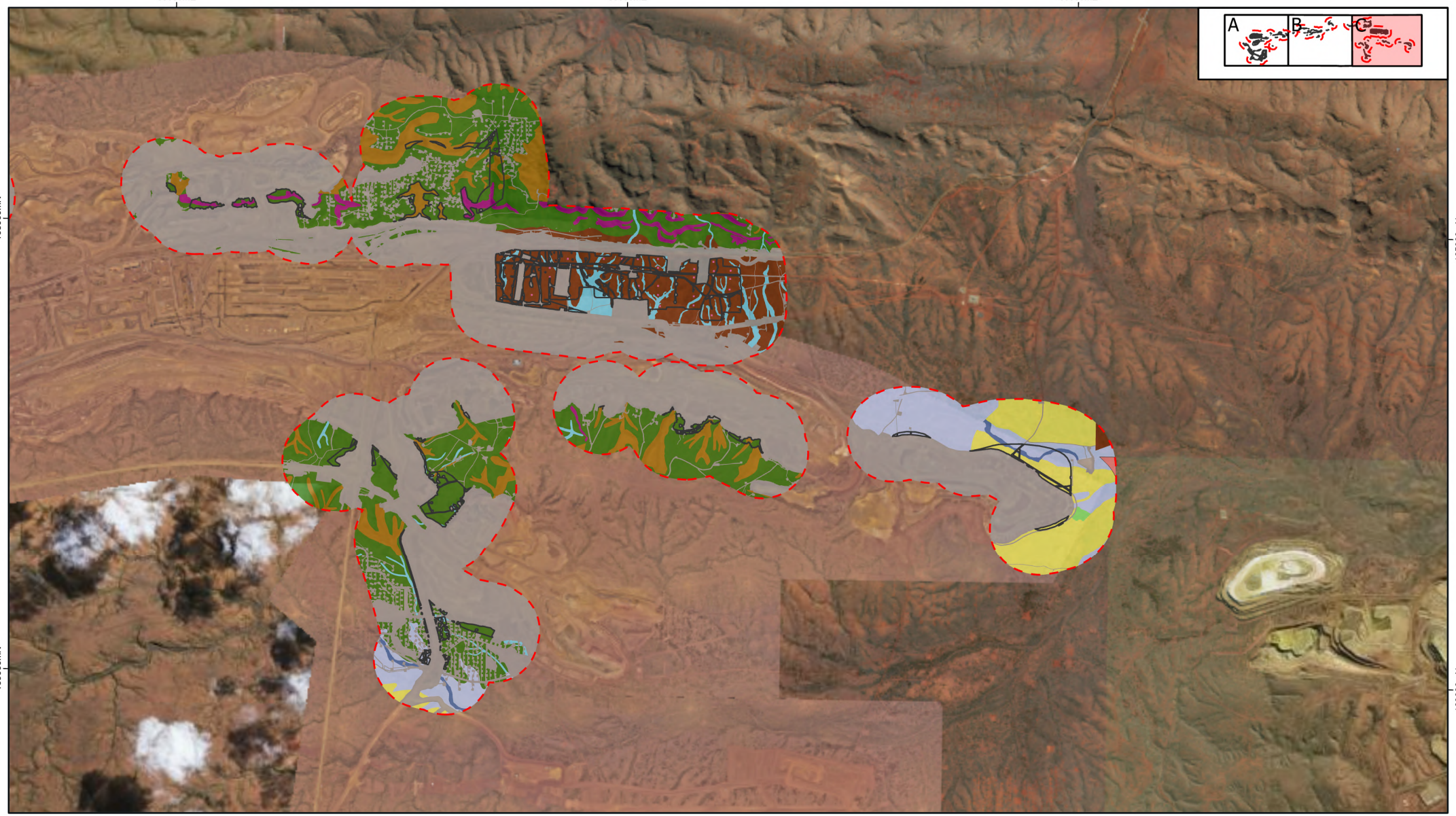


Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Cleared/ Disturbed
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Medium Drainage Line
Minor Drainage Line
Mulga Woodland
Rehabilitated Area
Stony Plain
Undulating Low Hills
No Survey Data

N

0 0.5 1 1.5 2 2.5
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## FAUNA HABITAT

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:57,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-3 |
| DATE: | 29/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-004 RevC |

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## 5.2 Ghost Bat

The following sections provide background information to demonstrate that Notifiable Action Triggers for Ghost Bat are met. Impacts to the Ghost Bat are discussed and offsets will be provided for the loss of critical foraging and dispersal habitat (Section 7). As a result, the Program Matter Objective (PMO) (as described below) for this species will be met.

Program Matter Objective: *"To support the long-term persistence and viability of the Ghost Bat within the SAA."*

### 5.2.1 General species information

The Ghost Bat is listed as 'Vulnerable' under the EPBC Act. It is the largest microbat in Australia and the second largest globally (TSSC 2016a).

In the Pilbara region, the species occurs across all four sub-regions and was recorded in 21 of the 24 areas surveyed by DPaW during the Pilbara Biological Survey (2002-2007; see McKenzie and Bullen 2009). The Pilbara-based Ghost Bat population is currently estimated to be approximately 1,850 individuals, with around 350 in the Hamersley Range and 1,500 in the eastern Pilbara (Bat Call WA 2021a).

The largest colonies of Ghost Bats in the Pilbara occur outside the SAA, primarily roosting in abandoned mines within the Chichester IBRA region. Within the SAA, studies suggest colonies are smaller and they are likely to depend on multiple roosts within their range.

Ghost Bats in the Pilbara typically roost in deep, complex caves beneath bluffs of low rounded hills, often composed of Marra Mamba Iron Formation or banded iron formation, granite rock piles and abandoned mines (Armstrong and Anstee 2000). Ghost Bats may move between caves both seasonally and in response to weather changes (van Dyck and Strahan 2008).

Highly suitable foraging habitats for the Ghost Bat in the Pilbara include Gorge/Gully, Drainage Area/Floodplain, Major Drainage Line, and Mulga Woodland, followed by Stony Plain as a less suitable habitat (Biologic 2020; unpublished data).

Recent Ghost Bat tracking studies (Augusteyn *et al*. 2018 and Bullen 2021) indicate that male and females forage over large areas, typically up to 12 km from their diurnal roost (Augusteyn *et al.* 2018; Bullen 2021), and occasionally up to 17 km during foraging bouts (Bullen *et al*. 2023).

Regional records and the distribution of Ghost Bat are shown in Figure 5-4.

### 5.2.2 Studies and sampling effort

Five contemporary surveys have targeted the Ghost Bat within the Activity Area and/or 500 m buffer (Section 4.2.1; Table 4-1), as well as numerous ongoing monitoring programs in the local area and surveys (historical and contemporary) in the wider area. Survey coverage and sampling effort for the Ghost Bat is shown in Figure 5-5. Sampling methods for Ghost Bat within the Activity Area and 500 m buffer include habitat assessments (including water and cave feature assessments), targeted searches and/ or transects, and ultrasonic recorders (Biologic, 2026 2025a, 2025b 2025c, 2023a; Figure 5-5). Where suitable caves or overhangs that may be utilised by the species were located, detailed cave assessments and searches were undertaken to search for evidence of occurrence and determine the likely use of the cave as a roost site.

Sampling methods for cave assessments include searching inside or at entrances of caves, scat collection, counts and analysis, visual observations of individuals, DNA analysis, hormone analysis, placing ultrasonic detectors near water features, caves and foraging/ dispersal corridors, and infra-red video recordings. Where a cave was not deemed safe for entry, efforts were made to assess the cave without entering (Biologic 2026a, 2023a).

Microclimate and photo monitoring are also undertaken as part of the MACSF Ghost Bat monitoring program for select caves (see BHP 2025b, 2026b) to monitor the suitability of the caves as habitat for Ghost Bats.

### 5.2.3 Local habitat

The Activity Area falls within the current distribution of the Ghost Bat whereby the species or species habitat may occur (Figure 5-4).

The Activity Area and the region is likely to be an important area to the Ghost Bat based on the presence of critical and supporting habitats (Biologic 2023a). Gorge/Gully habitat can contain important habitat features such as overhangs and caves (Biologic 2023a).

Critical foraging and dispersal habitat and supporting habitat are present within the Activity Area and 500 m buffer of the Activity Area as discussed below.

**Critical habitat**

There is no critical roosting habitat (Category 1, 2, 3 (apartment block)) within the Activity Area or 500 m buffer.

There are 11 Category 2 caves located outside the 500 m buffer of the Activity Area and within 12 km of the Activity Area (Table 5-2, Figure 5-6 and Figure 5-7).

The following habitats are considered critical foraging and dispersal habitat where proximal (within 12 km) to Category 2 caves; Gorge/Gully, Breakaway/Cliff, Minor Drainage Line, Medium Drainage Line, Mulga Woodland, Drainage Area/Floodplain, Stony Plain, and Undulating Low Hills.

Within the Activity Area there is approximately 430.4 ha of critical foraging and dispersal habitat present within the Gorge/Gully, Breakaway/Cliff, Medium Drainage Line, Minor Drainage Line, Drainage Area/Floodplain, Mulga Woodland, Stony Plain, and Undulating Low Hills (Figure 5-6, Figure 5-7, and Figure 5-8).

Within the 500 m buffer, there is approximately 1,957.5 ha of critical foraging and dispersal habitat present within all of the above-mentioned habitat types (Table 5-3).

**Supporting habitat**

There are seven caves within the Activity Area including one isolated Category 3 cave (CEPA-37) and six Category 4 caves (CMAC-03, CMAC-12, CMAC-13, CMAC-14, CMAC-35, and CMAC-38; Table 5-2)

There are 25 caves within 500 m of the Activity Area including Category 3 (isolated), Category 4, Category 5 and unclassified caves (Table 5-2, Figure 5-6, Figure 5-7 and Figure 5-8). Caves within 500 m have been considered in this assessment as they could potentially be subject to indirect impacts associated with the Activity such as increased dust, noise, or vibration. Caves outside the 500 m distance are highly unlikely to be impacted by the Activity and are not assessed further.

Within the Activity Area and a 500 m buffer of the Activity Area, Hillcrest/Hillslope is considered supporting habitat as it contains supporting roosting habitat (i.e. Category 3 when not forming an apartment block and Category 4 roosts; Biologic 2026a). There is 156.8 ha in the Activity Area and 887.8 ha in the 500 m buffer of the Activity Area (Table 5-3).

**Table 5-2: Caves with potential and recorded Ghost Bat use in the Activity Area and 500-m buffer**

| Cave ID (Historic Cave ID) | Roost Classification* | Distance from Activity Area | Evidence of use by Ghost Bat |
|---|---|---|---|
| **Caves within the Activity Area** | | | |
| CEPA-37 | Category 3 | Within | Scats recorded and direct sighting of an individual (Biologic 2025b). |
| CMAC-03 | Category 4 | Within | No evidence of use. |
| CMAC-12 | Category 4 | Within | No evidence of use. |
| CMAC-13 | Category 4 | Within | No evidence of use. |
| CMAC-14 | Category 4 | Within | Scat recorded (Biologic 2025b). |
| CMAC-35 | Category 4 | Within | No evidence of use. |
| CMAC-38 | Category 4 | Within | No evidence of use. |
| **Caves within 500 m of the Activity Area** | | | |
| AC-11 | Category 4 | 41 m | Estimated small number of scats recorded (Biologic 2011a). No evidence of use in subsequent monitoring (Biologic 2013). |
| AC-19 | Category 4 | 20 m | Estimated 25 scats recorded (Biologic 2011a). Estimated 30 fresh (less than one month old) scats and foraging evidence (prey remains) (Biologic 2026a). |
| AC-20 | Category 3 | 409 m | Estimated 15 scats recorded (Biologic 2011). Recent monitoring recorded an estimated 200 scats, with genotype analysis suggesting the cave is used by a minimum of four individual (males). Scats with elevated progesterone recorded in 2024 (Biologic 2025b). Approximately 100 scats (6 months to 3 years) and foraging evidence recorded in 2026 (Biologic 2026a). |

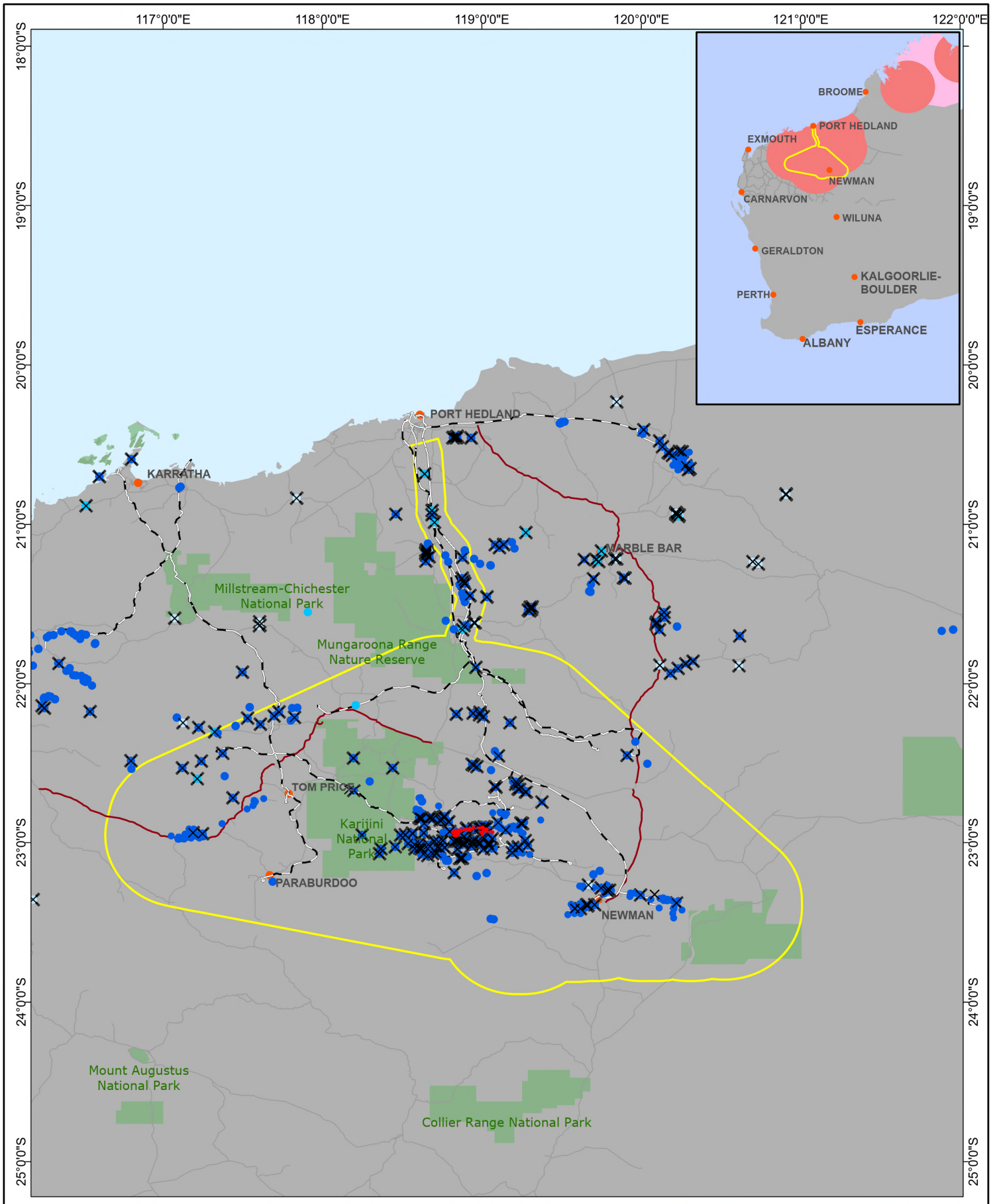
| Cave ID (Historic Cave ID) | Roost Classification* | Distance from Activity Area | Evidence of use by Ghost Bat |
|---|---|---|---|
| AC-28 | Category 4 | 475 m | Possible evidence of foraging (budgerigar feathers) recorded (Biologic 2013). Monitored triennially. Unable to be determined due to no safe access (Biologic 2026b). |
| AC-29 | Category 4 | 87 m | Monitored triennially. No evidence or scats recorded in recent monitoring (Biologic 2026b). |
| AC-34 | Category 4 | 140 m | Monitored triennially. Unable to be determined due to no safe access (Biologic 2026b). |
| AC-38 | Category 4 | 461 m | No evidence of use. Monitored triennially. (Biologic 2026b). |
| CMAC-10 | Unclassified | 122 m | No evidence of use. |
| CMAC-15 | Category 5 | 395 m | No evidence of use. |
| CMAC-22 | Unclassified | 495 m | Recent scats recorded (Biologic 2026a). No classification as deemed unsafe for entry. |
| CMAC-24 | Unclassified | 219 m | Cave deemed geotechnically unsafe and therefore no entry permitted. |
| CMAC-25 | Unclassified | 465 m | Cave deemed geotechnically unsafe and therefore no entry permitted. |
| CMAC-26 | Category 5 | 30 m | No evidence of use. |
| CMAC-27 | Category 5 | 375 m | No evidence of use. |
| CMAC-28 | Category 4 | 409 m | No evidence of use. |
| CMAC-29 | Category 4 | 337 m | No evidence of use. |
| CMAC-30 | Category 5 | 232 m | No evidence of use. |
| CMAC-31 | Category 5 | 211 m | No evidence of use. |
| CMAC-32 | Category 5 | 234 m | No evidence of use. |
| CMAC-33 | Category 5 | 162 m | No evidence of use. |

| Cave ID (Historic Cave ID) | Roost Classification* | Distance from Activity Area | Evidence of use by Ghost Bat |
|---|---|---|---|
| CMAC-34 | Category 5 | 344 m | No evidence of use. |
| CMAC-36 | Category 5 | 303 m | No evidence of use. |
| CMAC-37 | Category 5 | 327 m | No evidence of use. |
| CMAC-39 | Category 3 | 67 m | Approximately 100 scats recorded (Biologic 2026a). |
| CMAC-40 | Category 4 | 70 m | Five old scats recorded (six months to three years old) (Biologic 2026b). |
| **Category 2 Caves within 12 km of the Activity Area (excluding caves within 500 m buffer)** | | | |
| AC1 | Category 2 | 2.4 km | All Category 2 Caves identified have been monitored regularly since 2015 as part of the Mining Area C Fauna Management Plan with the monitoring report provided (Biologic 2024).<br>Ghost Bats have been identified through scat recordings, and it is the primary technique to identify the continued use of the Caves within MACSF.<br>Scat analysis in all caves undergoes hormone analysis to track the occurrence of pregnant females. All caves listed are considered maternity caves. |
| AC5 | Category 2 | 0.55 km | |
| AC9 | Category 2 | 0.7 km | |
| AC17 | Category 2 | 5.6 km | |
| CMIN-03 | Category 2 | 7.3 km | |
| SF01 | Category 2 | 7.5 km | |
| SF03 | Category 2 | 3.3 km | |
| SF05 | Category 2 | 3.9 km | |
| SF08 | Category 2 | 3.9 km | |
| SF14 | Category 2 | 3.9 km | |
| SF27 | Category 2 | 3.3 km | |

*Categories align with definitions provided in Bat Call WA 2021a. Category 5 caves are defined as unsuitable for occupancy by Ghost Bats based on unsuitable physical structure/characteristics or internal microclimate.

**Table 5-3: Ghost Bat Habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within 500 m Buffer of Activity Area (ha) |
|---|---|---|
| **Critical foraging habitat within 12 km of a Category 1 or 2 roost*** | | |
| Gorge/Gully | 21.8 | 222.4 |
| Breakaway/Cliff | 23.2 | 69.1 |
| Medium Drainage Line | 2.1 | 8.5 |
| Mulga Woodland | 36.4 | 151.7 |
| Drainage Area/Floodplain | 39.3 | 266.0 |
| Stony Plain | 137.6 | 835.2 |
| Minor Drainage Line | 22.3 | 70.8 |
| Undulating Low Hills | 147.7 | 333.9 |
| **Total critical habitat** | **430.4** | **2845.3** |
| **Supporting habitat** | | |
| Hillcrest / Hillslope | 156.8 | 887.8 |
| **Total supporting habitat** | **156.8** | **887.8** |




- Activity Area
- Town
- Major Roads
- Minor/Regional Road
- Rail Centreline
- Strategic Assessment Area

**Ghost Bat Records**

- Records After 2005 - 2017
- Records Between 1980 - 2004
- Records Prior 1979
- Records Missing Date

N

0 25 50 75

Kilometres

GCS GDA 1994

**BHP** **PUBLIC**

**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**

GHOST BAT REGIONAL RECORDS AND DISTRIBUTION

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

SCALE @ A4: 1:3,500,000 PREPARED: GEOMATICS FIGURE: 5-4

DATE: 16/10/2026 REQUESTOR: ENV APPROVALS NO: A1469_005 RevB

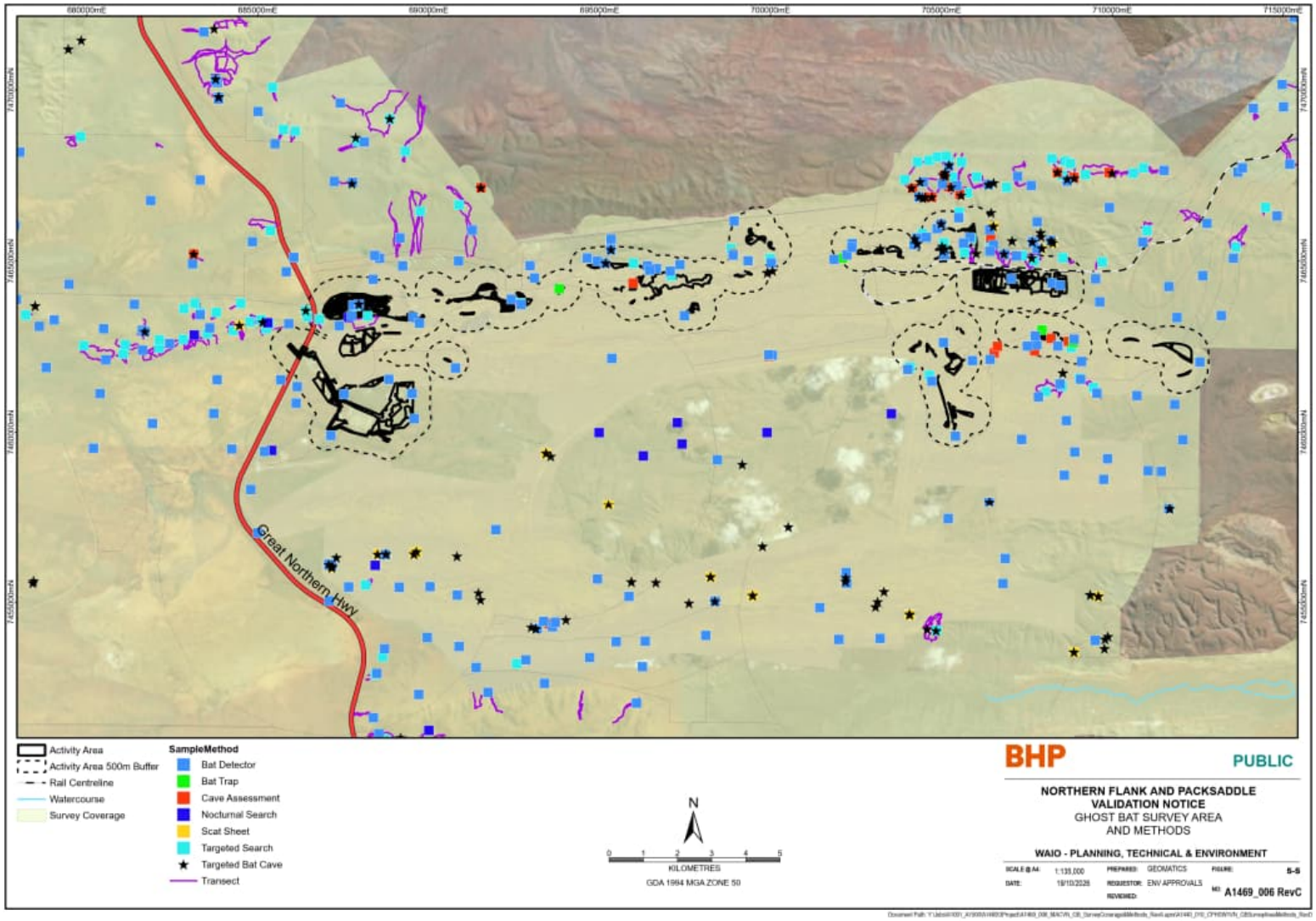
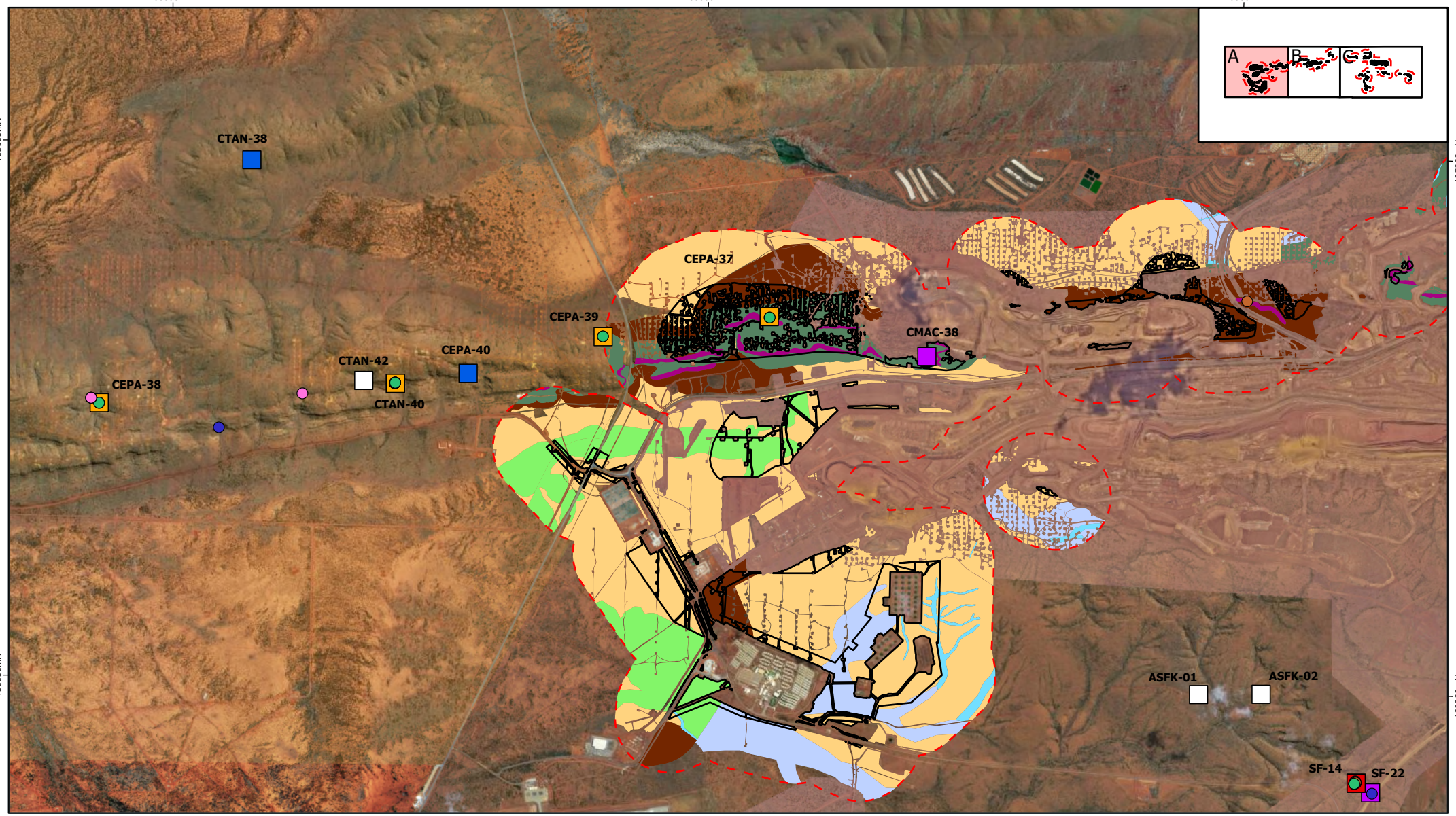



**Figure 5-5: Ghost Bat survey areas and methods**




Activity Area
500m Buffer

**Ghost Bat Roost Type**
- Category 2
- Category 3
- Category 4
- Category 5
- Unclassified

**Record Type**
- Call
- Individual
- Other
- Scat

**Critical Habitat**
- Breakaway/ Cliff
- Mulga Woodland
- Drainage Area/ Floodplain
- Stony Plain
- Minor Drainage Line
- Undulating Low Hills

**Supporting Habitat**
- Hillcrest/ Hillslope

N

0 0.5 1 1.5 2 2.5
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

PUBLIC

**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
GHOST BAT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| DATE: | 2/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-007 RevE |

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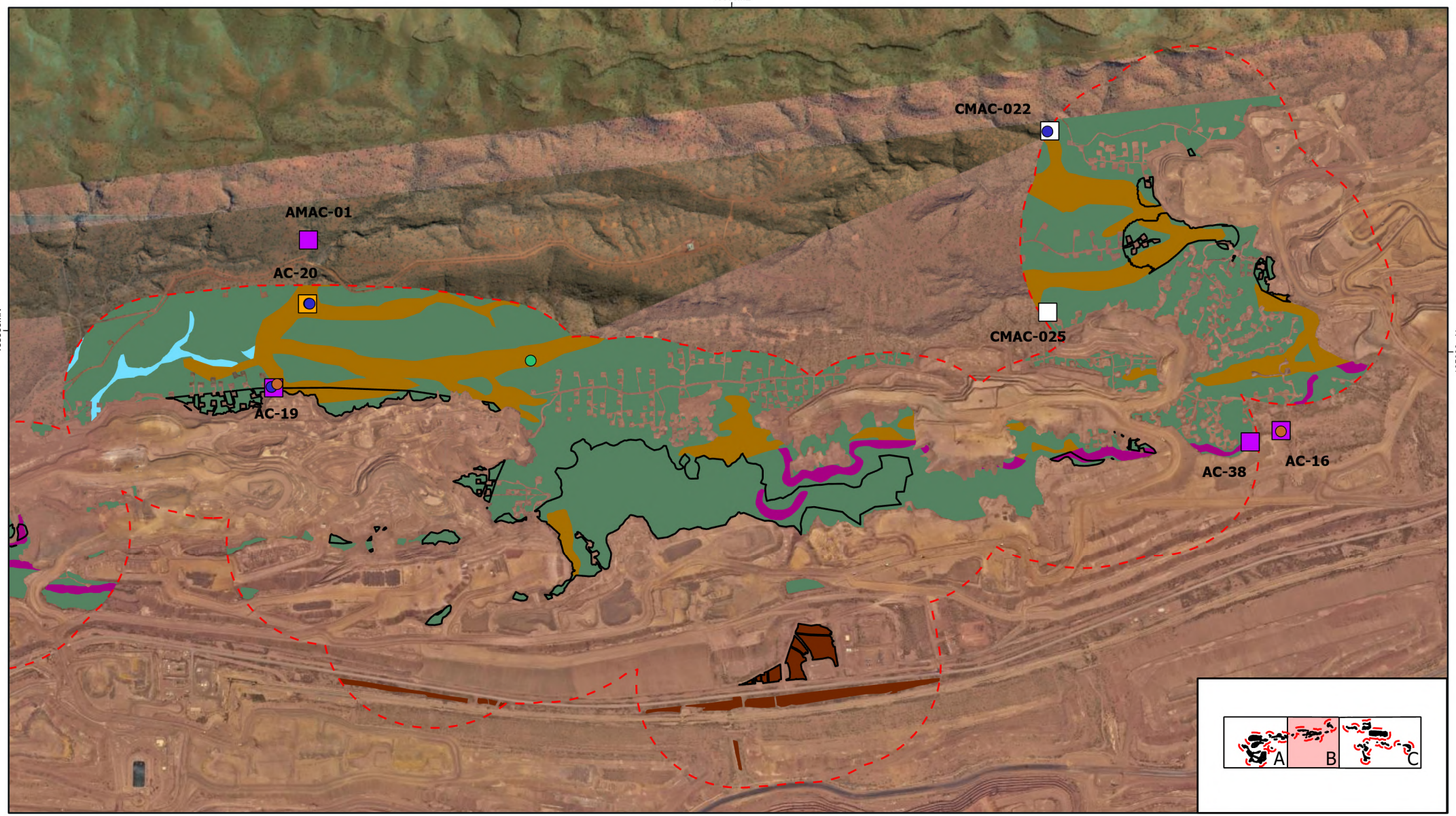


Activity Area
500m Buffer

**Ghost Bat Roost Type**
- Category 3
- Category 4
- Unclassified

**Record Type**
- Other
- Scat
- Individual
- Foraging Evidence

**Critical Habitat**
- Breakaway/ Cliff
- Gorge/ Gully
- Minor Drainage Line
- Undulating Low Hills

**Supporting Habitat**
- Hillcrest/ Hillslope

N

0 0.5 1
KILOMETRES

GDA 1994 MGA ZONE 50

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GHOST BAT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| DATE: | 29/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-007 RevD |

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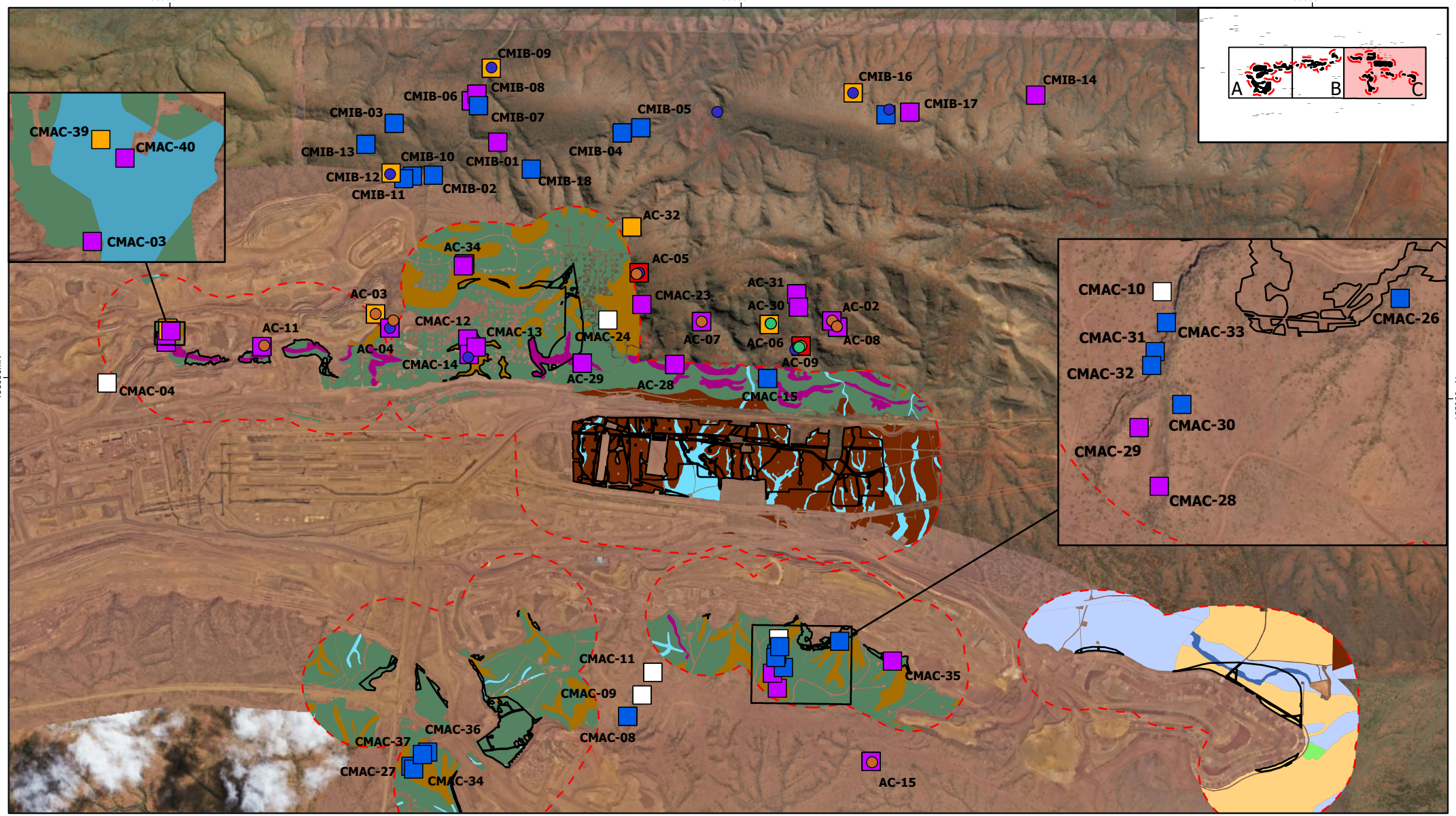


Activity Area

500m Buffer

**Ghost Bat Roost Type**

- Category 2
- Category 3
- Category 4
- Category 5
- Unclassified

**Record Type**

- Individual (alive)
- Other
- Scat

**Critical Habitat**

- Breakaway/ Cliff
- Gorge/ Gully
- Medium Drainage Line
- Mulga Woodland
- Drainage Area/ Floodplain
- Stony Plain
- Minor Drainage Line
- Undulating Low Hills

**Supporting Habitat**

- Hillcrest/ Hillslope

N

0 0.5 1 1.5 2 2.5

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GHOST BAT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| DATE: | 1/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-007 RevD |

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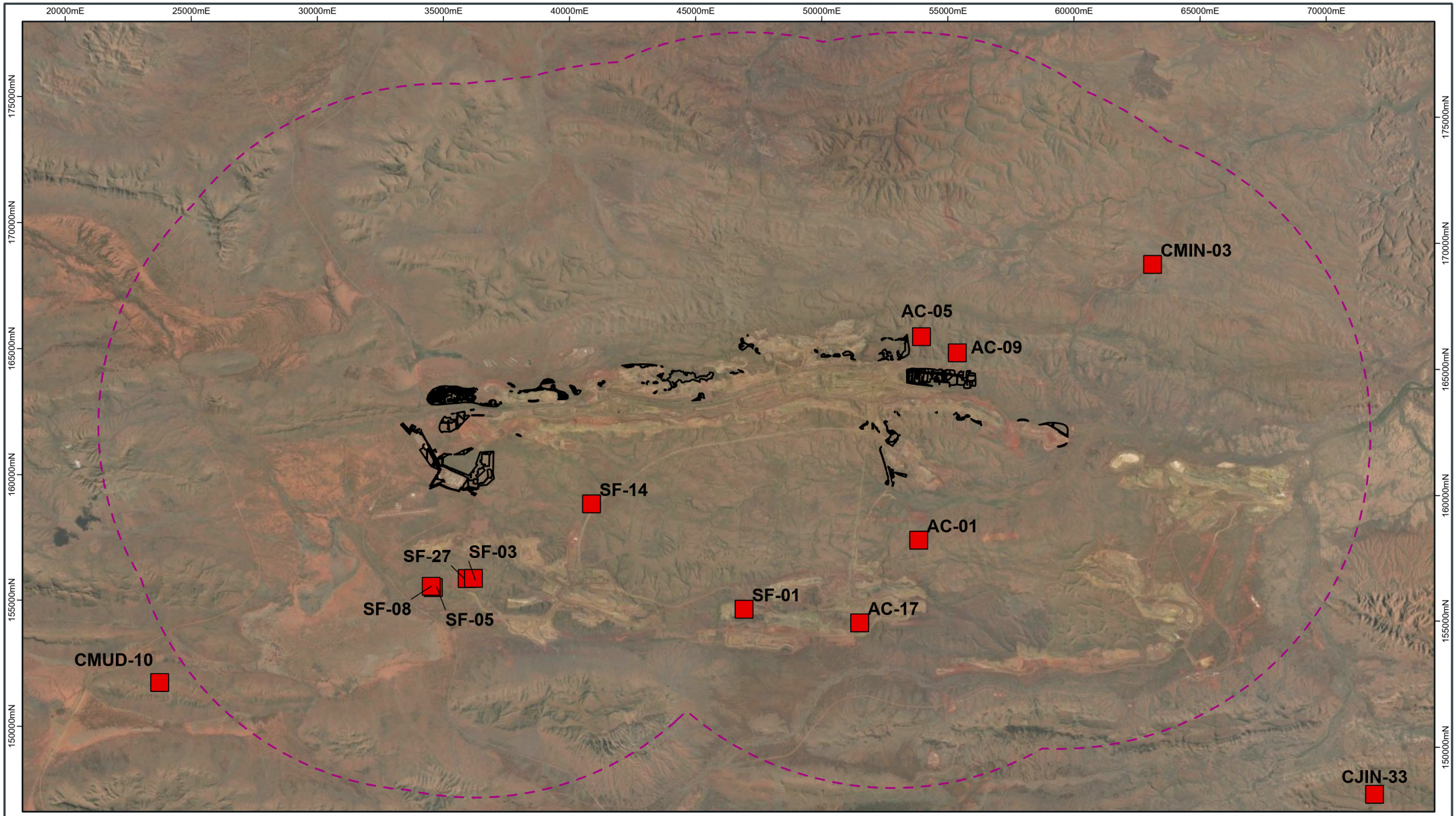


Activity Area

Acitvity Area 12 km buffer

Ghost Bat Roost Type - Category 2

N

0 5 10

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## CATEGORY 2 GHOST BAT CAVES WITHIN 12 KM

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:200,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-9 |
| DATE: | 19/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-025 RevA |

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### 5.2.4 Ghost Bat records

There are three Ghost Bat records within the Activity Area and 16 Ghost Bat records within the 500 m buffer of the Activity Area (Table 5-4).

Of the three records within the Activity Area, two are scat recordings and one is a direct sighting. Of the 16 Ghost Bat records within the 500 m buffer of the Activity Area, 11 are scat records, one is a direct sighting, two are potential foraging evidence, one is a camera trap, one is a recorded call. Ghost Bat records are summarised in Table 5-4.

A population of Ghost Bats likely occurs in the wider area, which is likely to be an important population because it is a key source population for breeding given the presence of Category 2 caves (Biologic 2023a).

**Table 5-4: Ghost Bat Records**

| Cave ID | Year | Description |
|---|---|---|
| Within the Activity Area | | |
| CMAC-14 | 2025 | Scat recorded (Biologic 2025b). |
| CEPA-37 | 2025 | Ghost Bat scats recorded (Biologic 2025b)<br>Direct sighting of an individual (Biologic 2025b) |
| Within 500 m of the Activity Area | | |
| AC-11 | 2011 | Estimated small number of scats recorded (Biologic 2011). |
| AC-19 | 2011, 2026 | Estimated 25 scats recorded (Biologic 2011a).<br>Estimated 30 fresh (less than one month old) scats and foraging evidence (prey remains) (Biologic 2026b). |
| AC-20 | 2011, 2025, 2026 | Estimated 15 scats recorded (Biologic 2011).<br>Recent monitoring recorded an estimated 200 scats, with genotype analysis suggesting the cave is used by a minimum of four individual (males).<br>Scats with elevated progesterone recorded in 2024 (Biologic 2025b).<br>Approximately 100 old scats (6 months to 3 years) and foraging evidence recorded (Biologic 2026b) |
| AC-28 | 2013 | Possible evidence of foraging (budgerigar feathers) recorded (Biologic 2013). |
| Major Outcropping | 2022 | Single call recorded from echolocation calls (Biologic 2022) |
| CMAC-14 | 2024 | Scat recorded (Biologic 2025b). |
| CEPA-37 | 2024 | Scats recorded ((Biologic 2025b)<br>Direct sighting of an individual (Biologic 2025b) |
| CMAC-22 | 2026 | Recent scats recorded (Biologic 2026b) |

| Cave ID | Year | Description |
|---|---|---|
| CMAC-39 | 2026 | Approximately 100 scats recorded- (Biologic 2026b) |
| CMAC-40 | 2026 | Five old scats recorded (six months to three years old) (Biologic 2026a) |
| N/A | 2026 | Observation of an individual on a camera trap. |

### 5.2.5 Impact assessment

The potential direct and indirect impacts to the Ghost Bat from the Activity (see Section 2) are considered below.

#### Habitat loss

The Activity will result in clearing of no more than 587.2 ha of Ghost Bat habitat within the Activity Area of which 430.4 ha is critical habitat and 156.8 ha is supporting habitat. All habitat to be cleared, except for Hillcrest/Hillslope, is defined as critical given its proximity (within 12 km) to Category 2 caves. Hillcrest/Hillslope is defined as supporting habitat (roosting only) as it contains isolated Category 3 caves and Category 4 caves which are not considered critical roosting caves for Ghost Bat (Biologic 2025a, 2026a).

The fauna habitats that will be subject to the greatest amount of clearing for this Activity include Hillcrest/Hillslope, Undulating Low Hills and Stony Plain.

There are no Category 1, Category 2 or Category 3 (where in an ‘apartment block’ in association with Category 1 or 2 caves) caves within the Activity Area; however, there are six Category 4 caves and one isolated Category 3 cave within the Activity Area.

Six caves (CMAC-03, CMAC-12, CMAC-13, CMAC-14, CMAC-35 and CMAC-38) occur within the Activity Area and as such will be directly impacted by the Activity. These caves are consistent with Category 4 roosts for the Ghost Bat. Category 4 caves are not considered critical roosting habitat and the local area contains numerous remaining similar caves.

CEPA-37 is an isolated Category 3 cave and is the highest-value fauna feature within the Activity Area. For this reason, it will be retained. A 150 m Disturbance Management Zone (DMZ) will apply to CEPA-37. No mining or mining related activities are permitted within the DMZ. Some clearing has occurred within the DMZ for exploration and geotechnical drilling.

Activities that will be permitted within the 150 m DMZ include the following:

- light vehicle and heavy vehicle access permitted
- non-mining related ground disturbance/ activities permitted
- disturbance/ clearing limited to the smallest practicable area and prioritising use of existing disturbed areas.

Any planned activities within the DMZ will need to adhere to the following conditions:

- vibration at roost entrance must not exceed 15 mm/s
- noise at roost entrance must not exceed 70 dB
- dust supressed proactively, as far as practicable
- minimise light spill at roost entrance and surrounding area (directional or shielded lighting)
- temporary disturbance areas rehabilitated/ revegetated as soon as practicable
- site personnel to be informed how to minimise impacts to Ghost Bats (e.g. via inductions, toolbox talks, posters, environmental alerts).

As detailed in the MAC-South Flank Offset Management Plan (BHP 2026) and the MAC Validation Notice (BHP 2018c) caves AC-11, AC-19, AC-28, AC-29, AC-34 and AC-38 which are located within the 500 m buffer of the Activity Area are approved for impact by the existing operations. Cave AC-20 will be retained and managed in accordance with existing approvals. Listed in these approvals as a Category 4 cave, further monitoring of this cave has resulted in it being reclassified as a Category 3 (Biologic 2026a).

BHP intends to avoid direct impact to the remaining caves within the 500 m buffer that are not included in the previous approval documents.

## Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

## Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, vibration and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of dust, artificial light, noise or vibration beyond those already occurring within Mining Area C. Residual impacts associated with dust and light are unlikely; however, impacts associated with increased noise and vibration associated with the Activity have the potential to occur.

Vibration generated by blasting and noise generated by blasting, heavy vehicles or construction activities have the potential to disturb roosting Ghost Bats and/or compromise the structural integrity and suitability of cave roosts.

There is one isolated Category 3 cave within the Activity Area (CEPA-37) and two isolated Category 3 caves within the 500 m buffer (CMAC-39 and AC-20). Cave CMAC-39 is approximately 67 m from the Activity Area whilst cave AC-20 is 409 m from the Activity Area. These caves have the potential to be indirectly impacted by the Activity.

There are a further nine Category 4 and four Unclassified caves within the 500 m buffer that may also potentially be impacted indirectly by the Activity (see Table 5-2). Six of the caves within the 500 m buffer of the Activity Area are approved for impact by existing operations through the MAC Validation Notice (BHP 2018c).

Bullen and Creese (2014) suggested that sound levels up to 70 dB are unlikely to result in Ghost Bats leaving their roost. Noise modelling undertaken for the MACSF mining operations determined noise levels associated with mining activities were predicted to be below 70 dB at cave entrances (BHP 2017b) and therefore, unlikely to impact bats.

Studies have shown that Ghost Bats are likely able to tolerate vibrations of up to 15 mm/s (R. Bullen *pers. Comm*; Talis 2025). In 2014, BHP commissioned TNL consultants to determine the susceptibility of shelters (caves) to blasting impacts. The quantitative assessment utilised a number of different techniques, including vibration monitoring, laser scanning and structural mapping, plus visual observations. The study concluded that for blasting to create fresh fractures in intact block rocks, vibration would need to be at least 320 mm/s and blasting further than 50 m from a cave is unlikely to result in severe damage. Based on this study, it is unlikely that the structure of caves in the 500 m buffer will be impacted by blasting.

Isolated Category 3 caves (CEPA-37, CMAC-39 and AC-20) and Unclassified caves (CMAC-10, CMAC-22, CMAC-24, and CMAC-25; until category is confirmed as Category 4 or unsuitable [i.e. Category 5]) will be within a 500 m Mining Management Zone (MMZ) (Figure 5-10). Conditional mining and mining related activities are permitted within the MMZ (where it intersects with the Activity Area). Where the predicted vibration at roost entrance exceeds 15 mm/s a Blast Management Plan shall be developed and blast controls implemented. The aim of the Blast Management Plan will be to either limit vibration to no more than 15 mm/s at the roost entrance, or to only undertake

blasting activities where it is demonstrated that Ghost Bats are not physically present/roosting via a roost inspection[1]. If Ghost Bats are confirmed to be present, blasting activities shall not proceed until it is confirmed that Ghost Bats are no longer present in the cave.

Given the proposed blast management activities described above and given the remaining caves are either Category 4 caves or are over 500 m from the Activity Area, residual impacts to Ghost Bats from vibrations are unlikely. Category 4 roosts are nocturnal roosts with opportunistic usage and unlikely to be utilised during daytime hours when blasting occurs

Management measures are designed to maintain cave integrity and accessibility for Ghost Bat use and minimise disturbance to roosting bats. The Activity occurs within an established mining landscape where Ghost Bat habitat persists alongside existing authorised mining activities and is unlikely to materially alter the existing disturbance regime. The local roost network will remain available and functional for Ghost Bats. Accordingly, the Activity is unlikely to adversely affect the persistence, connectivity or recovery of the local Ghost Bat population, and residual impacts associated with dust, noise, vibration and artificial light are unlikely.

### Entanglement in barbed wire

Entanglement in barbed wire fencing is recognised as a significant cause of mortality for Ghost Bats. The use of barbed wire within the Activity Area is limited to areas where it is required by legislation. While the use of barbed wire fencing is not anticipated, if installed, suitable bat deflectors will be fitted to minimise the risk of entanglement.

### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (BHP 2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

### Predation by and competition with feral cats, cane toads and other introduced fauna

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four Felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

The Activity may facilitate the spread of Cane Toads (*Rhinella marina*) through vehicle movements and the availability of artificial water sources. If Cane Toads are detected within the Activity Area, observations will be reported to the Department of Biodiversity, Conservation and Attractions and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

No other introduced fauna identified as significant threats to Ghost Bats are considered likely to materially affect the Activity Area.

### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Ghost Bat habitat and contribute to population decline. Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area.

This risk is managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available

[1] No human entry of Category 3 caves shall occur during the Ghost Bat breeding season (October to December). Alternative assessment may be considered during this period, if required.

on site to respond to fire incidents. Based on the above, the Activity is unlikely to result in residual impacts from altered fire regimes.

### Habitat modification due to introduced weeds

There is potential for Ghost Bat habitat to be degraded by weeds. The application of weed management procedures can mitigate the spread of weeds to minimise risks to changes to habitat composition.

### Vehicle and infrastructure interactions

The Activity will result in an increase in vehicle and machinery activity and movement, which may subsequently result in an increase in the risk of interactions with Ghost Bat, resulting in injury or death. However, existing roads, tracks and rail lines are already present throughout the Activity Area. Therefore, any potential impacts on Ghost Bats are expected to be minimal. Management measures will be implemented to reduce the risk to Ghost Bat species, including imposing appropriate speed limits on all access tracks, roads and construction areas to minimise interactions with fauna that would result in injury or mortality.

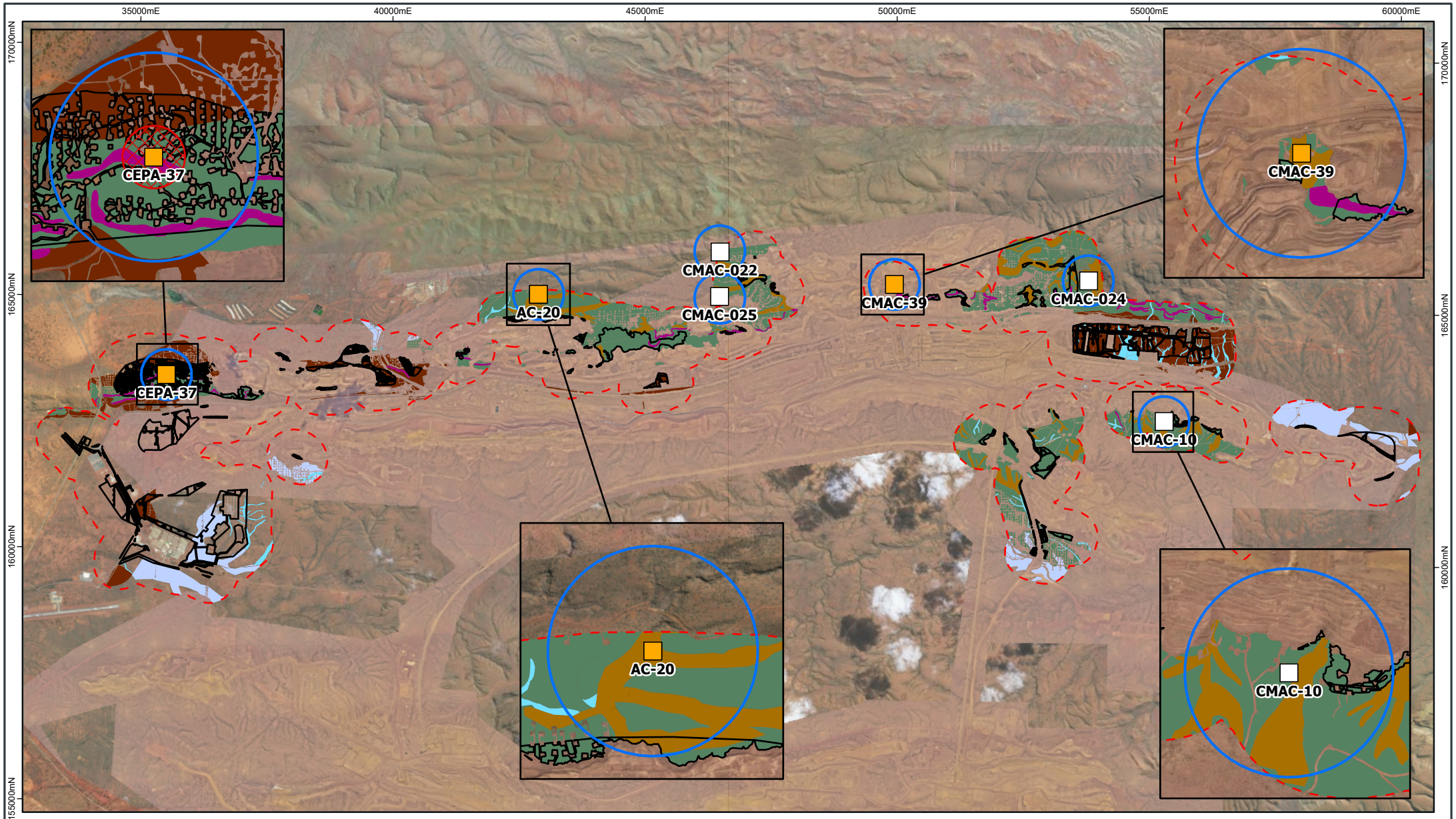
## 5.2.6 Mitigation hierarchy

### Avoid

The Activity has been designed to avoid impacts to Ghost Bats and their habitats as far as practical. A 150 m DMZ will be used to avoid impact to CEPA-37. Note that some disturbance for access tracks and drillings has occurred within the mining exclusion zone.

Vegetation clearing and earthworks will remain within the approved clearing boundaries.

BHP will also avoid the use of barbed wire fencing as far as practicable, to avoid the potential impact to bats from entanglement in barbed-wire fencing. In the event barbed wire fencing cannot be avoided, bat reflectors will be installed to improve visibility.




Activity Area
500m Buffer
Mining Management Zone
Disturbance Management Zone

**Ghost Bat Roost Type**
Category 3
Unclassified

**Habitat Type**
Breakaway/ Cliff
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Minor Drainage Line
Undulating Low Hills

N

0 2.5 5
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
MANAGEMENT OF ISOLATED CATEGORY 3 CAVES AND UNCLASSIFIED CAVES

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:100,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-10 |
| DATE: | 4/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-026 RevB |

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### Mitigate

The Activity has been designed to minimise clearing and fragmentation of fauna habitats by designing infrastructure within or adjacent to existing disturbed areas as far as practical.

To minimise impacts associated with clearing and fragmentation, and indirect disturbances associated with increased noise, dust, vibration and light, BHP proposes the following management measures:

- clearing will remain within the approved clearing boundary
- a 150m DMZ applied to CEPA-37 to limit disturbance to non-mining activities.
- a 500 m MMZ applied to isolated Category 3 Caves (CEPA-37, CMAC-39, AC-20) and Unclassified Caves (CMAC-10, CMAC-22, CMAC-24 and CMAC-25) which requires the following:
  - where vibration is predicted to be greater than 15 mm/s at the roost entrance, a blast management plan will be prepared to mitigate vibration impacts, and
  - where vibration limit of 15mm/s at roost entrance cannot be achieved, blasting shall not occur until Ghost Bat absence is confirmed.
- excessive dust will be minimised as far as practicable.
- site personnel to be informed how to minimise impacts to Ghost Bats and roosts (e.g. via inductions, toolbox talks, posters, environmental alerts)
- all sightings and events involving Ghost Bats will be identified and captured in WAIOs Event Management System to provide personnel with awareness of Ghost Bat activity in the area and application of additional mitigation measures as appropriate.
- appropriate speed limits will be imposed on access roads and construction areas to minimise the risk of vehicle strike or fauna interactions with machinery
- the presence of domestic pets or animals on site will be prohibited
- report sightings of feral cats in the BHP Event Management System as an environmental event. Annual assessment of feral cat sightings and feral animal control program implementation status.
- if Cane Toads are observed on site, they will be reported to DBCA and humanely euthanised in accordance with DBCA guidelines
- standard hygiene practices will be implemented to minimise introduction and spread of weeds including annual weed control (if required) and vehicle hygiene measures when entering/leaving construction areas
- BHP continue to implement the Fauna Management Plan (BHP 2025b) which includes ongoing monitoring and management of local Ghost Bat populations of the wider MACSF area.

## 5.2.7 Residual impact

Following the application of avoidance and mitigation measures, residual impacts to Ghost Bat include the loss of 430.4 ha of critical habitat and 156.8 ha of supporting habitat. BHP considers these impacts warrant provision of offsets to ensure the Activity achieves the PMOs (as discussed in Section 7).

### 5.2.8 Review of Program Matter Outcomes

Following the impact assessment (Section 5.2.5) and application of the mitigation hierarchy (Section 5.2.6), a review of the Activity against the PMOs was undertaken. Table 5-5 identifies which PMOs are relevant for the Activity and considers further management.

**Table 5-5: Review of Program Matter Outcomes (Ghost Bat)**

| Program Matter Outcomes | Applicable Notifiable Action Trigger | Assessment |
|---|---|---|
| Minimise loss of critical and supporting habitats of the Ghost Bat as a result of Program Activities within the SAA<br><br>AND<br><br>No loss (or maintain) Ghost Bat colony(s) as a result of program activities. | Within the Activity Area and/or within a 500 m buffer of the Activity boundary, there is:<br><br>Presence of Ghost Bat critical habitat and/or supporting habitat<br><br>AND<br><br>Presence or sign/s of Ghost Bat colony or residing individuals | The loss of up to 430.4 ha of critical habitat and 156.9 ha of supporting habitat represents a residual impact and requires offsetting (Section 7).<br><br>Management and monitoring commitments will apply to minimise impacts to isolated Category 3 caves and Unclassified caves within the Activity Area and 500 m buffer (refer to Section 5.2.6 and Section 8).<br><br>No loss of population will occur as a result of the Activity given there is no impact proposed to Category 1, Category 2 or Category 3 (apartment blocks). |
| Minimise loss of critical and supporting habitats of the Ghost Bat as a result of Program Activities within the SAA | Within the Activity Area there is:<br>Presence of Ghost Bat critical habitat and/or supporting habitat<br><br>AND<br><br>Presence or sign of Ghost Bat transient, infrequent or dispersing individual/s | Not applicable |

### 5.2.9 Summary

BHP considers the Activity will meet the PMO to minimise loss of critical and supporting habitats of the Ghost Bat. In addition, offsets will be provided for the loss of critical foraging and dispersal habitat (Section 7). As a result, the PMOs will be achieved.

## 5.3 Pilbara Olive Python

The following sections provide background information to demonstrate that Notifiable Action Triggers for Pilbara Olive Python are met. Impacts to the Pilbara Olive Python are discussed and offsets will be provided for the loss of critical and supporting habitat (Section 7). As a result, the Program Matter Objective (as described below) for this species will be met.

Program Matter Objective: *"To support the long-term persistence and viability of the Pilbara Olive Python within the SAA."*

### 5.3.1 General species information

The Pilbara Olive Python is listed as 'Vulnerable' under the EPBC Act (DCEEW 2024d). It is largely restricted to ranges within the Pilbara bioregion, although an isolated population is thought to occur south at Mount Augustus in the Gascoyne region (Bush and Maryan 2011), with additional records exist in the north-eastern Carnarvon region. Within the Pilbara bioregion, the species has been recorded from the Hamersley Range, Dampier Archipelago, Pannawonica, Millstream, Tom Price, Burrup Peninsula, and approximately 70 km east of Port Hedland (Pearson 2006). The species is also known to inhabit riparian areas along the Fortescue River (Doughty *et al.* 2011).

The Pilbara Olive Python commonly inhabits rocky areas in proximity to water such as gorges, rivers, pools and surrounding hills, although it can be found in a range of habitats. In the Hamersley region, this species is most frequently encountered near permanent water features within rocky ranges or among riverine vegetation (DSEWPaC (2011b).

Pilbara Olive Pythons are known to occupy a distinct home range, typically from 85 ha to 450 ha, and move around frequently within these areas (Pearson 2006).

### 5.3.2 Studies and sampling effort

Six contemporary surveys have targeted the Pilbara Olive Python (Table 4-1), as well as numerous historical surveys. Survey coverage and sampling effort for the Pilbara Olive Python is shown in Figure 5-12. Sampling methods for Pilbara Olive Python within the Activity Area and 500 m buffer include habitat assessments (including water feature assessments), targeted searches and/ or transects, nocturnal searches, and eDNA sampling (Biologic 2026, 2025a, 2025b, 2025c, 2023a, 2023b; Figure 5-12).

### 5.3.3 Local habitat

The Activity Area falls within the current distribution of the Pilbara Olive Python, whereby the species or species habitat may occur (Figure 5-11).

The Pilbara Olive Python is regularly encountered in the vicinity of rocky habitats and drainage systems, particularly areas with permanent and/or semi-permanent water (Biologic 2023a). Survey coverage for the Pilbara Olive Python is shown in Figure 5-12, with local habitat and nearest records in Figure 5-13.

**Critical habitat**

Gorge/Gully and Breakaway/Cliff provide critical potential breeding and dispersal/foraging habitat for the species within the Activity Area (Biologic 2023a).

Approximately 45.0 ha of critical Pilbara Olive Python habitat occurs within the Activity Area and is proposed to be cleared. A further 291.5 ha of critical habitat occurs in a 500 m buffer of the Activity Area (Table 5-6 and Figure 5-13).

**Supporting habitat**

Medium Drainage Line habitat provides supporting foraging and dispersal habitat for Pilbara Olive Python, particularly in areas where these habitats provide connectivity between areas of critical habitat and in area prone to pooling and ponding. Minor Drainage Line habitat may also be supporting habitat for the species in areas that are prone to pooling and ponding, particularly following large rainfall events, and providing dispersal corridors through the landscape (Biologic 2023a).

Approximately 24.4 ha of supporting Pilbara Olive Python habitat occurs within the Activity Area and is proposed to be cleared. A further 79.1 ha of supporting habitat occurs in a 500 m buffer of the Activity Area (Table 5-6 and Figure 5-13).

In addition, there are three water features within the 500 m buffer of the Activity Area, two are ephemeral and one is semi persistent. These water features also provide supporting habitat for the Pilbara Olive Python. All water features are upstream from the Activity Area. As such, their hydrological regimes are unlikely to change as a result of the Activity. No records of Pilbara Olive Python are associated with these water features.

**Table 5-6: Pilbara Olive Python habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within 500 m Buffer Area (ha) |
|---|---|---|
| **Critical habitat** | | |
| Gorge Gully | 21.8 | 222.4 |
| Breakaway/Cliff | 23.2 | 69.1 |
| **Total critical habitat** | **45.0** | **291.5** |
| **Supporting habitat** | | |
| Minor Drainage Line | 22.3 | 70.8 |
| Medium Drainage Line | 2.1 | 8.5 |
| **Total supporting habitat** | **24.4** | **79.1** |

**Table 5-7: Water Features**

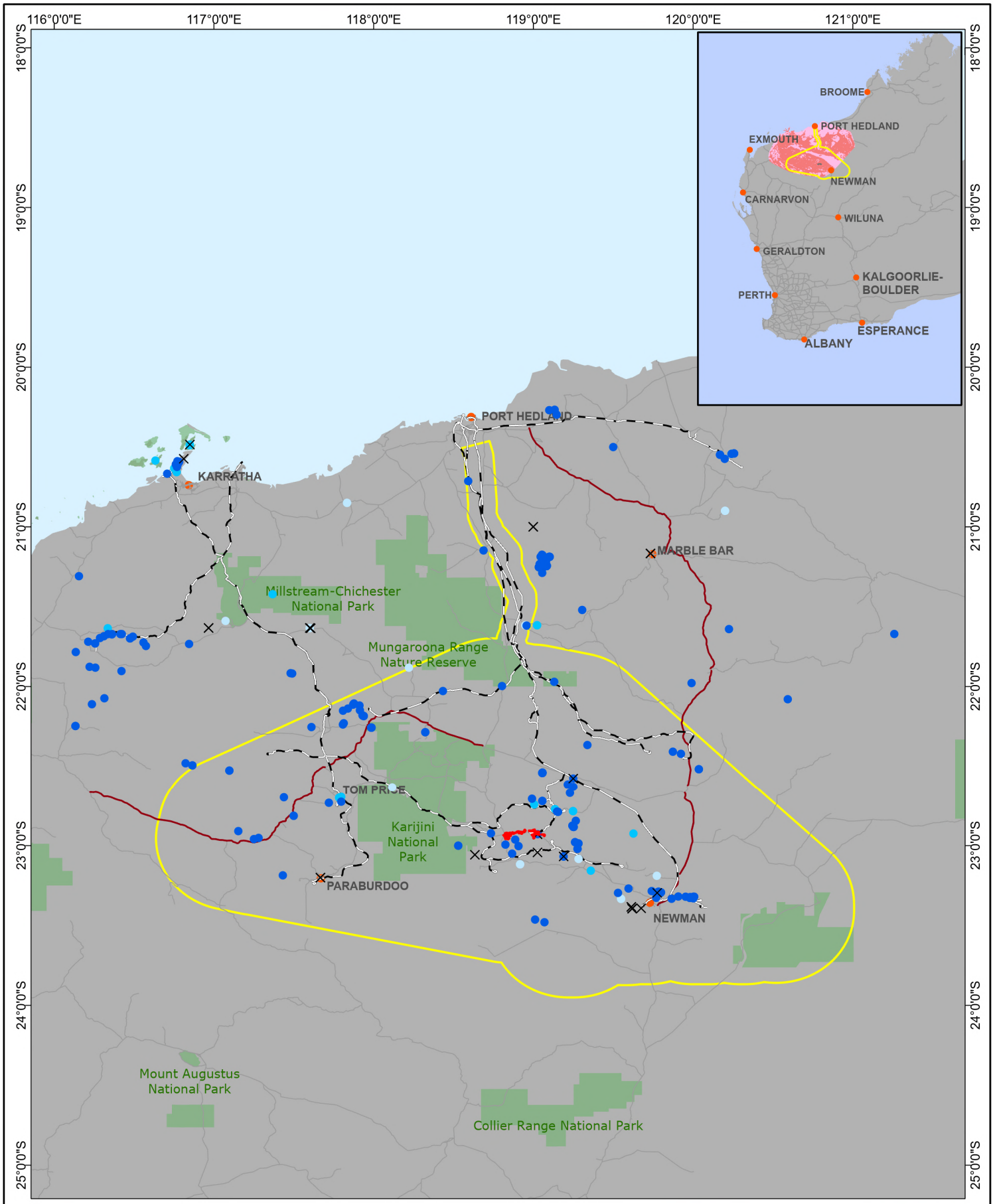
| Water Feature ID | Permanency | Fauna habitat type |
|---|---|---|
| **Within the 500 m Buffer of the Activity Area** | | |
| WMYR-005 | Ephemeral | Stony Plain |
| WNFS-001 | Semi-persistent | Gorge/Gully |
| WNFS-002 | Ephemeral | Gorge/Gully |

### 5.3.4 Pilbara Olive Python records

There are no records of Pilbara Olive Python in the Activity Area. There are two records of Pilbara Olive Python within the 500 m buffer of the Activity Area.

- One deceased individual Pilbara Olive Python observed in Gorge/Gully habitat in 2008 (Outback 2008)
- One deceased individual (roadkill) was recorded near Great Northern Highway (outside MACSF operational area) in 2022 (Biologic 2022).

Records of Pilbara Olive Python within the 500 m of the Activity Area demonstrates that a population or residing individuals of Pilbara Olive Python do occur.




Activity Area
Town
Major Road
Minor/Regional Road
Rail Centreline
Strategic Assessment Area
Species or species habitat likely to occur
Species or species habitat may occur

**Pilbara Olive Python Records**
Records After 2005 - 2017
Records Between 1980 - 2004
Records Prior 1979
Records Missing Date

N

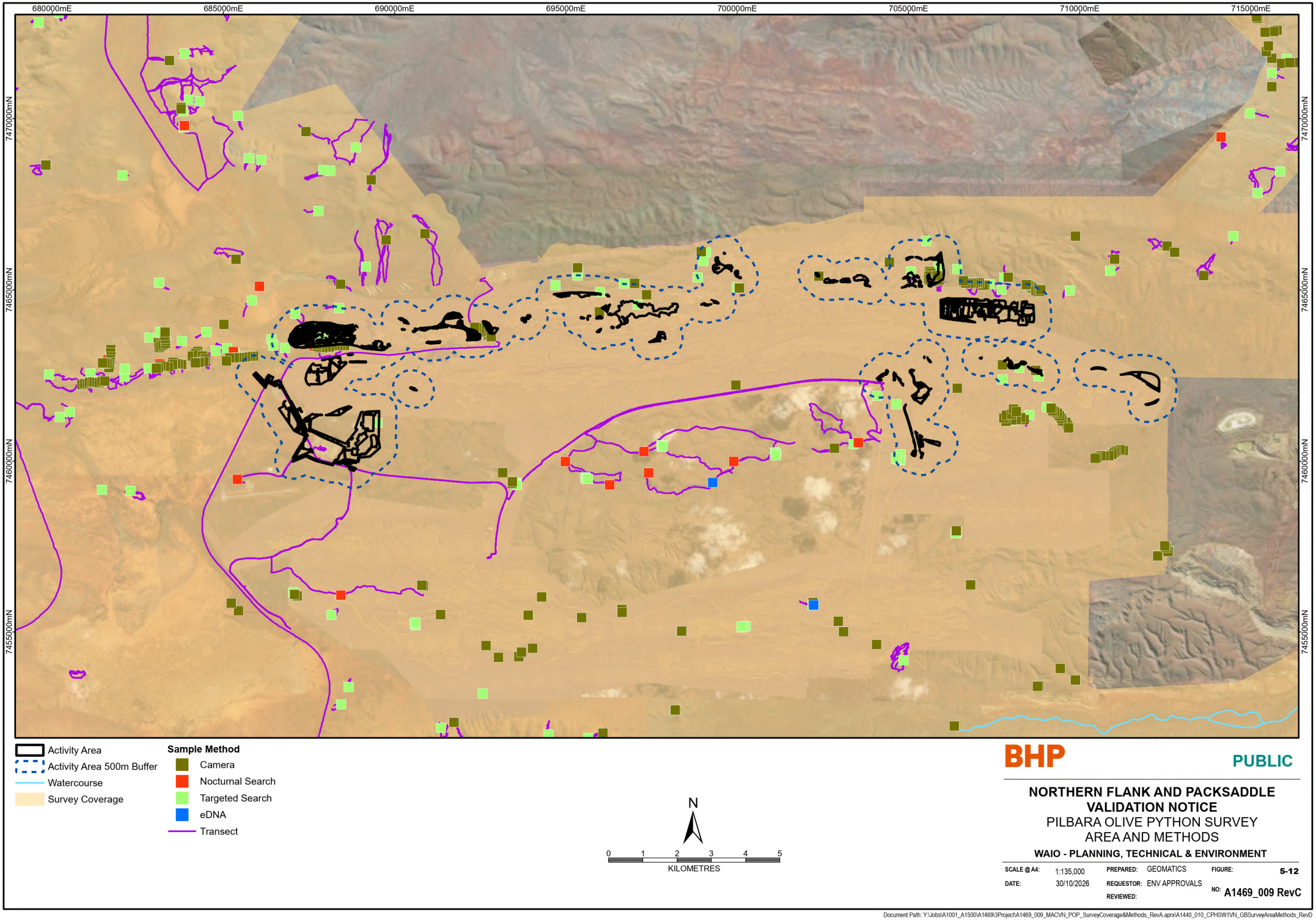
0 25 50 75
Kilometres
GCS GDA 1994

**BHP** **PUBLIC**

**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
PILBARA OLIVE PYTHON REGIONAL RECORDS AND DISTRIBUTION

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

SCALE @ A4: 1:3,500,000 PREPARED: GEOMATICS FIGURE: **5-11**
DATE: 28/10/2026 REQUESTOR: ENV APPROVALS NO:
**A1469_008 RevB**

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## PILBARA OLIVE PYTHON SURVEY AREA AND METHODS

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

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| SCALE @ A4: | 1:135,000 | PREPARED: | GEOMATICS | FIGURE: | 5-12 |
| DATE: | 30/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_009 RevC |
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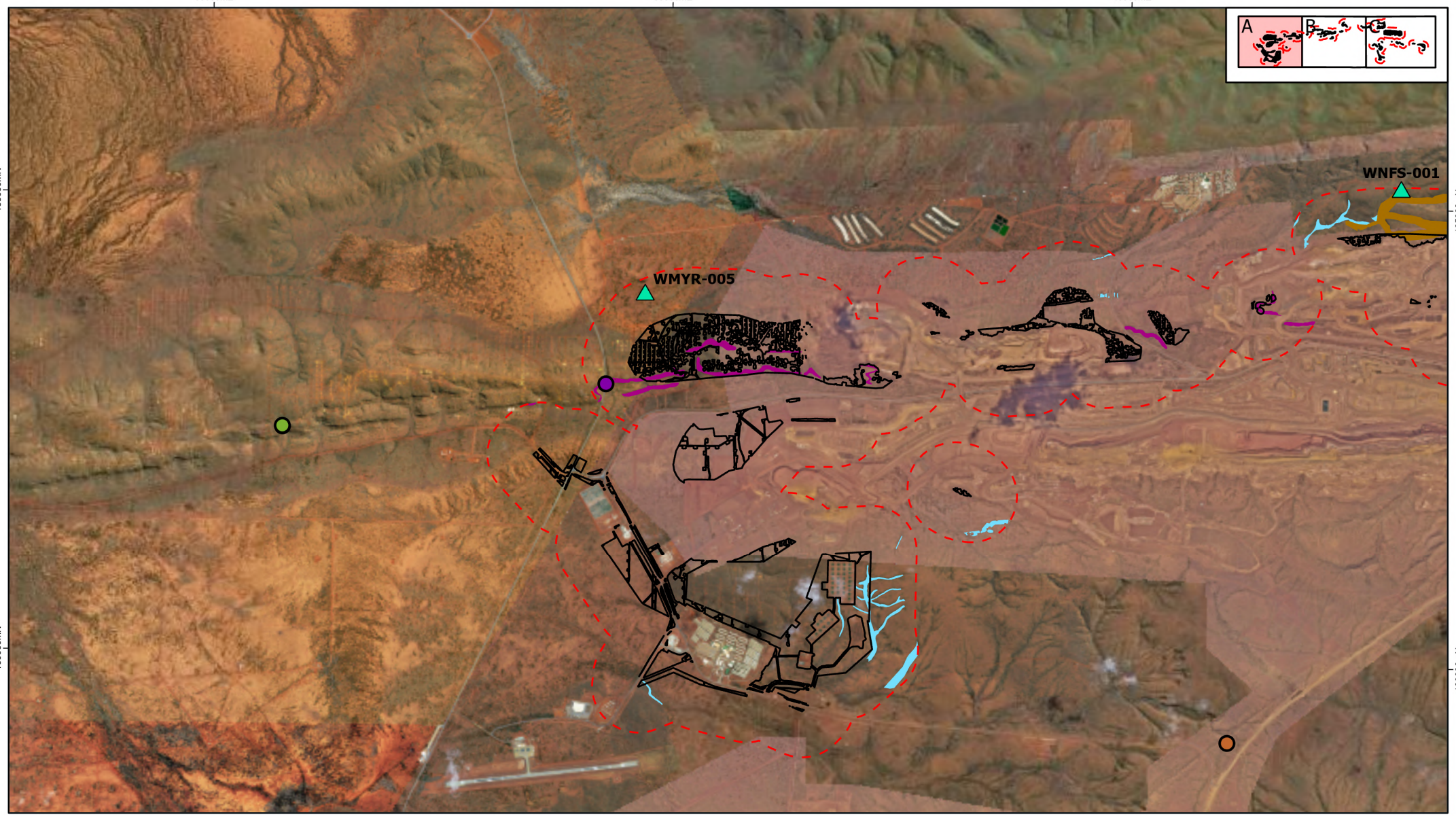


Activity Area
500m Buffer

**Record Type**
- Individual
- Other
- eDNA

**Critical Habitat**
- Gorge/ Gully
- Breakaway/ Cliff

**Supporting Habitat**
- Minor Drainage Line

Water Feature

N

0 0.5 1
KILOMETRES

GDA 1994 MGA ZONE 50

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
PILBARA OLIVE PYTHON
MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-13 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-010 RevD |

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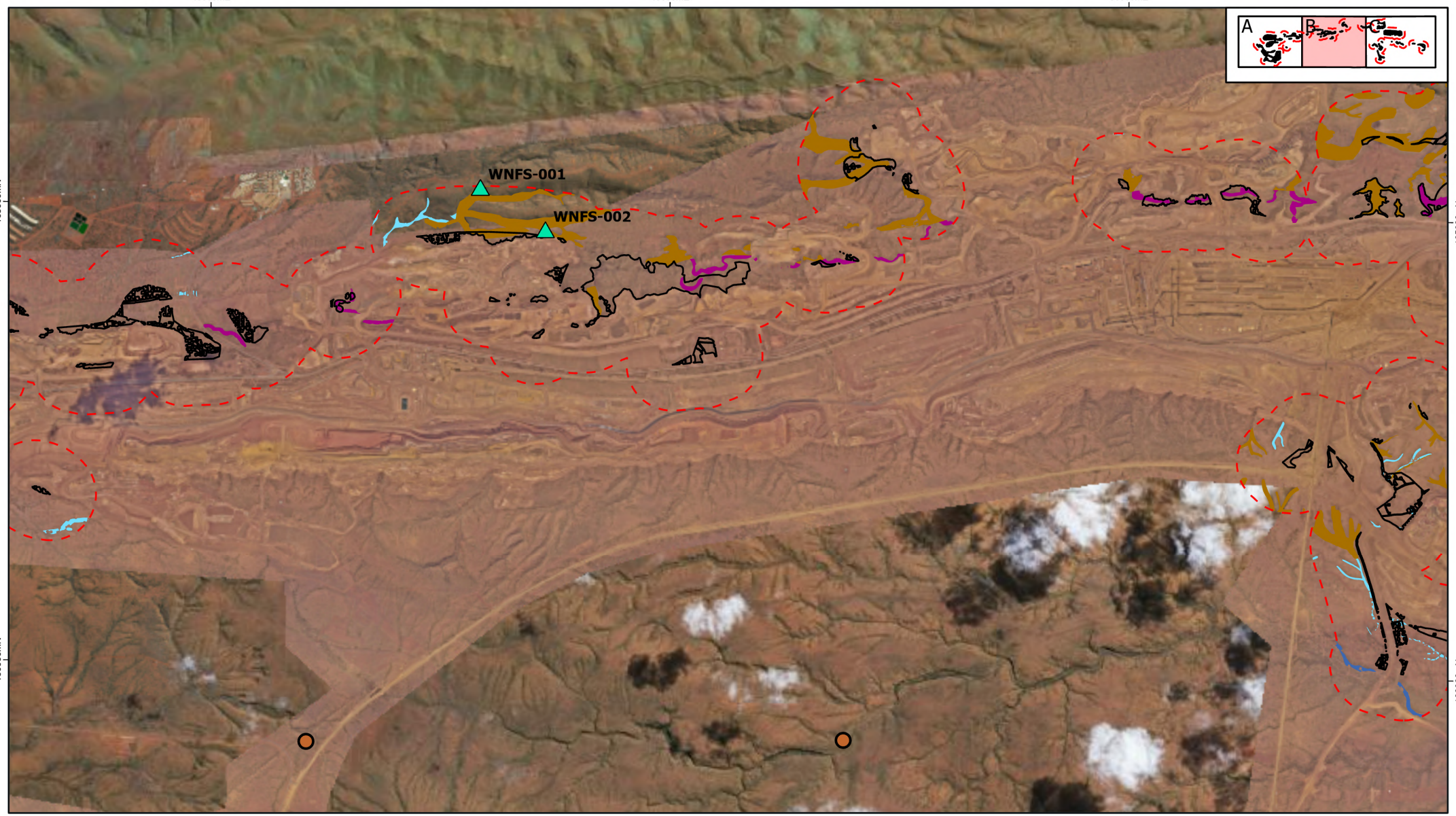


Activity Area
500m Buffer

**Record Type**
Other

**Critical Habitat**
Gorge/ Gully
Breakaway/ Cliff

**Supporting Habitat**
Medium Drainage Line
Minor Drainage Line

Water Feature

N

0 0.5 1
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
PILBARA OLIVE PYTHON
MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-14 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-010 RevD |

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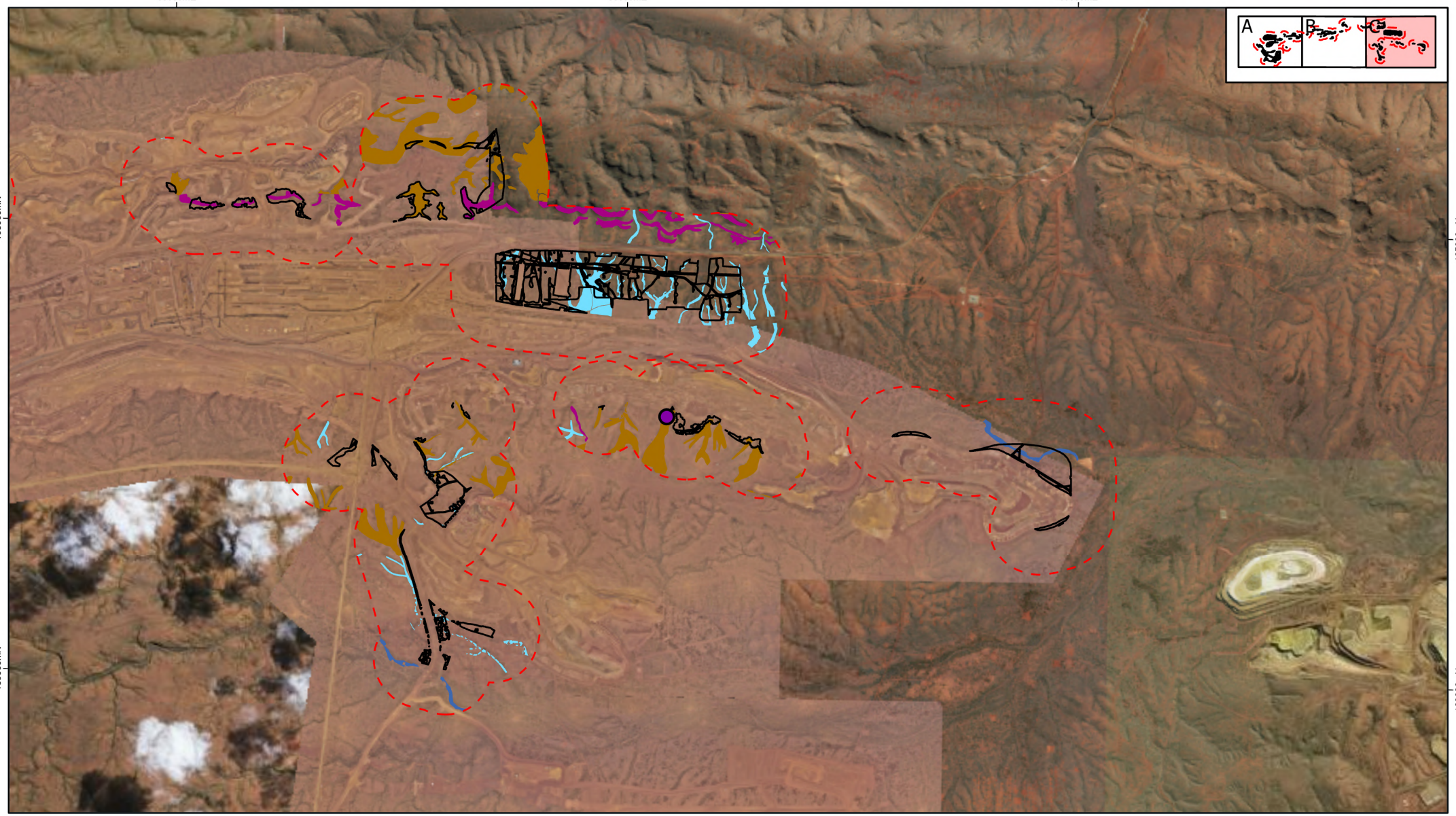


Activity Area
500m Buffer

**Record Type**
Individual

**Critical Habitat**
Gorge/ Gully
Breakaway/ Cliff

**Supporting Habitat**
Medium Drainage Line
Minor Drainage Line

N

0 0.5 1
KILOMETRES

GDA 1994 MGA ZONE 50

**BHP** PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## PILBARA OLIVE PYTHON MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:57,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-15 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-010 RevD |

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### 5.3.5 Impact assessment

The potential direct and indirect impacts to the Pilbara Olive Python from the Activity (Section 2) are considered below.

#### Habitat loss

The Activity will result in clearing no more than 69.4 ha of Pilbara Olive Python habitat. This includes clearing up to 45.0 ha of critical habitat and 24.4 ha of supporting habitat for Pilbara Olive Python.

The critical fauna habitats that will be subject to the greatest amount of clearing for this Activity include Gorge/Gully (21.8 ha) and Breakaway Cliff (23.2 ha) habitats.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, vibration and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of dust, artificial light, noise or vibration beyond those already occurring within Mining Area C.

#### Predation by and competition with feral cats, cane toads and other introduced fauna

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

The Activity may facilitate the spread of Cane Toads (*Rhinella marina*) through vehicle movements and the availability of artificial water sources. If Cane Toads are detected within the Activity Area, observations will be reported to the DBCA and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

No other introduced fauna identified as significant threats to Pilbara Olive Python are considered likely to materially affect the Activity Area.

#### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Pilbara Olive Python habitat and contribute to population decline. Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area.

This risk is managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available on site to respond to fire incidents.

#### Habitat modification due to introduced weeds

There is potential for Pilbara Olive Python habitat to be degraded by weeds. The application of weed management procedures can mitigate the spread of weeds to minimise risks to changes to habitat composition.

### Vehicle and infrastructure interactions

The Activity will result in an increase in vehicle and machinery activity and movement, which may subsequently result in an increase in the risk of interactions with Pilbara Olive Python, resulting in injury or death. However, existing roads, tracks and rail lines are already present throughout the Activity Area. Vehicle movements are more frequent during daylight hours than at night, whereas the potential for impacts to Pilbara Olive Pythons is greater during nocturnal periods. Therefore, any potential impacts on the Pilbara Olive Python are expected to be minimal. Management measures will be implemented to reduce the risk to Pilbara Olive Python, including imposing appropriate speed limits on all access tracks, roads and construction areas to minimise interactions with fauna that would result in injury or mortality.

## 5.3.6 Mitigation hierarchy

### Avoid

The Activity Area has been designed to avoid critical, supporting and/or high value habitat features as far as reasonably practical.

Vegetation clearing and earthworks will remain within the approved clearing boundary.

### Mitigate

The Activity has been designed to minimise clearing and fragmentation of fauna habitats and for activities to be undertaken within existing disturbed areas as far as practical. However, in some areas, avoidance of fauna habitat is not possible, including areas of Pilbara Olive Python critical and supporting habitat.

To minimise impacts associated with clearing and fragmentation, and indirect disturbances associated with increased noise, dust, vibration and light, BHP proposes the following management measures:

- clearing will remain within the approved clearing boundary
- clearing will be mostly undertaken during daylight hours which will minimise impacts to Pilbara Olive Python which is mainly nocturnal
- BHP will design and construct infrastructure to minimise indirect impacts to terrestrial fauna habitats through sediment control, dust suppression measures and utilising existing cleared areas
- all sightings and events involving Pilbara Olive Python will be identified and captured in WAIOs Event Management System to provide personnel with awareness of Pilbara Olive Python activity in the area and application of additional mitigation measures as appropriate
- appropriate speed limits will be imposed on access roads and construction areas to minimise the risk of vehicle strike or fauna interactions with machinery
- excessive dust will be minimised as far as practical, through the use of water carts
- the presence of domestic pets or animals on site will be prohibited
- report sightings of feral cats in the BHP Event Management System as an environmental event. Annual assessment of feral cat sightings and feral animal control program implementation status.
- if Cane Toads are observed on site, they will be reported to DBCA and humanely euthanised in accordance with DBCA guidelines

- standard hygiene practices will be implemented to minimise introduction and spread of weeds including annual weed control (if required) and vehicle hygiene measures when entering/leaving construction areas.

### 5.3.7 Residual impact

Residual impacts include the loss of 45.0 ha of critical habitat and 24.4 ha of supporting habitat.

### 5.3.8 Review of Program Matter Outcomes

Following the impact assessment (Section 5.2.5) and application of the mitigation hierarchy (Section 5.2.6), a review of the Activity against the PMOs was undertaken. Table 5-8 identifies which PMOs are relevant for the Activity and considers further management.

**Table 5-8: Review of Program Matter Outcomes (Pilbara Olive Python)**

| Program Matter Outcomes | Applicable Notifiable Action Trigger | Assessment |
|---|---|---|
| Minimise loss of critical and supporting habitats of the Pilbara Olive Python as a result of Program Activities within the SAA<br>AND<br>No loss (or maintain) Pilbara Olive Python population(s) as a result of program activities. | Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is:<br>Presence of Pilbara Olive Python critical habitat and/or supporting habitat<br>AND<br>Presence or sign/s of Pilbara Olive Python population or residing individuals | The loss of up to 45.0 ha of critical habitat and 24.4 ha of supporting habitat represents a residual impact and requires offsetting (Section 7).<br>No loss of population will occur as a result of the Activity given the limited number of Pilbara Olive Python records within the Activity Area and 500 m buffer. |
| Minimise loss of critical and supporting habitats of the Pilbara Olive Python as a result of Program Activities within the SAA | Within the Activity Area there is: Presence of Pilbara Olive Python critical habitat and/or supporting habitat<br>AND<br>Presence or sign of Pilbara Olive Python transient, infrequent or dispersing individual/s | Not applicable |

### 5.3.9 Summary

BHP considers the Activity will meet the PMO to minimise loss of critical and supporting habitats of the Pilbara Olive Python. In addition, offsets will be provided for the loss of critical foraging habitat and supporting habitats (Section 7). As a result, the PMOs will be achieved.

## 5.4 Northern Quoll

The following sections provide background information to demonstrate that Notifiable Action Triggers for Northern Quoll are not met. The Activity is not predicted to result in residual impacts to Northern Quoll and therefore the PMO for this species will be met.

*Program Matter Objective: "To support the long-term persistence and viability of the Northern Quoll within the SAA."*

### 5.4.1 General species information

The Northern Quoll is listed as 'Endangered' under the EPBC Act. It is the smallest and most arboreal of the four Australian quoll species (van Dyck and Strahan 2008) and has undergone a dramatic range contraction since European settlement, including a 75% reduction in distribution during the 20th century. In the Pilbara, Northern Quoll distribution is bounded in the north, east and south by the Great Sandy Desert, Gibson Desert and Little Sandy Desert (DCCEEW 2026a). The potential invasion of the Pilbara by the Cane Toad is regarded as the most significant future threat to the persistence of the Northern Quoll in the region (Cramer *et al*. 2016a).

Northern Quolls primarily favour rocky habitats, such as escarpments, mesas, gorges, breakaways and boulder fields, and major drainage lines and treed creek lines, which they use as denning and shelter. Foraging typically occurs in the vegetated areas surrounding their dens (DCCEEW 2026a). Higher population densities are generally associated with rocky habitats as they offer protection from predators and greater resource availability (Braithwaite and Griffiths 1994, Oakwood 2002).

The ecology of Northern Quolls is complex as they use habitats in a variety of ways for denning and foraging, and an individual can use multiple den sites. Northern Quolls will den during the day and leave den sites to forage during the night. They are generally considered to be solitary, with females having mutually exclusive denning areas, but can have overlapping foraging areas. Populations are observed to fluctuate annually and are likely influenced by abundance, dispersion and renewability of food resources (Oakwood 2002). Both sexes frequently change dens every night, with females known to use up to 55 different dens (Oakwood 2008).

Regional records and the distribution of Northern Quoll are shown in Figure 5-16.

### 5.4.2 Studies and sampling effort

Five contemporary surveys have targeted the Northern Quoll within the Activity Area or 500 m buffer (Table 4-1; Appendix 1), as well as numerous historical surveys. Survey coverage for Northern Quoll is shown in Figure 5-17. Sampling methods for Northern Quoll within the Activity Area and 500 m buffer include habitat assessments, targeted searches and/ or transects, camera traps, nocturnal searches and opportunistic eDNA (Biologic 2026a, 2023a, 2025a, 2025b, 2025c; Figure 5-17).

### 5.4.3 Local habitat

The Activity Area falls within the current distribution of the Northern Quoll, whereby the species or species habitat may occur (Figure 5-16). The Northern Quoll is common in a range of habitats within its distribution, including rocky habitats and watercourses. Survey coverage for the Northern Quoll is shown in Figure 5-17, with local habitat and nearest record presented in Figure 5-18, Figure 5-19 and Figure 5-20.

**Critical habitat**

For Northern Quoll, critical habitat is typically represented by denning and foraging habitat within the home range of low rocky hills - mesas, gorges, escarpments, ranges, breakaways, and boulder fields, or major drainage lines and tree-lined creeks.

Approximately 45 ha of critical habitat (Gorge/Gully and Breakaway/Cliff) occurs within the Activity Area and is proposed to be cleared (Table 5-10; Figure 5-18, Figure 5-19 and Figure 5-20). A further 291.5 ha of critical habitat occurs in a 500 m buffer of the Activity Area (Table 5-10; Figure 5-18, Figure 5-19 and Figure 5-20).

**Supporting habitat**

Supporting habitat is represented by Drainage Area/ Floodplain, Hillcrest/ Hillslope, Minor Drainage Line and Medium Drainage Line habitat types, which make up approximately 220.5 ha of the Activity Area and are proposed to be cleared (Table 5-9; Figure 5-18, Figure 5-19 and Figure 5-20). A further 1,233 ha of supporting habitat occurs within the 500 m buffer of the Activity Area (Table 5-10; Figure 5-18, Figure 5-19 and Figure 5-20).

**Table 5-9: Northern Quoll habitat**

| Habitat Type | Extent within Activity Area to be cleared(ha) | Extent within Activity Area 500 m Buffer |
|---|---|---|
| **Critical habitat** | | |
| Gorge/Gully | 23.2 | 222.4 |
| Breakaway/Cliff | 21.8 | 69.1 |
| **Total critical habitat** | **45.0** | **291.5** |
| **Supporting habitat** | | |
| Drainage Area/ Floodplain | 39.3 | 266.0 |
| Hillcrest/ Hillslope | 156.8 | 887.8 |
| Minor Drainage Line | 22.3 | 70.8 |
| Medium Drainage Line | 2.1 | 8.5 |
| **Total supporting habitat** | **220.5** | **1233.0** |

### 5.4.4 Northern Quoll records

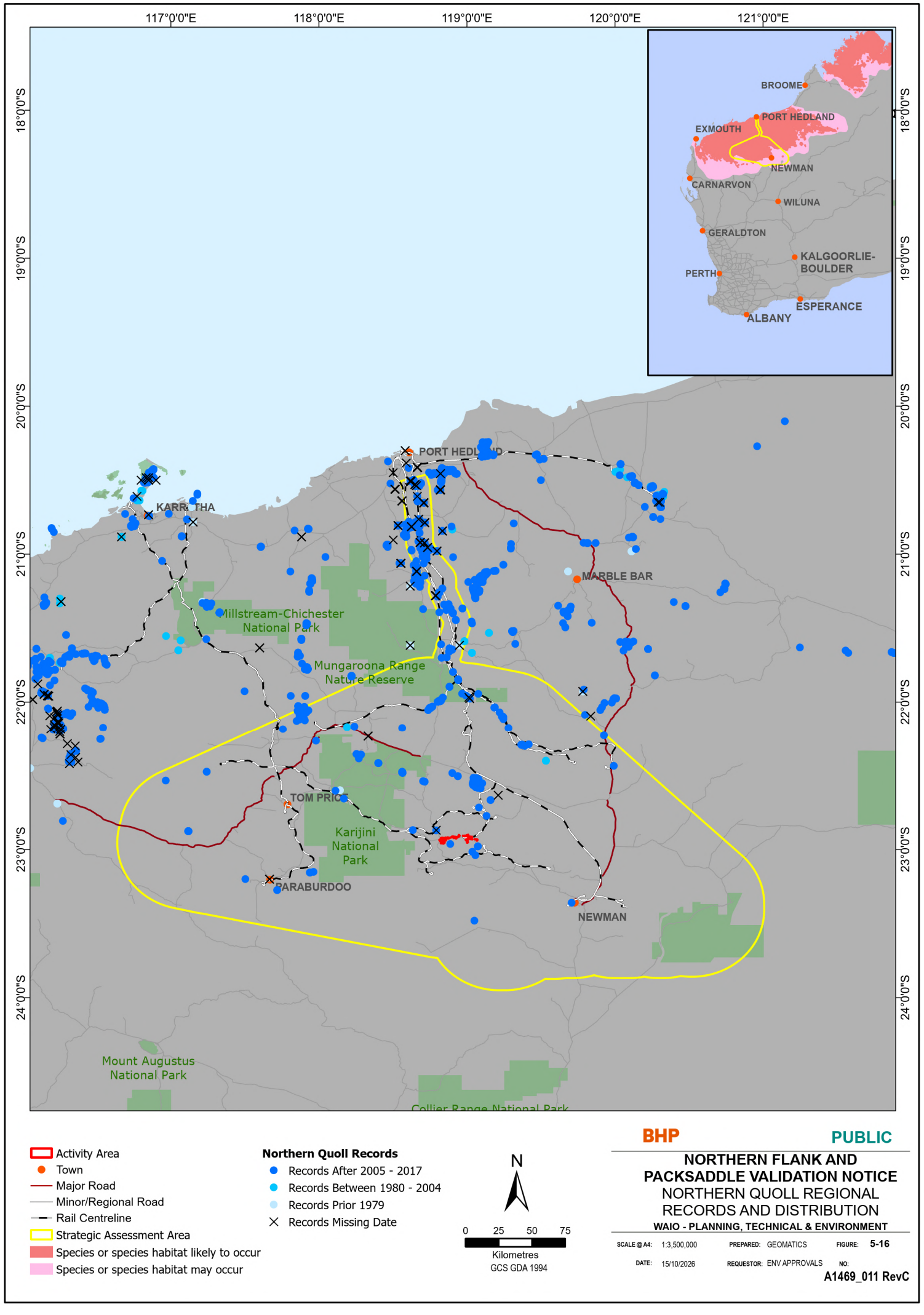
There is no direct or indirect evidence of the Northern Quoll recorded within the Activity Area or within the 500 m buffer.

There are three records of Northern Quoll in proximity to the Activity Area described as follows:

- an eDNA record of Northern Quoll was opportunistically detected at a water feature approximately 4 km south of the Activity Area (Biologic 2023b, Figure 5-19)
- a historical scat record of a Northern Quoll approximately 4 km south of the Activity Area in an overhang in Gorge/Gully habitat. (Biologic 2011, Figure 5-18 and Figure 5-19)
- an unknown record approximately 4.2 km south of the Activity Area at Hope Downs.

Other nearby records include a scat record at South Flank (Biota 2012) approximately 7.4 km south of the Activity Area, a scat record approximately 6.6 km northwest of the Activity Area (Onshore 2011), and multiple records (likely of the same individual) approximately 10 km northeast of the Activity Area (Astron 2024).

Despite significant survey effort using suitable sample techniques there are only six Northern Quoll records within 10 km of the Activity Area which suggests the species is present in very low densities or present only intermittently as a result of individuals moving between areas outside the Activity Area. The species is unlikely to be reliant on the habitats within the Activity Area for long-term survival at a local or regional scale (Biologic 2023a, 2025b).

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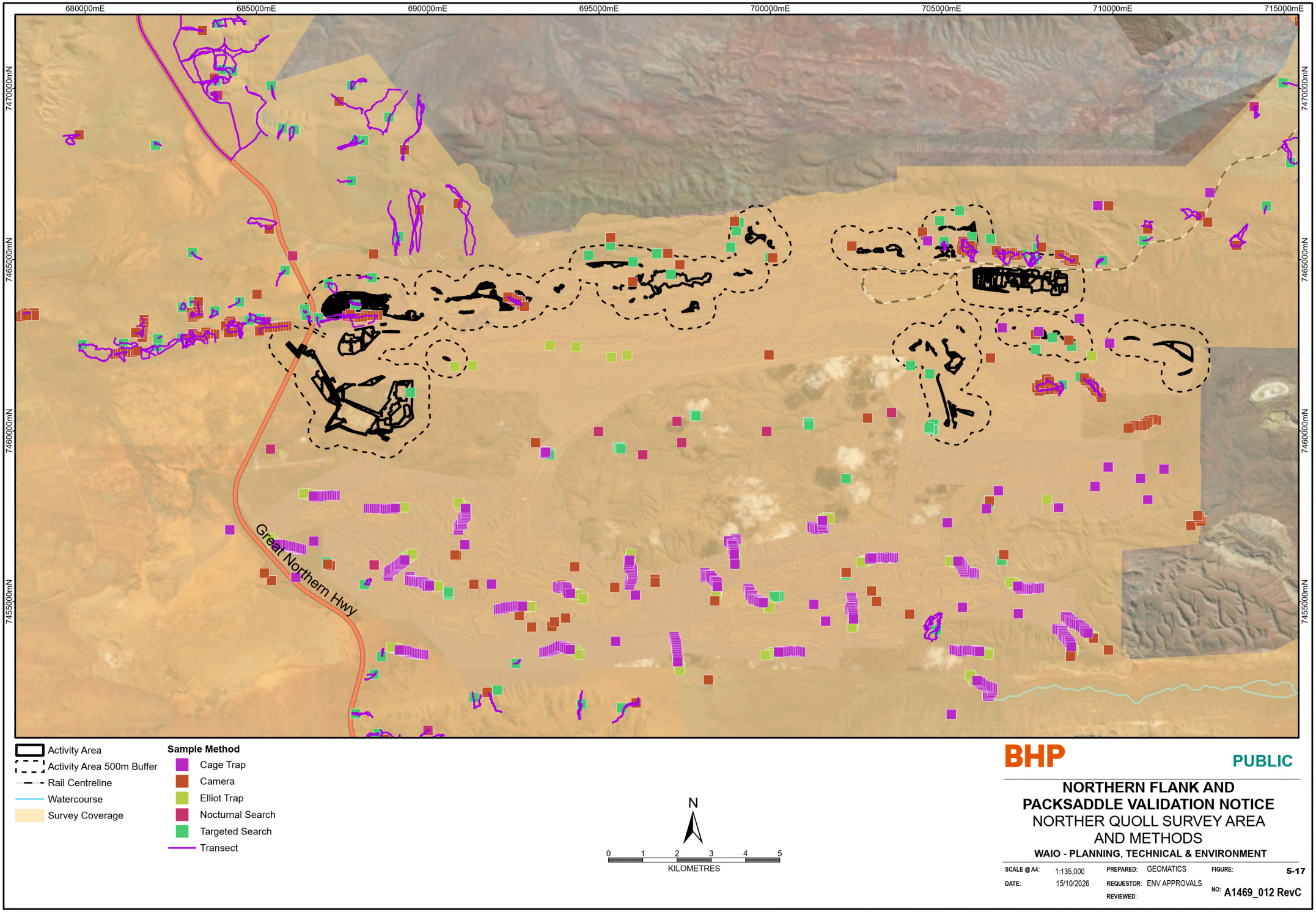
# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NORTHERN QUOLL REGIONAL RECORDS AND DISTRIBUTION

WAIO - PLANNING, TECHNICAL & ENVIRONMENT

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A4: | 1:3,500,000 | PREPARED: | GEOMATICS | FIGURE: | 5-16 |
| DATE: | 15/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_011 RevC |

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NORTHER QUOLL SURVEY AREA AND METHODS

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

| | | | | | |
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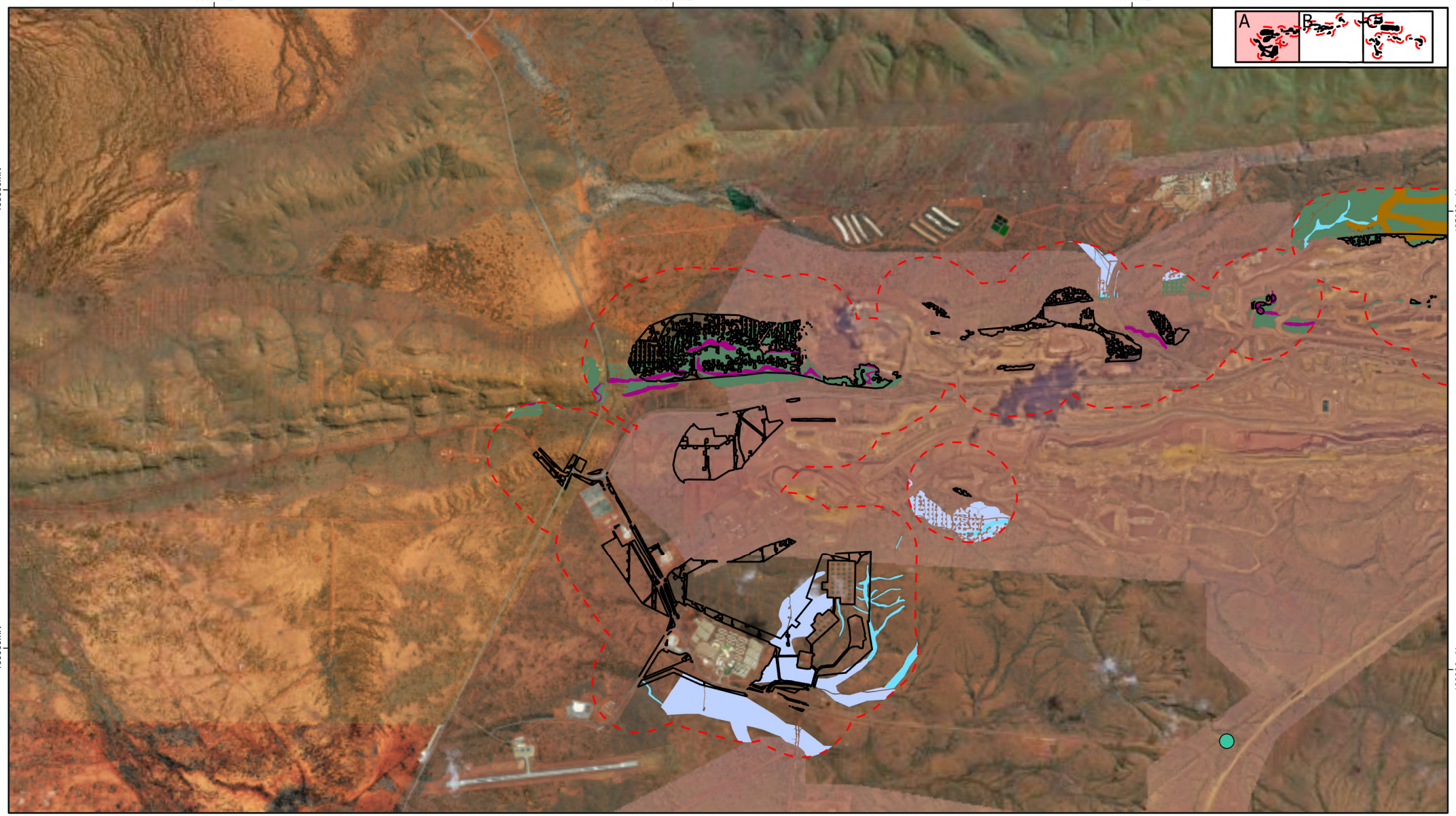
| SCALE @ A4: | 1:135,000 | PREPARED: | GEOMATICS | FIGURE: | 5-17 |
| DATE: | 15/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_012 RevC |
| | | REVIEWED: | | | |

Document Path: Y:\Jobs\A1001_A1500\A1469\3Project\A1469_012_MACVN_NQ_SurveyCoverage&Methods_RevA.aprx\A1440_010_CPHSW1VN_GBSurveyAreaMethods_RevD




500m Buffer
Activity Area

**Record Type**
Scat

**Critical Habitat**
Gorge/ Gully
Breakaway/ Cliff

**Supporting Habitat**
Hillcrest/ Hillslope
Drainage Area/ Floodplain
Minor Drainage Line

N

0 0.5 1 1.5 2 2.5
KILOMETRES

GDA 1994 MGA ZONE 50

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
NORTHERN QUOLL MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-18 |
| DATE: | 20/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-013 RevC |

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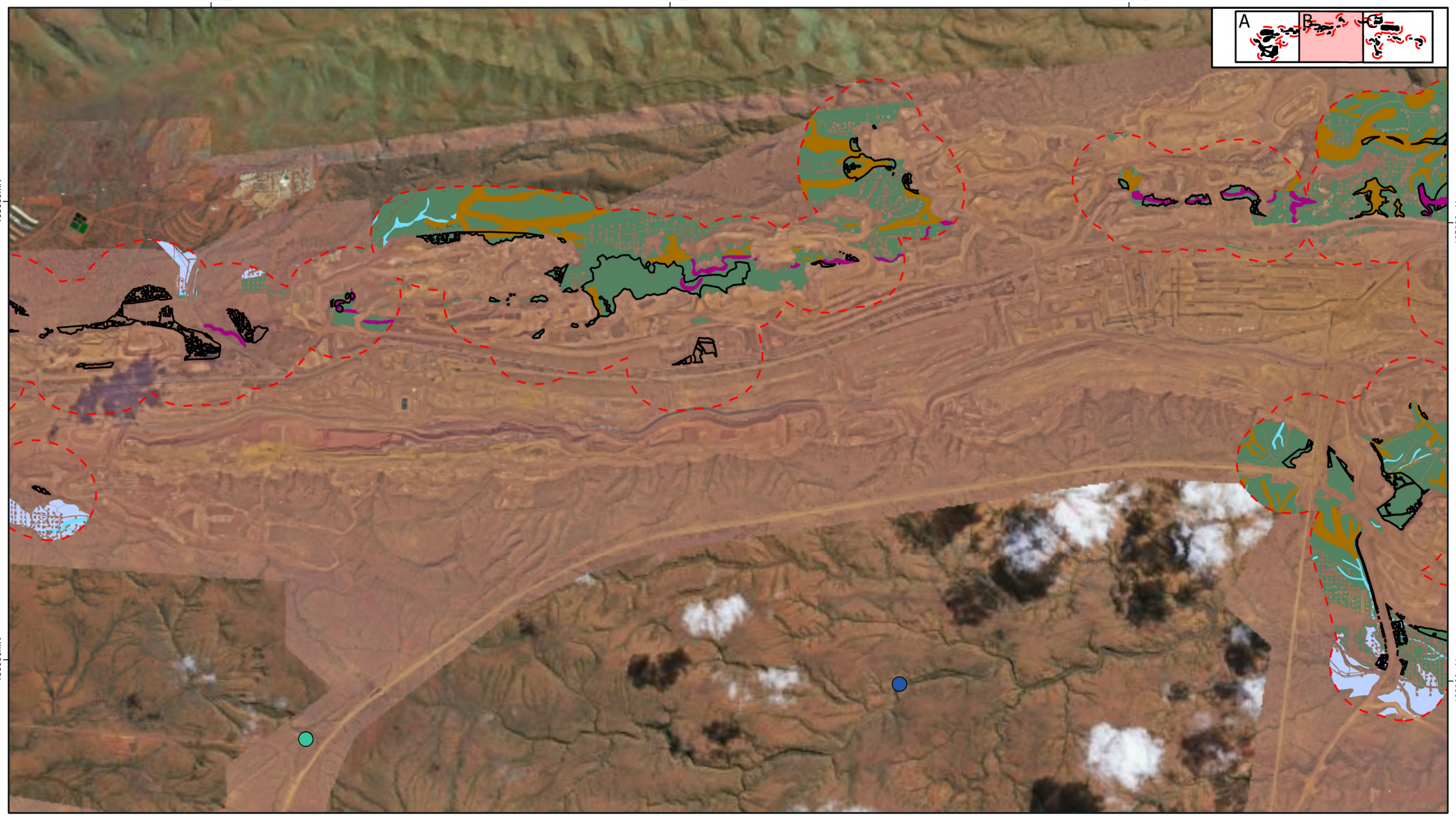


500m Buffer
Activity Area

**Record Type**
- Scat
- eDNA

**Critical Habitat**
- Gorge/ Gully
- Breakaway/ Cliff

**Supporting Habitat**
- Hillcrest/ Hillslope
- Drainage Area/ Floodplain
- Minor Drainage Line

N

0 0.5 1 1.5 2 2.5
KILOMETRES
GDA 1994 MGA ZONE 50

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NORTHERN QUOLL MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-19 |
| DATE: | 20/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-013 RevC |

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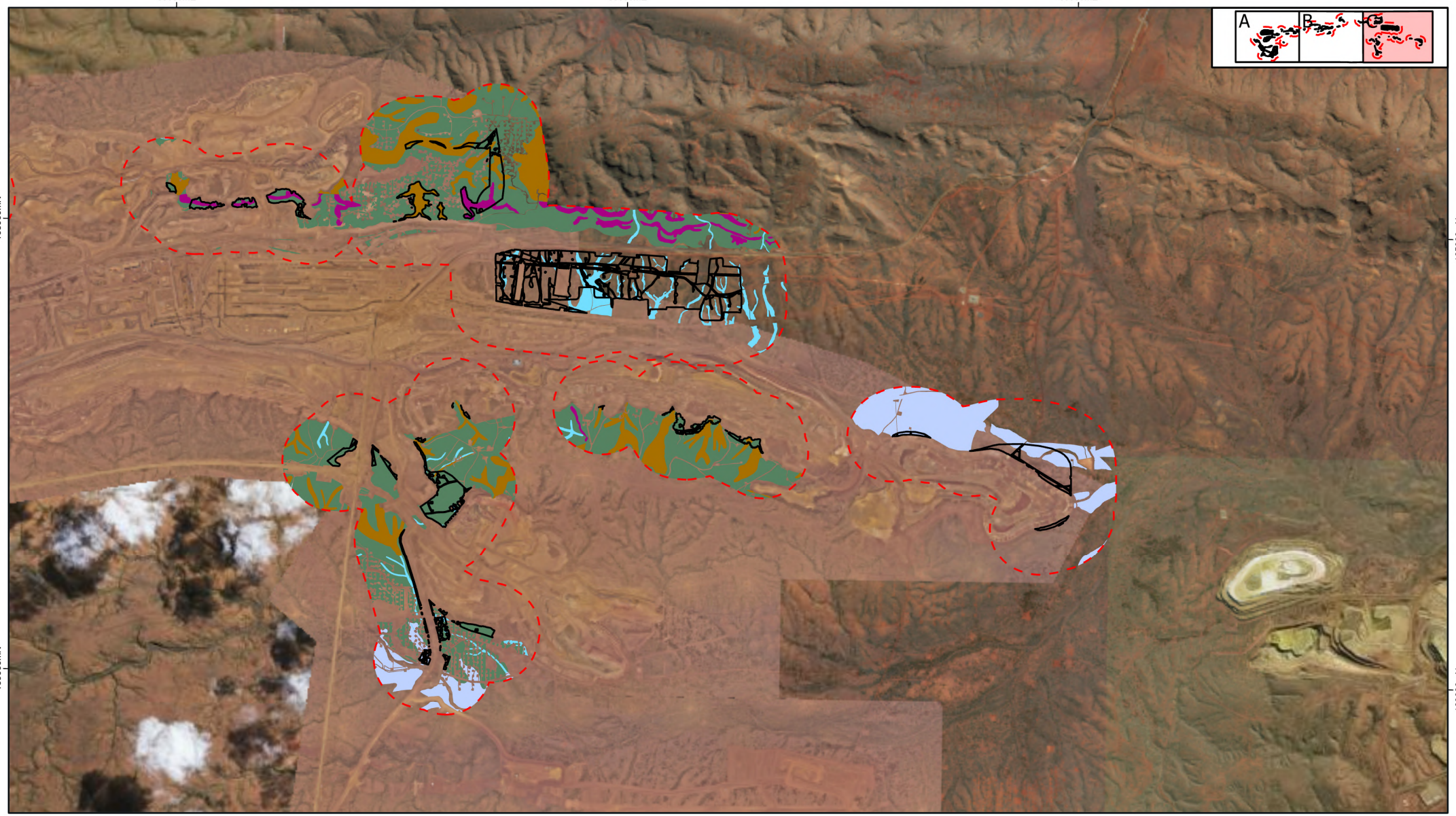


500m Buffer
Activity Area

**Critical Habitat**
Gorge/ Gully
Breakaway/ Cliff

**Supporting Habitat**
Hillcrest/ Hillslope
Drainage Area/ Floodplain
Minor Drainage Line

N

0 0.5 1 1.5 2 2.5
KILOMETRES
GDA 1994 MGA ZONE 50

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NORTHERN QUOLL MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:57,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-20 |
| DATE: | 20/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-013 RevC |

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### 5.4.5 Impact assessment

The potential direct and indirect impacts to the Northern Quoll from the Activity (see Section 2) are considered below.

#### Habitat loss

The Activity will result in clearing no more than 265.5 ha of Northern Quoll habitat within a 593 ha Activity Area. This includes clearing up to 45.0 ha of critical habitat and 220.5 ha of supporting habitat for Northern Quoll.

The Northern Quoll habitats that will be subject to the greatest amount of clearing for this Activity include Hillcrest/Hillslope (156.8 ha) and Drainage Area/Floodplain (39.3 ha) habitats.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Habitat Modification, Fire, Weeds and Dust

Hot work activities onsite, vegetation clearing, and the introduction and increased vehicle movements may increase the risk of fire and spread of weeds, which may result in the degradation of Northern Quoll habitats directly adjacent to the Activity Area.

BHP will implement standard fire management and weed control measures to minimise risk associated with the potential introduction of weeds and risk of fire. As such and given the lack of records within the Activity Area or 500 m buffer, the potential risk of impact to Northern Quoll from habitat degradation associated with the proposed Activity is considered to be very low. The Activity is unlikely to result in residual impacts to Northern Quoll from fire and weeds.

Vegetation clearing, vehicle movements and mining operations (blasting) have the potential to result in an increase of airborne particulate matter. Dust can indirectly affect the Northern Quoll by degrading the condition of vegetation and therefore, fauna habitats. Airborne particulates in the Activity Area are expected to increase as a result of vegetation clearing for construction, blasting and vehicle movements. However, given the lack of Northern Quoll records and Northern Quoll critical habitat in the Activity Area and the 500 m buffer, the potential risk of impact to the species from increased dust is considered to be very low.

#### Predation by and competition with feral cats, cane toads and other introduced fauna

Feral predators such as feral cats (*Felis catus*) may directly prey on the Northern Quoll and/or compete with the Northern Quoll for prey (TSSC 2005).

Mining Activities have the potential to increase feral cats to the area as a result of increased disturbance and attraction to human settlements as a result of increased food opportunities. The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

Given the proposed feral cat management practices, the lack of European fox records, and given there are only transient/dispersing records of the Northern Quoll in the Activity Area, the potential impact of feral cats or foxes on Northern Quoll is considered low.

The future predicted spread of Cane Toad into the Pilbara bioregion, may have negative impacts to the Northern Quoll population, given Northern Quoll is vulnerable to lethal toxic ingestion of Cane Toad bufotoxins (Oakwood 2003), and outside of the Pilbara the Cane Toad is considered the main threat to Northern Quoll within parts of the

species range (Hill and Ward 2010). Cane Toads may be introduced to mining areas via vehicles or equipment (DPaW 2015). It is unlikely that Cane toads will be introduced to the Activity Area given travel to and from high-risk areas such as the Kimberley are not foreseen. If Cane Toads are detected within the Activity Area, observations will be reported to the DBCA and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

Overall, the Activity is not predicted to result in residual impacts to the species as a result of Cane Toads and/or feral predators.

#### Injury or Mortality of Fauna from Vehicle Strike

Northern Quoll may be susceptible to mortality from vehicle strikes. The Activity will result in the use of additional haul roads and an increase in vehicle movements, which has the potential to increase the risk of fauna-vehicle interactions. The Activity Area is located within an operational mining hub, which is already subject to increased volumes of vehicle movement, and the introduction of vehicle movement associated with the Activity is not considered to result in a significant change of conditions. The material risk to the Northern Quoll is considered to be very low given the absence of Northern Quoll records in the Activity Area and 500 m buffer.

### 5.4.6 Summary

The Notifiable Action Triggers are not applicable for Northern Quoll, as there are no records of the species within either the Activity Area or 500 m buffer. The Activity is not predicted to result in residual impacts to Northern Quoll and therefore the PMO for this species will be met.

## 5.5 Pilbara Leaf-nosed Bat

The following sections provide information to demonstrate that Notifiable Action Triggers for Pilbara Leaf-nosed Bat are not met as there are no records of Pilbara Leaf-nosed Bat within the Activity Area or 500 m buffer. Impacts to the Pilbara Leaf-nosed Bat are discussed to illustrate that the PMO (as described below) for this species will be met.

Program Matter Objective: *"To support the long-term persistence and viability of the Pilbara Leaf-nosed Bat within the SAA."*

### 5.5.1 General species information

The Pilbara Leaf-nosed Bat is listed as 'Vulnerable' under the EPBC Act. The species is restricted to the Pilbara bioregion of Western Australia where its extent of occurrence is estimated to be 110,000km$^2$ (Bat Call WA 2021b). The Pilbara population represents a single interbreeding population comprising multiple colonies ranging in size from 10 individuals to as many as 20,000 individuals, although the latter is exceptional (Armstrong 2001, Ecologia Environment 2005, Ecologia Environment 2006a, Ecologia Environment 2006b). The size of the Pilbara Leaf-nosed Bat population is currently unknown (TSSC 2016c).

The most updated conservation advice (Bat Call WA 2021b) indicates there are 48 confirmed permanent day roosts, including maternity roosts. Of these, 38 are located in banded iron formations in the Hamersley Ranges and eastern Pilbara, and six in disused underground gold and copper mines of the eastern Pilbara. Figure 5-21 illustrates the regional records and distribution of Pilbara Leaf-nosed Bat.

Pilbara Leaf-nosed Bats roost in undisturbed caves, deep fissures or abandoned mine shafts that maintain a stable, warm and humid microclimate, due to their limited ability to regulate heat and water balance (Kulzer *et al*. 1970; Churchill *et al.* 1988; Jolly 1988; Churchill 1991; Baudinette *et al.* 2000; Armstrong 2001). Caves/abandoned mines with seeps of water, moist wall surfaces and or flooded lower levels are usually of ideal humidity (Bat Call WA 2021b).

The species forages within and in the vicinity of roost caves and more broadly along waterbodies with suitable fringing vegetation that support prey species (TSSC 2016c). Pilbara Leaf-nosed Bats are predicted to travel up to 20 km from roost caves during night foraging (Cramer *et al.* 2016b); however, seasonal variation is known to occur, with foraging occurring up to 20 km in the dry season and up to 50 km during the wet season (Bullen 2013).

### 5.5.2 Studies and sampling effort

Five contemporary surveys have targeted the Pilbara Leaf-nosed Bat within the Activity Area (Table 4-1), as well as numerous contemporary and historical surveys in the wider area. Survey coverage and sampling effort for the Pilbara Leaf-nosed Bat is shown in Figure 5-22. Sampling methods for Pilbara Leaf-nosed Bat within the Activity Area and 500 m buffer include habitat assessments (including water and cave feature assessments), targeted searches and/ or transects, nocturnal searches, and ultrasonic recorders (Biologic 2026a, Biologic 2023a, 2025a, 2025b, 2025c; Figure 5-22). Historical sampling methods included scat sheets and bat traps (Figure 5-22). Where suitable caves or overhangs that may be utilised by the species were located, detailed cave assessments and searches were undertaken to search for evidence of occurrence and determine the likely use of the cave as a roost site. Where a cave was not deemed safe for entry, efforts were made to assess the cave without entering (Biologic 2023a).

### 5.5.3 Local habitat

The Activity Area is located at the eastern extent of the current distribution of the Pilbara Leaf-nosed bat whereby the species or species habitat may occur (Figure 5-21).

There are no Category 1, 2 or 3 caves or critical roosting habitat for the Pilbara Leaf-nosed Bat within the Activity Area or 500 m buffer, and none within 10 km of the Activity Area. As such, there is no critical roosting, foraging or dispersal habitat for the Pilbara Leaf-nosed Bat present within the Activity Area or 500 m buffer. Whilst there are Unclassified caves within the Activity Area, 500 m buffer and within a 10 km buffer (Figure 5-23, Figure 5-24, and Figure 5-25), given the lack of species records within the general area, it is considered unlikely that any critical roosting habitat would occur. All habitat is therefore considered supporting habitat for this species (Biologic 2025a, b, c; Biologic 2026a).

**Supporting habitat**

There is approximately 587.2 ha of supporting habitat for the Pilbara Leaf-nosed Bat in the Activity Area within the Breakaway/ Cliff, Gorge/ Gully, Drainage Area/ Floodplain, Stony Plain, Hillcrest/ Hillslope, Minor Drainage Line, Medium Drainage Line, Mulga Woodland and Undulating Low Hills habitats (Table 5-10; Figure 5-23, Figure 5-24, Figure 5-25). There is a further 2,845.3 ha of supporting habitat in the 500 m buffer (Table 5-10; Figure 5-23, Figure 5-24,and Figure 5-25)

There are seven Category 4 caves within the Activity Area and a further 14 Category 4 caves, one Category 5 cave and 11 unclassified caves within the 500 m buffer (Table 5-11;Figure 5-23, Figure 5-24, and Figure 5-25)

Caves within 500 m have been considered in this assessment as they could potentially be subject to indirect impacts associated with the Activity such as increased dust, noise, or vibration. Caves outside the 500 m distance are considered highly unlikely to be impacted by the Activity.

**Table 5-10: Pilbara Leaf-nosed Bat habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within the 500 m Buffer |
|---|---|---|
| **Supporting habitat** | | |
| Breakaway/ Cliff | 23.2 | 69.1 |
| Gorge/ Gully | 21.8 | 222.4 |
| Drainage Area/ Floodplain | 39.3 | 266.0 |
| Stony Plain | 137.6 | 835.2 |
| Hillcrest/ Hillslope | 156.8 | 887.8 |
| Minor Drainage Line | 22.3 | 70.8 |
| Medium Drainage Line | 2.1 | 8.5 |
| Mulga Woodland | 36.4 | 151.7 |
| Undulating Low Hills | 147.7 | 333.9 |
| **Total supporting habitat** | **587.2** | **2845.3** |

**Table 5-11: Potentially suitable Pilbara Leaf-nosed Bat caves**

| Cave ID | Roost Classification* | Fauna habitat type | Distance from Activity Area (m) | Evidence of use by Pilbara Leaf-nosed Bat |
|---|---|---|---|---|
| **Activity Area** | | | | |
| CEPA-37 | Category 4 | Breakaway/ Cliff | 0 | No evidence of use |
| CMAC-03 | Category 4 | Hillcrest/ Hillslope | 0 | No evidence of use |
| CMAC-12 | Category 4 | Gorge/ Gully | 0 | No evidence of use |
| CMAC-13 | Category 4 | Gorge/ Gully | 0 | No evidence of use |
| CMAC-14 | Category 4 | Hillcrest/ Hillslope | 0 | No evidence of use |
| CMAC-35 | Category 4 | Gorge/ Gully | 0 | No evidence of use |
| CMAC-38 | Category 4 | Hillcrest/Hillslope | 0 | No evidence of use. |
| **500 m buffer** | | | | |
| AC-11 | Unclassified | Cleared/ Disturbed | 42 | No evidence of use |
| AC-19 | Unclassified | Gorge/ Gully | 20 | No evidence of use |
| AC-20 | Category 4 | Gorge/ Gully | 409 | No evidence of use |
| AC-28 | Unclassified | Breakaway/ Cliff | 474 | No evidence of use |
| AC-29 | Unclassified | Breakaway/ Cliff | 87 | No evidence of use |
| AC-34 | Unclassified | Gorge/ Gully | 141 | No evidence of use |

| Cave ID | Roost Classification* | Fauna habitat type | Distance from Activity Area (m) | Evidence of use by Pilbara Leaf-nosed Bat |
|---|---|---|---|---|
| AC-38 | Unclassified | Breakaway/ Cliff | 461 | No evidence of use |
| CMAC-10 | Unclassified | Hillcrest/ Hillslope | 122 | No evidence of use |
| CMAC-15 | Category 4 | Breakaway/ Cliff | 395 | No evidence of use |
| CMAC-22 | Unclassified | Gorge/ Gully | 495 | No evidence of use. No classification as deemed unsafe for entry. |
| CMAC-24 | Unclassified | Gorge/ Gully | 219 | Cave deemed geotechnically unsafe and therefore no entry permitted. |
| CMAC-25 | Unclassified | Hillcrest/ Hillslope | 465 | Cave deemed geotechnically unsafe and therefore no entry permitted. |
| CMAC-26 | Category 5 | Gorge/ Gully | 30 | No evidence of use |
| CMAC-27 | Category 4 | Gorge/ Gully | 375 | No evidence of use |
| CMAC-28 | Category 4 | Gorge/ Gully | 409 | No evidence of use |
| CMAC-29 | Category 4 | Gorge/ Gully | 337 | No evidence of use |
| CMAC-30 | Category 4 | Gorge/ Gully | 232 | No evidence of use |
| CMAC-31 | Category 4 | Gorge/ Gully | 211 | No evidence of use |
| CMAC-32 | Category 4 | Gorge/ Gully | 234 | No evidence of use |
| CMAC-33 | Category 4 | Gorge/ Gully | 162 | No evidence of use |

| Cave ID | Roost Classification* | Fauna habitat type | Distance from Activity Area (m) | Evidence of use by Pilbara Leaf-nosed Bat |
|---|---|---|---|---|
| CMAC-34 | Category 4 | Gorge/ Gully | 343 | No evidence of use |
| CMAC-36 | Category 4 | Gorge/ Gully | 303 | No evidence of use |
| CMAC-37 | Category 4 | Gorge/ Gully | 327 | No evidence of use |
| CMAC-39 | Category 4 | Gorge/ Gully | 67 | No evidence of use |
| CMAC-40 | Category 4 | Gorge/Gully | 70 | No evidence of use |

* Category definitions align with those provided in Bat Call WA 2021b

Category 5 caves are defined as unsuitable for occupancy by Pilbara Leaf-nosed Bats based on unsuitable physical structure/characteristics or internal microclimate.

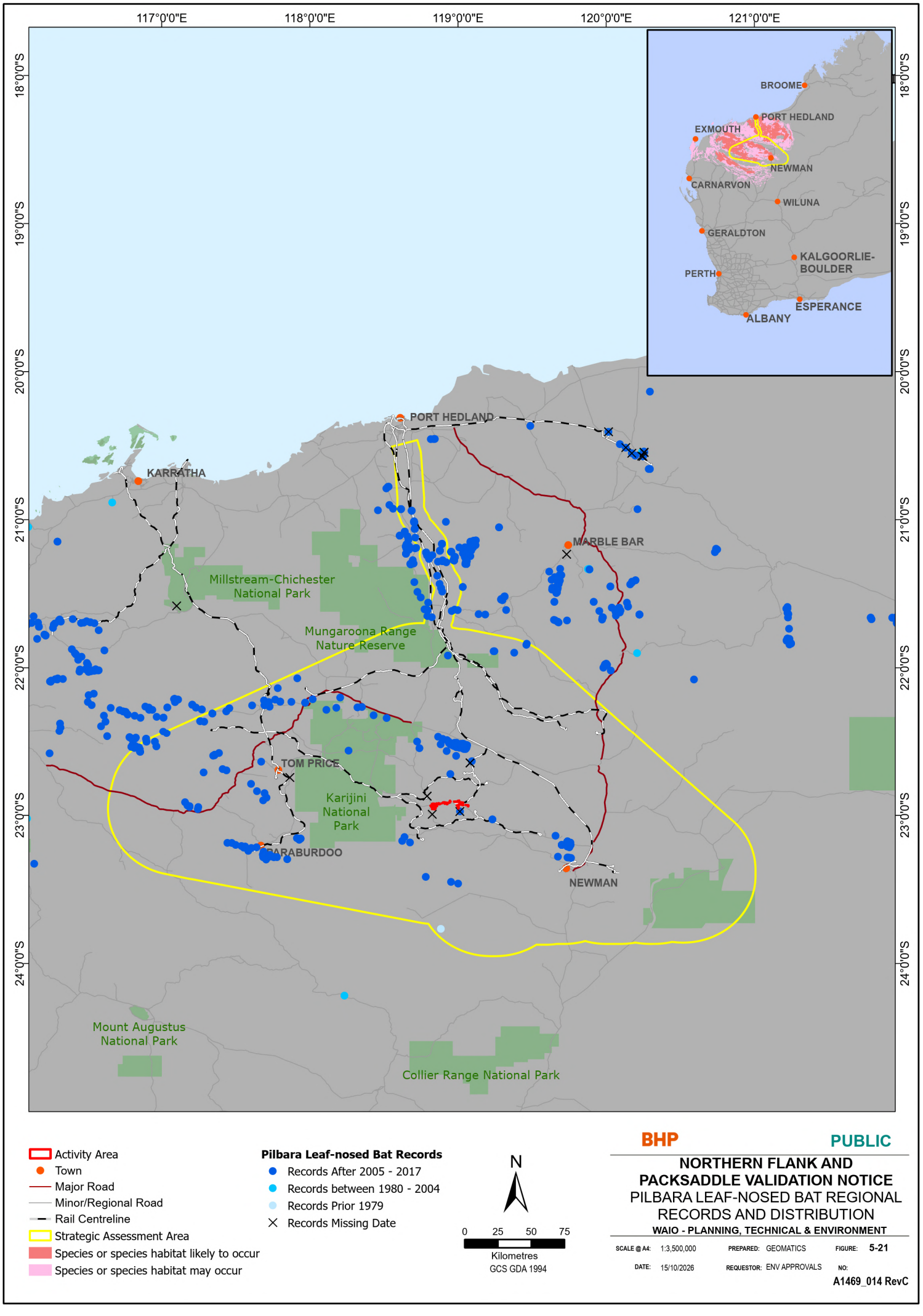
### 5.5.4 Pilbara Leaf-nosed Bat records

Pilbara Leaf-nosed Bat regional records are shown in Figure 5-21. There are two known permanent roosts in the wider region including the East Turee Creek roost, located in Karijini National Park, approximately 20 km southwest of the Activity Area and the permanently occupied roost at the Gudai-Darri Adit, located approximately 40 km north of the Activity Area (Biologic 2023a).

There are no records of the Pilbara Leaf-nosed Bat in the Activity Area or 500 m buffer. The closest records include:

- One (unknown) record approximately 2 km southeast of the Activity Area (ENV 2007; Figure 5-25)
- One ultrasonic call record approximately 4 km south of the Activity Area (Biologic 2011b; Figure 5-23)
- One ultrasonic call recorded from an unidentified cave (likely CTAN-11) approximately 6.6 km north of the Activity Area (Onshore/Biologic 2011).

The Pilbara Leaf-nosed bat is relatively scarce in the area due to the limited occurrence of suitable roosting habitat. The scarcity of records in the broader vicinity of the Activity Area (and buffer) suggests that the closest records are likely transient or dispersing individuals.

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## PILBARA LEAF-NOSED BAT REGIONAL RECORDS AND DISTRIBUTION

WAIO - PLANNING, TECHNICAL & ENVIRONMENT

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A4: | 1:3,500,000 | PREPARED: | GEOMATICS | FIGURE: | 5-21 |
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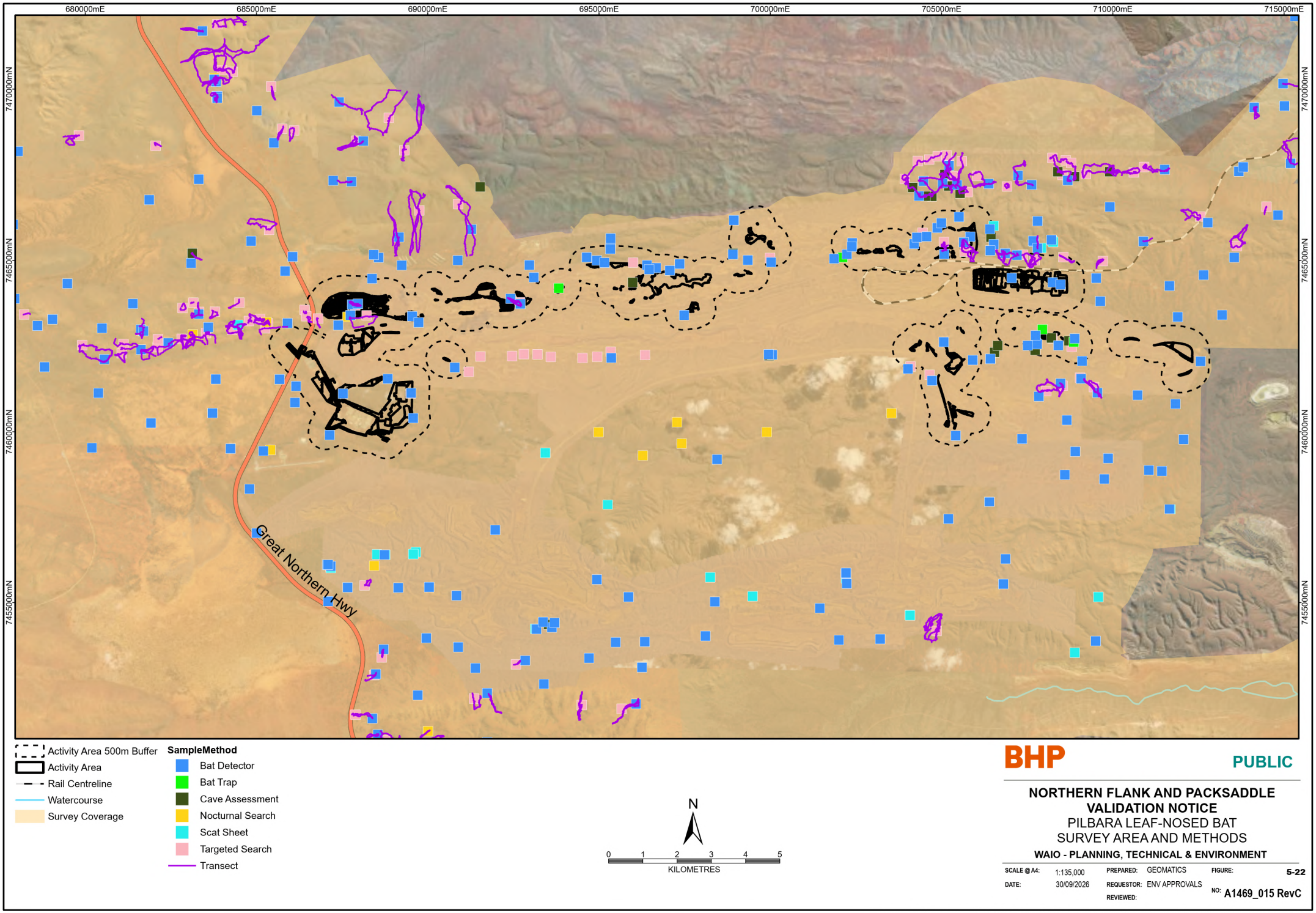


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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## PILBARA LEAF-NOSED BAT SURVEY AREA AND METHODS

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

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| SCALE @ A4: | 1:135,000 | PREPARED: | GEOMATICS | FIGURE: | 5-22 |
| DATE: | 30/09/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_015 RevC |
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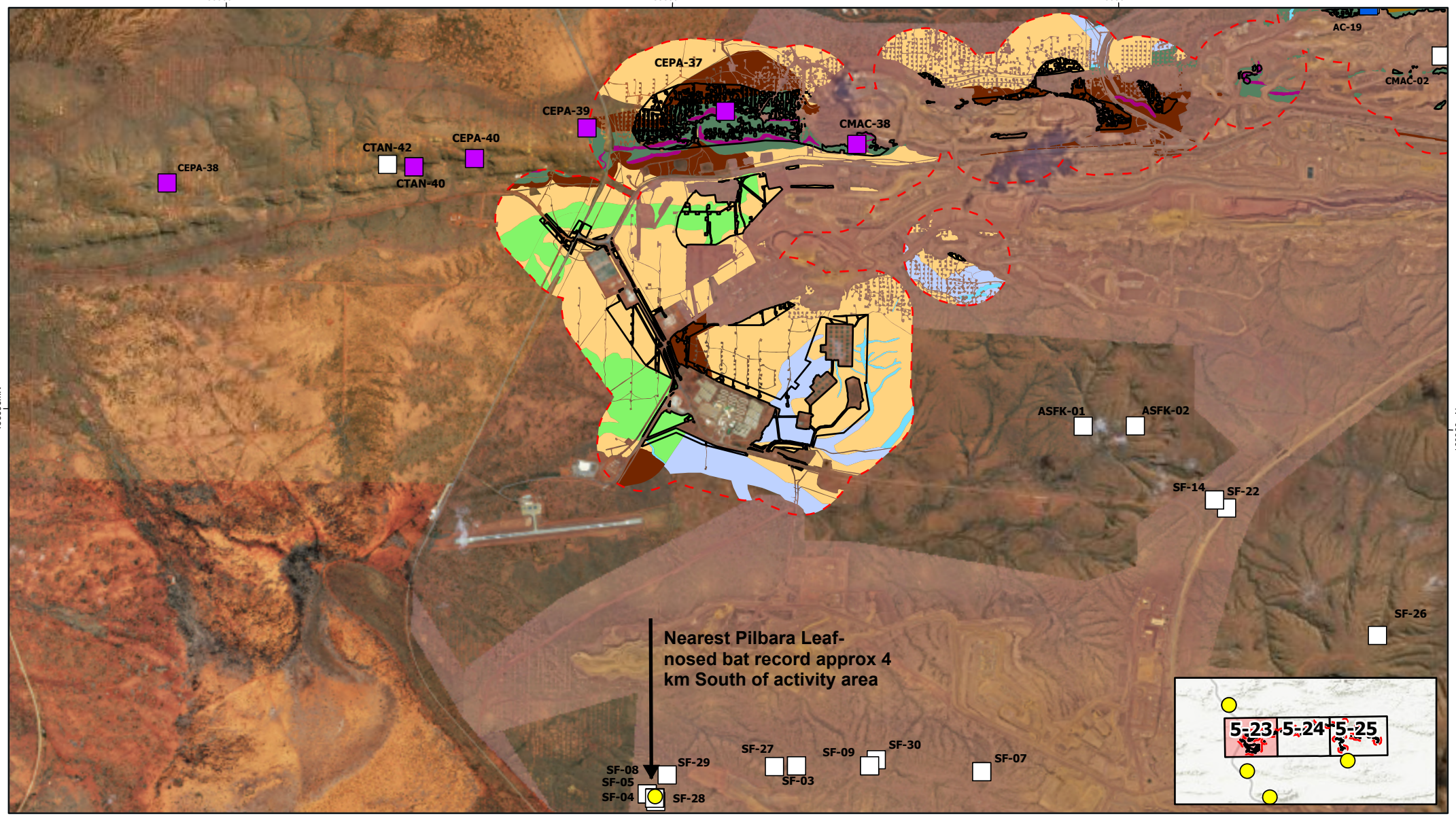


Activity Area
500m Buffer
Pilbara Leaf-nosed Bat

**Pilbara Leaf-nosed Bat Roost Type**

Category 4
Unclassified

**Supporting Habitat**

Breakaway/ Cliff
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Minor Drainage Line
Mulga Woodland
Stony Plain
Undulating Low Hills

N

0 1 2 3

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## PILBARA LEAF-NOSED BAT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:57,600 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-23 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-016 RevD |

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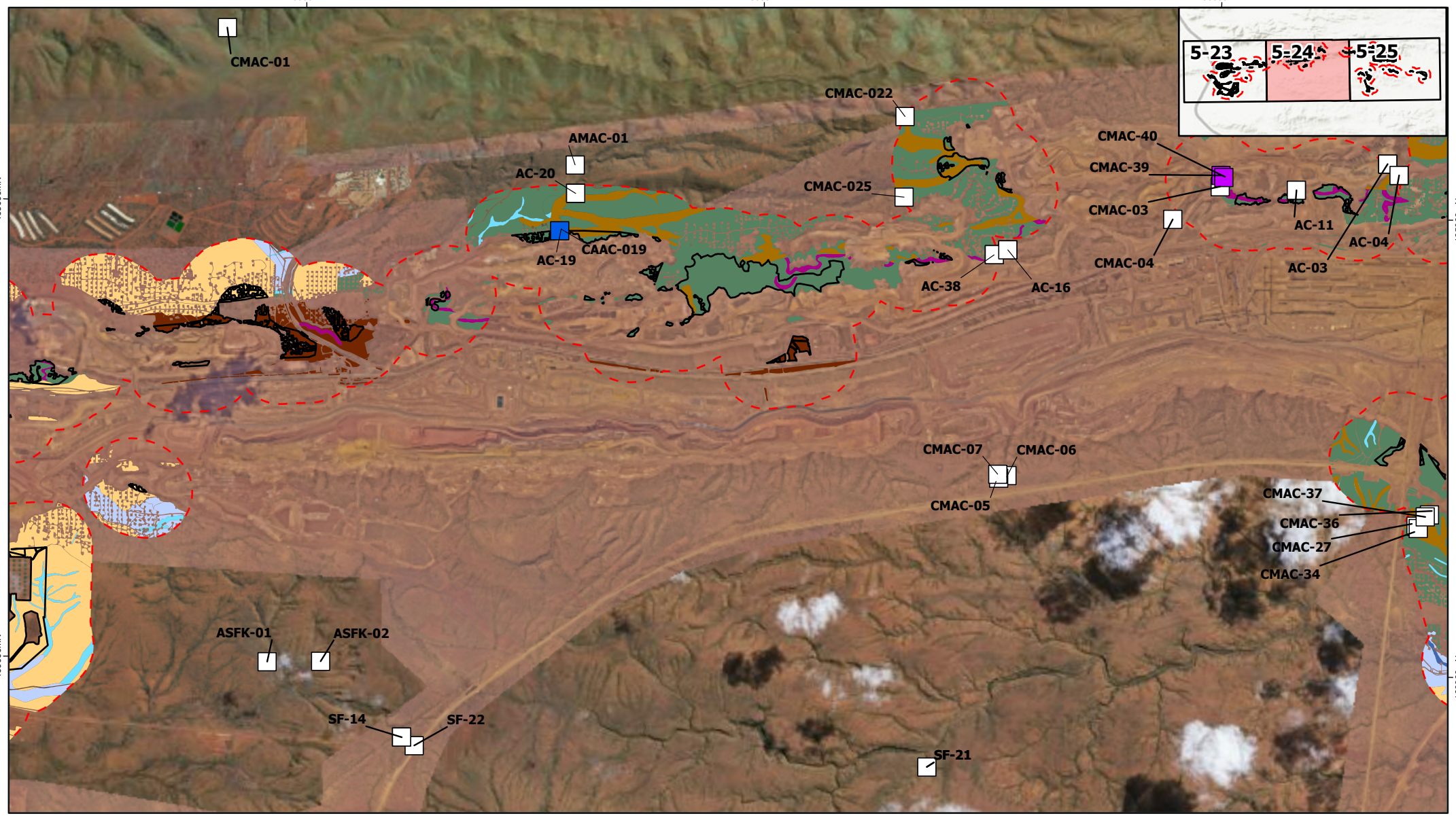


Activity Area
500m Buffer

**Pilbara Leaf-nosed Bat Roost Type**

- Category 4
- Category 5
- Unclassified

**Supporting Habitat**

- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Hillcrest/ Hillslope
- Medium Drainage Line
- Minor Drainage Line
- Stony Plain
- Undulating Low Hills

N

0 500
METERS

GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## PILBARA LEAF-NOSED BAT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:56,190 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-24 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-016 RevD |

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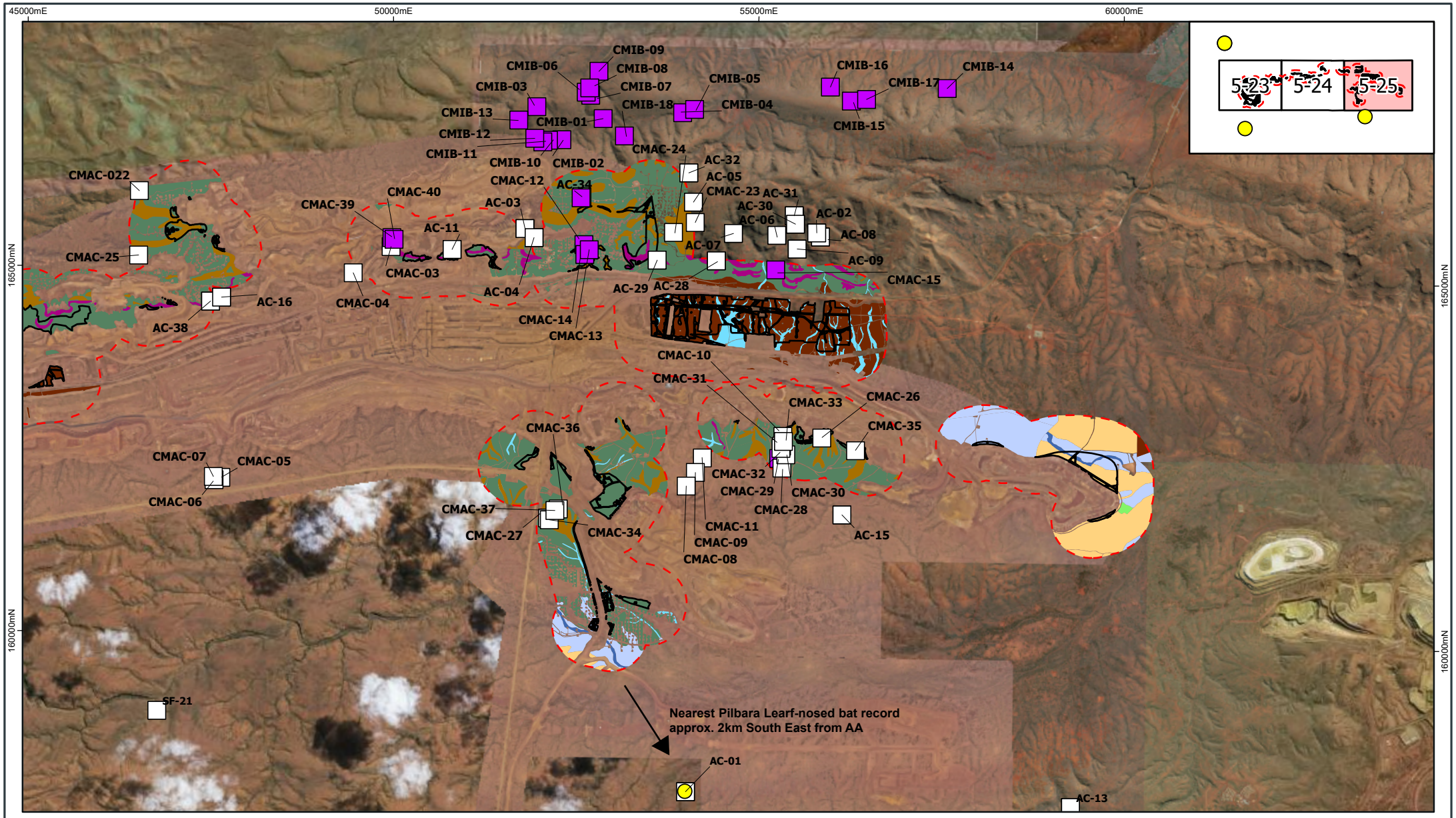


Activity Area
500m Buffer
Pilbara Leaf-nosed Bat

**Pilbara Leaf-nosed Bat Roost Type**
Category 4
Unclassified

**Supporting Habitat**
Breakaway/ Cliff
Gorge/ Gully
Medium Drainage Line
Mulga Woodland
Drainage Area/ Floodplain
Stony Plain
Minor Drainage Line
Hillcrest/ Hillslope
Undulating Low Hills

N

0 0.5 1
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
**PILBARA LEAF-NOSED BAT MAPPED**
HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:69,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-25 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-016 RevD |

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### 5.5.5 Impact assessment

The potential direct and indirect impacts to the Pilbara Leaf-nosed Bat from the Activity (see Section 2) are considered below.

#### Habitat loss

Six potential Category 4 Pilbara Leaf-nosed Bat caves will be directly impacted by the Activity (CMAC-12, CMAC-13, CMAC-14, CMAC-35, CMAC-38 and CMAC-03). CEPA-37 (Category 4) will be avoided through the use of a 150 m DMZ to prevent direct impact (see Section 5.2.5).

The Activity will result in the loss of up to 587.2 ha of supporting foraging and dispersal habitat for the Pilbara Leaf-nosed Bat. The Pilbara Leaf-nosed Bat habitats that will be subject to the greatest amount of clearing for this Activity include Stony Plain (137.6 ha), Hillcrest/ Hillslope (156.8 ha) and Undulating Low Hills (147.7 ha) habitats.

#### Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, vibration and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of dust, artificial light, noise or vibration beyond those already occurring within Mining Area C.

Vibration generated by blasting is unlikely to result in residual impacts to Pilbara Leaf-nosed Bat given the species is only present at low densities on an occasional or transient basis and given the low number of roosts. Whilst vibration has the potential to compromise the structural integrity and suitability of cave roosts, given there are only Category 4 roosts present, none of which have evidence of use, any impacts are expected to be minor.

Management measures designed to maintain cave integrity and accessibility for Ghost Bat use will also benefit Pilbara Leaf-nosed Bats. Refer to Section 5.2.5 for management measure and use of DMZ and MMZ to mitigate potential impacts to Ghost Bats that will benefit Pilbara Leaf-nosed Bats.

The Activity occurs within an established mining landscape where Pilbara Leaf-nosed Bat habitat persists alongside existing authorised mining activities and is unlikely to materially alter the existing disturbance regime. The local roost network will remain available and functional for Pilbara Leaf-nosed Bats. As such, residual impacts associated with dust, noise, vibration and artificial light are expected to be minor.

#### Entanglement in barbed wire

Entanglement in barbed wire fencing is recognised as a significant cause of mortality for the Pilbara Leaf-nosed Bat. The use of barbed wire within the Activity Area is limited to areas where it is required by legislation. While the use of barbed wire fencing is not anticipated, if installed, suitable bat deflectors will be fitted to minimise the risk of entanglement.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Predation by and competition with feral cats, cane toads and other introduced fauna

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

The Activity may facilitate the spread of Cane Toads (*Rhinella marina*) through vehicle movements and the availability of artificial water sources. If Cane Toads are detected within the Activity Area, observations will be reported to the

Department of Biodiversity, Conservation and Attractions and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

Overall, the risk of introduced fauna to Pilbara Leaf-nosed Bat as a result of the Activity is considered low and unlikely to result in residual impacts to the species.

#### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Pilbara Leaf-nosed Bat habitat and contribute to population decline. Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area.

This risk will be managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available on site to respond to fire incidents.

#### Habitat modification due to introduced weeds

There is potential for Pilbara Leaf-nosed Bat habitat to be degraded by weeds; however, the application of weed management procedures is expected to mitigate the spread of weeds. Residual impacts to the species from weeds are considered unlikely.

#### Vehicle and infrastructure interactions

Interaction of fauna with vehicle and machinery movements have the potential to result in fauna strike, causing injury or mortality to fauna individuals. Pilbara Leaf-nosed Bats are understood to fly low to the ground when foraging and therefore may be vulnerable to vehicle strike. The risk of interaction with vehicles is greatest where roads occur in proximity to roosts or critical foraging habitat. There are not critical caves suitable for roosting in the Activity Area with the species only being present on an occasional or transient basis. There are existing mines, roads, tracks and rail lines already present throughout the Activity Area. Therefore, any potential impacts to Pilbara Leaf-nosed Bat are expected to be minimal.

Management measures will be implemented to reduce the risk to Pilbara Leaf-nosed Bats, including imposing appropriate speed limits on all access tracks, roads and construction areas to minimise interactions with fauna that would result in injury or mortality.

Overall, there are unlikely to be residual impacts to the Pilbara Leaf-nosed Bat from interactions with vehicles and machinery.

### 5.5.6 Summary

The Notifiable Action Triggers are not applicable for Pilbara Leaf-nosed Bat, as there are no records of Pilbara Leaf-nosed Bat within the Activity Area or 500 m buffer.

## 5.6 Greater Bilby

The following sections provide background information to demonstrate that Notifiable Action Triggers for Greater Bilby are not met. Impacts to the Greater Bilby are discussed and the mitigation hierarchy applied to illustrate that the Program Matter Objective (as described below) for this species will be met.

Program Matter Objective: *“To support the long-term persistence and viability of the Greater Bilby within the SAA.”*

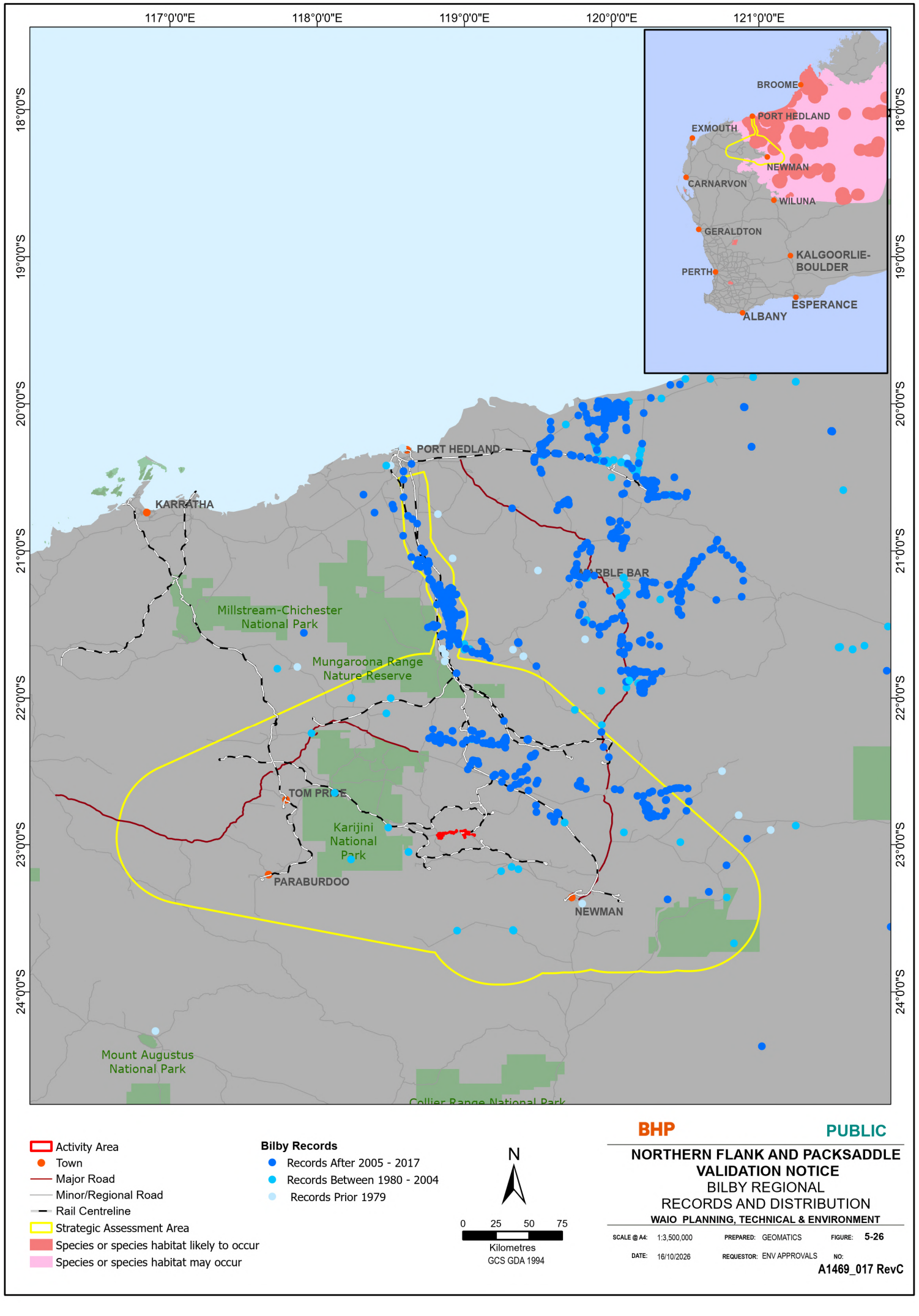
### 5.6.1 General species information

The Greater Bilby is listed as ‘Vulnerable’ under the EPBC Act. In the Pilbara bioregion, its distribution extends along the Fortescue River and north-east to Shay Gap (DCCEEW 2023) (Figure 5-26). The extent of occurrence for the

Greater Bilby is thought to have remained relatively stable over the last 20 years. This mammal was common throughout most of its range until the early 1900s when there was a sudden and widespread collapse (Abbott 2001; Johnson 2008). This collapse and range contraction has been attributed to predation from cats and foxes, habitat degradation from introduced herbivores and changed fire regimes. Feral cats have been linked to the reduced success of reintroduced populations (DCCEEW 2023).

The Greater Bilby is a highly mobile species, with home ranges varying between 1 $km^2$ to 3 $km^2$ (DCCEEW 2023). The movement patterns of the Greater Bilby are thought to be influenced by resource availability, with species presence being strongly associated with substrate type and it generally being restricted to areas that contain suitable burrowing habitat such as sandy loam plains, alluvial creeks, dunes and sand ridges (Strahan 1995; TSSC 2016b). Within the Pilbara region the species is sparsely distributed and often associated with level or undulating plains including watercourses and dune systems, composed of cracking clay, soil or sand that allows burrowing, with vegetation consisting of hummock grassland (spinifex), with low shrubland, usually *Acacia* dominated (Dziminski and Carpenter 2017). The Greater Bilby has also been recorded within mulga woodlands and stony plain habitats in the Abydos Plains region, further north in the Pilbara; however, the species may also persist in areas of low productivity (Southgate and Carthew 2006, Southgate *et al*. 2007 and Southgate *et al*. 2018). Food sources for the Greater Bilby include, but are not limited to, grass, sedge seeds, ants, fungi, termites, beetles, insect larva and spiders (Dziminski and Carpenter 2017, Southgate *et al*. 2018).

The Activity Area falls within the southwestern extent of the current distribution of the Greater Bilby, where the species and its habitat are considered likely to occur (Figure 5-26).

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## BILBY REGIONAL RECORDS AND DISTRIBUTION

WAIO PLANNING, TECHNICAL & ENVIRONMENT

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| SCALE @ A4: | 1:3,500,000 | PREPARED: | GEOMATICS | FIGURE: | 5-26 |
| DATE: | 16/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_017 RevC |

### 5.6.2 Studies and sampling effort

Five contemporary surveys have targeted the Greater Bilby within the Activity Area (Table 4-1; Appendix 1), as well as numerous historical surveys in the local and wider region. Contemporary survey coverage for Greater Bilby is shown in Figure 5-27. Sampling methods for Greater Bilby within the Activity Area and 500 m buffer include habitat assessments, targeted Bilby plots and targeted transects (Biologic 2026a, 2025a, 2025b, 2025c, 2023a;Figure 5-27)

### 5.6.3 Local habitat

Suitable habitat for the Greater Bilby within the Pilbara is most commonly associated with spinifex sandplains on sandy terraces adjacent to major drainage lines (Biologic 2026a).

There is no critical habitat for the Greater Bilby present within the Activity Area or 500 m buffer.

**Supporting habitat**

Marginal supporting habitat occurs in Sand Plain habitat and Drainage Area/Floodplain habitat where patches of sandy substrate occur (Table 5-12 and Figure 5-27). Areas of marginal supporting habitat were isolated, relatively small and lacked connectivity to other areas of suitable habitat (Biologic 2023a, 2026a). While Sand Plain habitat is generally considered critical breeding, foraging, and dispersal habitat for the species, none occurs within the Activity Area. The small amount of Sand Plain habitat that occurs in the 500 m buffer is extremely limited and fragmented (Table 5-14).

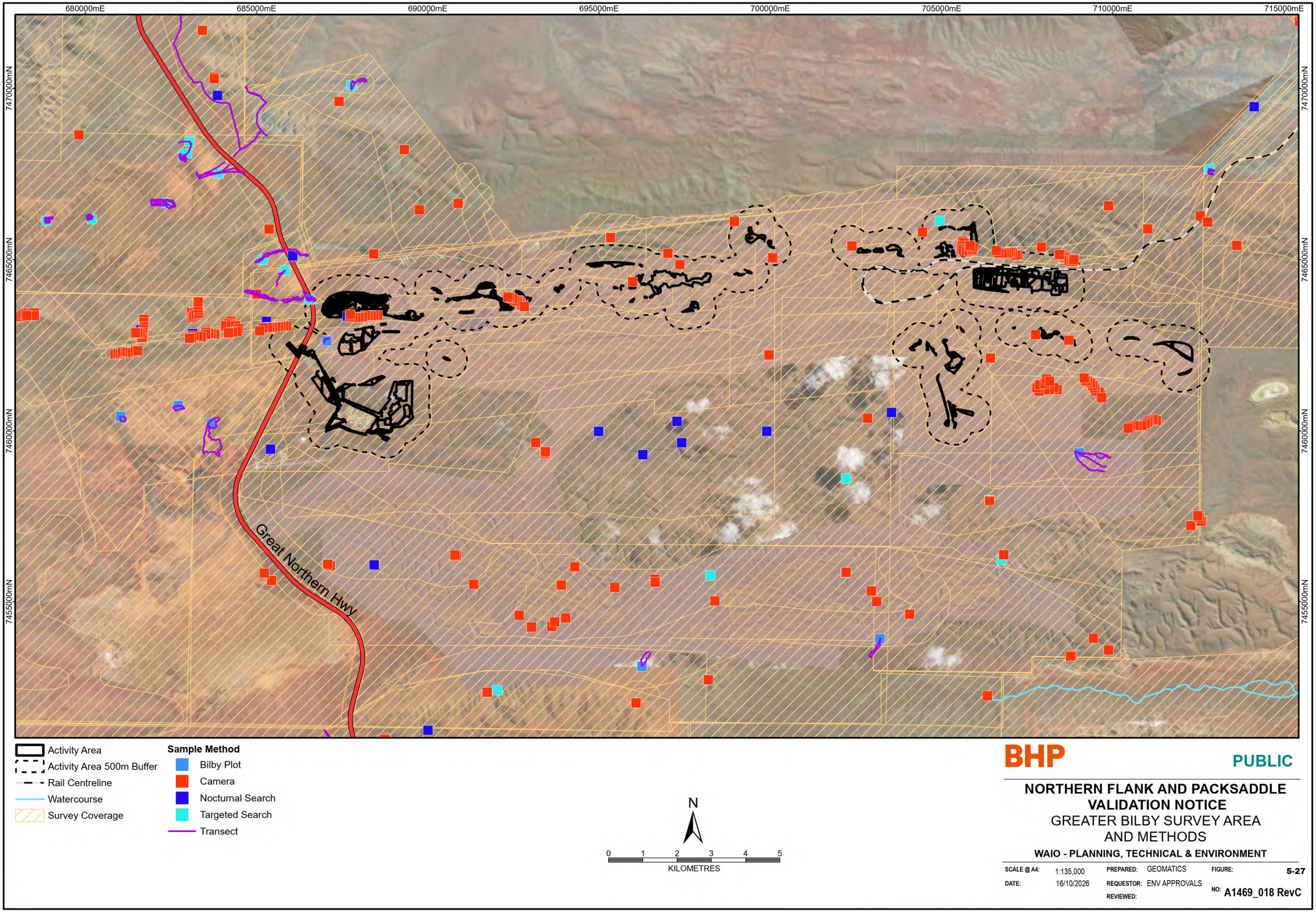
In total, there is approximately 39.3 ha of marginal supporting habitat within the Activity Area, and 294 ha of marginal supporting habitat within the 500 m buffer (Table 5-14).

**Table 5-12: Greater Bilby habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within the 500 m Buffer (ha) |
|---|---|---|
| **Supporting habitat** | | |
| Drainage Area/Floodplain | 39.3 | 266.0 |
| Sand Plain | 0 | 28.0 |
| **Total supporting habitat** | **39.3** | **294.0** |

### 5.6.4 Greater Bilby records

There is no direct or indirect evidence of the Greater Bilby within the Activity Area or 500 m buffer. The nearest records (23 km southwest and 31-33 km southeast of the Activity Area; Figure 5-28, Figure 5-30) comprise secondary evidence and are more than 40 years old. The most recent records, noted as ‘possibly greater bilby diggings and burrows’ were recorded in 2020 from the Fortescue Valley, 49 km northwest of the Activity Area. Given the lack of records and lack of critical habitat to support the species, it is unlikely that the Greater Bilby occurs within the Activity Area or 500 m buffer.

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREATER BILBY SURVEY AREA AND METHODS

**WAIO - PLANNING, TECHNICAL & ENVIRONMENT**

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| SCALE @ A4: | 1:135,000 | PREPARED: | GEOMATICS | FIGURE: | 5-27 |
| DATE: | 16/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_018 RevC |
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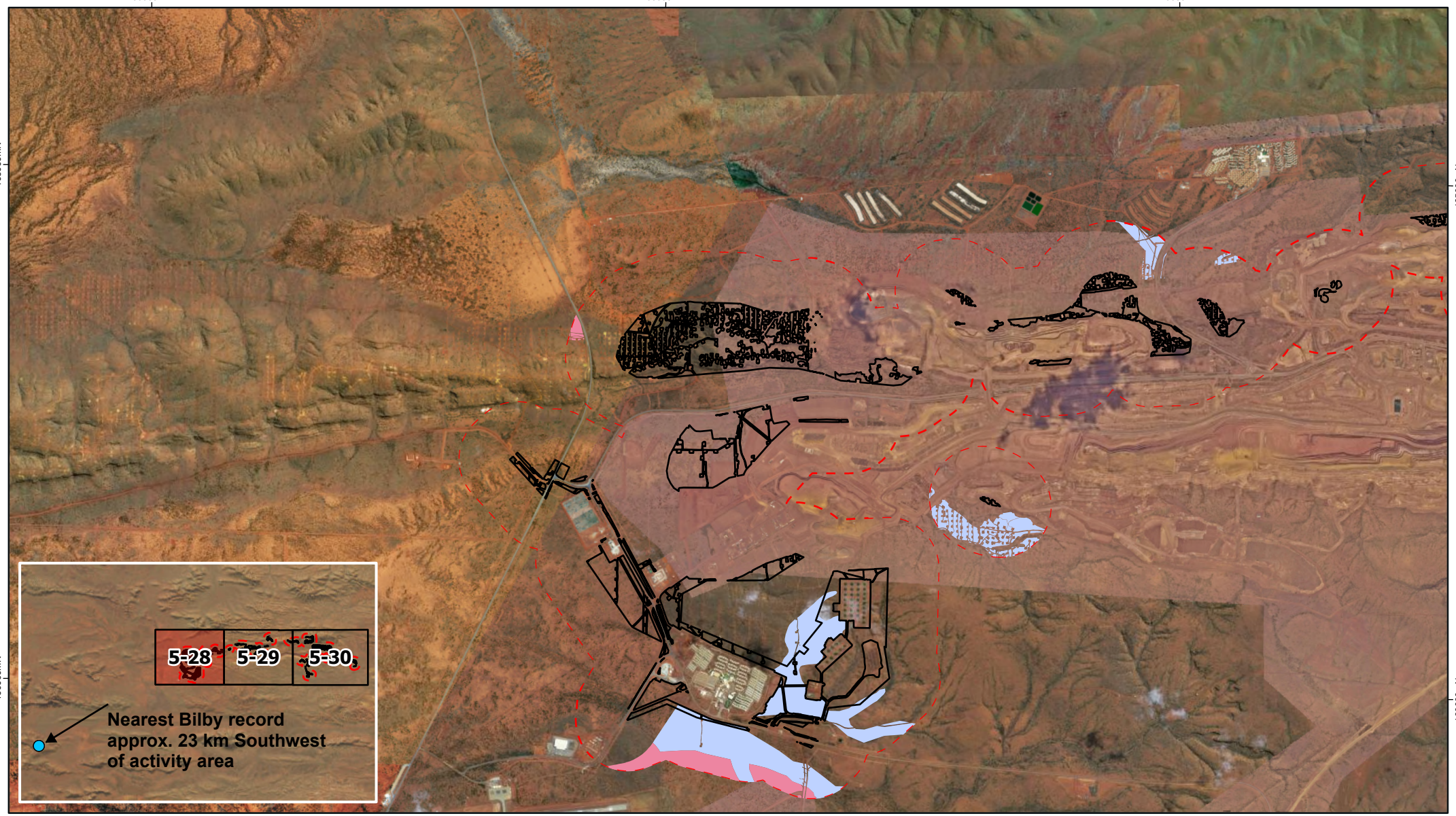


Activity Area
500m Buffer
Greater Bilby

**Supporting Habitat**
Drainage Area/ Floodplain
Sand Plain

N

0 0.5 1 1.5 2 2.5
KILOMETRES
GDA 1994 MGA ZONE 50

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
GREATER BILBY MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
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| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-28 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-019 RevC |

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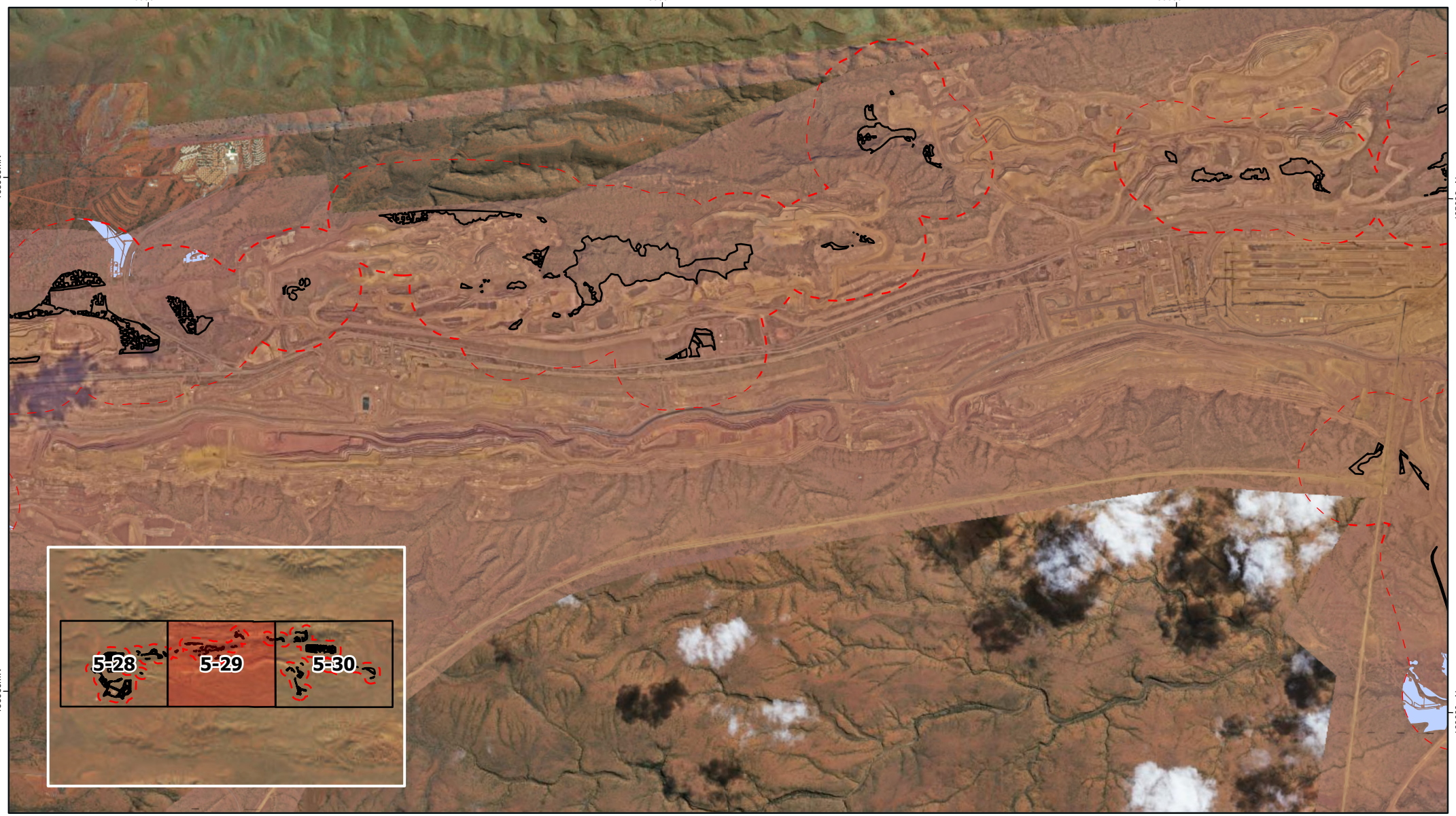


Activity Area

500m Buffer

**Supporting Habitat**

Drainage Area/ Floodplain

N

0 0.5 1 1.5 2 2.5

KILOMETRES

GDA 1994 MGA ZONE 50

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREATER BILBY MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-019 RevC |

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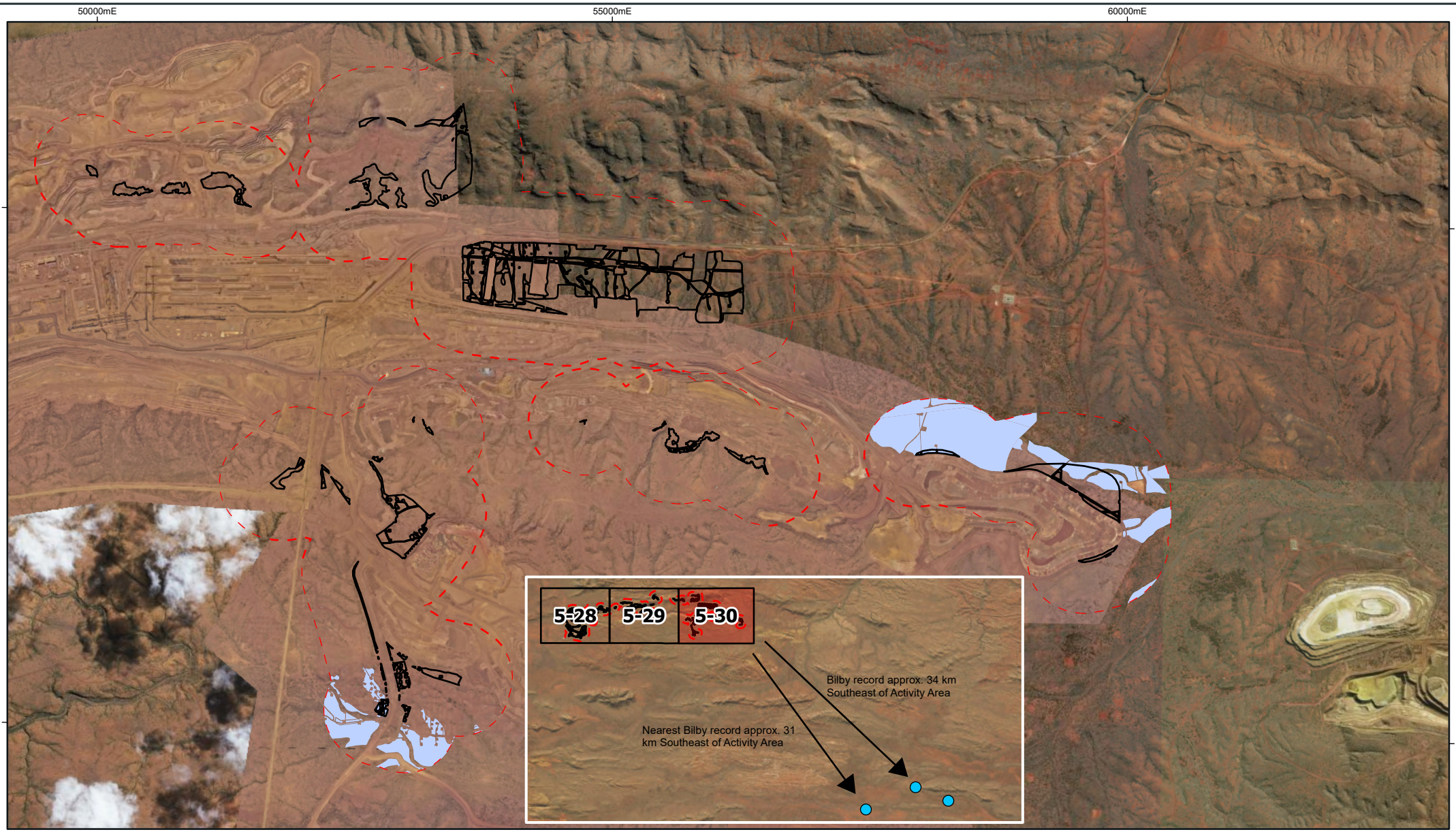


Activity Area
500m Buffer
Greater Bilby

**Supporting Habitat**
Drainage Area/ Floodplain

N

0 0.5 1 1.5 2 2.5
KILOMETRES

GDA 1994 MGA ZONE 50

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**NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE**
GREATER BILBY MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-30 |
| DATE: | 3/11/2026 | PREPARED: | GEOMATICS | NO: | A1469-019 RevD |

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### 5.6.5 Impact assessment

The potential direct and indirect impacts to the Greater Bilby from the Activity (see Section 2) are considered below.

#### Habitat loss

The Activity will result in the direct loss of up to 39.3 ha of marginal Greater Bilby supporting habitat (Drainage Area/Floodplain). Given the lack of records of Greater Bilby within the Activity Area or within a 500 m buffer of the Activity Area, the proposed disturbance is not predicted to have residual impact on the species.

#### Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, vibration and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of dust, artificial light, noise or vibration beyond those already occurring within Mining Area C.

The Activity will be conducted in adherence to standard BHP procedures for dust, noise, vibration and light which will serve to minimise habitat degradation risk.

Given the lack of Greater Bilby records within the Activity Area or 500 m buffer, and the distance to the nearest records of the species, the potential risk of impact to Greater Bilby from habitat degradation or species disturbance is considered to be very low. Residual impacts to Greater Bilby from the Activity are considered unlikely.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (BHP 2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Introduced fauna species

Vegetation clearing can enhance the ability of feral predators, such as feral cats and/or the foxes, to move through the landscape, whilst construction activities can attract feral predators and result in increased predation on native fauna. Predation by feral cats and foxes are key threatening processes listed under the EPBC Act, with feral cats representing one of the greatest predatory threats to native fauna (DCCEEW 2026).

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

Grazing by rabbits and other introduced herbivores (including livestock) can impact vegetation structure and reduce food resources for species such as the Greater Bilby. Land degradation by rabbits is recognised as a key threatening process under the EPBC Act (DoEE 2016). However, rabbits have not been recorded within the Activity Area and the Activity is not considered likely to result in an increase in feral herbivores.

The Activity may facilitate the spread of Cane Toads (*Rhinella marina*) through vehicle movements and the availability of artificial water sources. There is the potential that bilbies could consume toadlets and/or toads, although this is not identified as a specific threat to the species (DCCEEW 2023). If Cane Toads are detected within the Activity Area, observations will be reported to the Department of Biodiversity, Conservation and Attractions and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

Overall, the risk of introduced fauna to Greater Bilby as a result of the Activity is considered low and unlikely to result in residual impacts to the species.

### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Greater Bilby habitat and contribute to population decline. Inappropriate fire regimes that can cause declines in biodiversity are also recognised as a key threatening process listed under the EPBC Act (DAWE 2022), and may be especially detrimental to Program Matters such as the Greater Bilby which prefers long unburnt habitats containing complex mosaics of vegetation (DCCEEW 2023).

Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area. This risk will be managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available on site to respond to fire incidents.

### Habitat modification due to introduced weeds

There is potential for Greater Bilby habitat to be degraded by weeds. The application of standard weed and hygiene management procedures is expected to mitigate the spread of weeds or introduction of new weeds. Residual impacts to the species from weeds are considered unlikely.

### Vehicle, machinery and infrastructure interactions

Interactions between fauna and vehicles, machinery or infrastructure have the potential to result in injury or mortality. Greater Bilby are susceptible to mortality from vehicle strikes (Bradley et al 2015). However, given there are no records of the Greater Bilby in the Activity Area or general area, injury or mortality from vehicle strike or interactions with vehicles, machinery or infrastructure are considered unlikely.

### 5.6.6 Summary

The Greater Bilby Notifiable Action Triggers are not applicable as there are no records of Greater Bilby within the Activity Area or within the 500 m buffer of the Activity Area. The Activity is not predicted to result in residual impacts to Greater Bilby through either direct or indirect impacts to Greater Bilby supporting habitat. No critical habitat will be impacted.

## 5.7 Grey Falcon

The following sections provide background information to demonstrate that Notifiable Action Triggers for Grey Falcon are not met as no records exist within the Activity Area or within the 500 m buffer. Impacts to the Grey Falcon are discussed to illustrate that the Activity is not predicted to result in residual impacts to the Grey Falcon. As such, the PMO (as described below) for this species will be met.

Program Matter Objective: *"To support the long-term persistence and viability of the Grey Falcon within the SAA."*

### 5.7.1 General Species information

The Grey Falcon occurs at low densities in arid and semi-arid regions of Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia (Marchant and Higgins 1993 as cited in TSSC 2020). The species is typically confined to the arid and semi-arid zones where annual rainfall is less than 500 millimetres (mm) (Schoenjahn 2018 as cited in TSSC 2020). The species frequents timbered lowland plains, particularly Acacia shrublands that are crossed by tree-lined water courses (Garnett *et al*. 2011; Watson 2011; Schoenjahn 2013, 2018; Janse *et al.* 2015; Ley and Tynan 2016 as cited in TSSC 2020). The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland (Olsen and Olsen 1986; Schoenjahn 2018 as cited in TSSC 2020). Eggs are laid in the old nests of other birds, usually in the tallest trees along watercourses or in telecommunication towers (Marchant and Higgins 1993; Schoenjahn 2013, Schoenjahn 2018, Falkenberg 2011 as cited in TSSC 2020) or other similar artificial structures. River Red Gum (*Eucalyptus camaldulensis)* and Coolibah (*E. coolabah*) are favoured nesting trees.

### 5.7.2 Studies and sampling effort

Five contemporary surveys have targeted the Grey Falcon within the Activity Area (Table 4-1; Appendix 1), as well as numerous contemporary and historical surveys in the wider area. Survey coverage and sampling effort for the Grey Falcon is shown in Figure 5-32. Sampling methods for Grey Falcon within the Activity Area and 500 m buffer include habitat assessments (including water feature assessments), bird census surveys and opportunistic observations taken throughout each survey with a focus on the Medium Drainage Line, Mulga Woodland, Drainage Area/ Floodplain, and Stony Plain habitats that contained large trees (Biologic 2026a, 2025a, 2025b 2025c, 2023a; Figure 5-32). Two surveys were undertaken during the breeding season of the Grey Falcon (June to November) (Biologic 2023a, 2026).

### 5.7.3 Local habitat

The Activity Area is within the current distribution of the Grey Falcon where species habitat is likely to occur (Figure 5-31).

**Critical habitat**

Critical habitat consists of Medium Drainage Line habitats, particularly where suitable tall trees for nesting are present, however, no evidence of nests was recorded during recent surveys (Biologic 2023a, 2026a). There is approximately 2.1 ha of critical Grey Falcon habitat in the Activity Area and 8.5 ha within the 500 m buffer (Table 5-13; Figure 5-33).

**Supporting habitat**

Supporting foraging and dispersal habitat is provided by Drainage Area/ Floodplain, Minor Drainage Line and Stony Plain habitats (Table 5-13; Figure 5-33, Figure 5-34, Figure 5-35); however, due to the lack of suitable breeding habitat, these habitats are considered suboptimal (Biologic 2026a). There is approximately 199.2 ha of supporting Grey Falcon habitat in the Activity Area and 1172 ha of supporting habitat within the 500 m buffer.

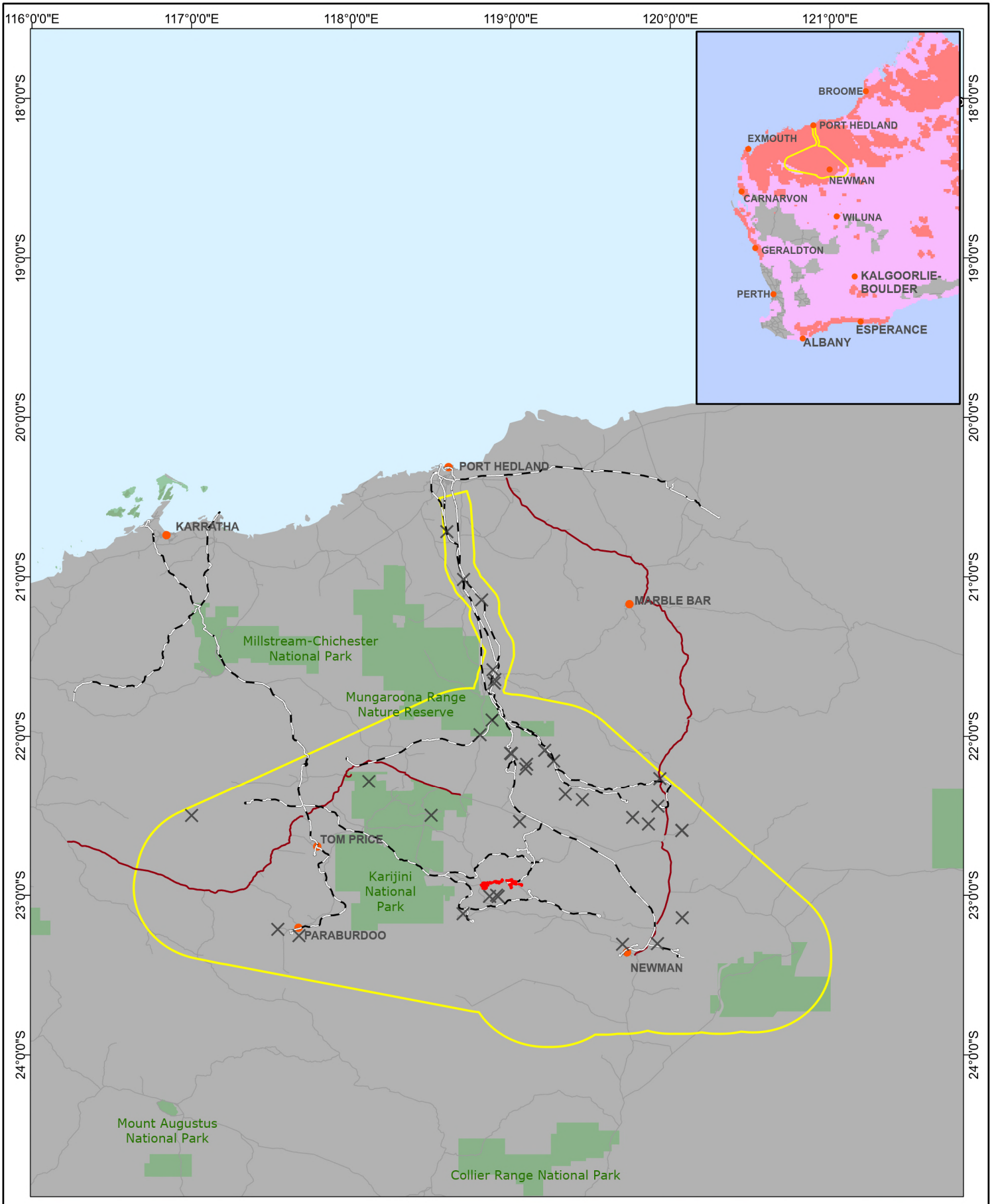
**Table 5-13: Grey Falcon habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within 500 m Buffer of Activity Area |
|---|---|---|
| **Critical habitat** | | |
| Medium Drainage Line | 2.1 | 8.5 |
| **Total critical habitat** | **2.1** | **8.5** |
| **Supporting habitat** | | |
| Drainage Area/ Floodplain | 39.3 | 266.0 |
| Stony Plain | 137.6 | 835.2 |
| Minor Drainage Line | 22.3 | 70.8 |
| **Total supporting habitat** | **199.2** | **1172.0** |

### 5.7.4 Grey Falcon records

There is no direct or indirect evidence of Grey Falcon individuals or populations within the Activity Area or within a 500 m buffer. There are four records of Grey Falcon within 50 km of the Study Area, including three records within

the MACSF Validation Notice Activity Area, approximately 6km south of the Activity Area, and one record at Mudlark Well, approximately 7 km west of the Activity Area (Figure 5-33). Given the lack of records and tall trees suitable for nesting, it is considered unlikely that the Grey Falcon is reliant on habitat in the Activity Area for long-term survival on a local or regional scale.




Activity Area
Town
Minor/Regional Road
Rail Centreline
Strategic Assessment Area
Falco hypoleucos (Grey Falcon) records

N

0 25 50 75
Kilometres
GCS GDA 1994

BHP

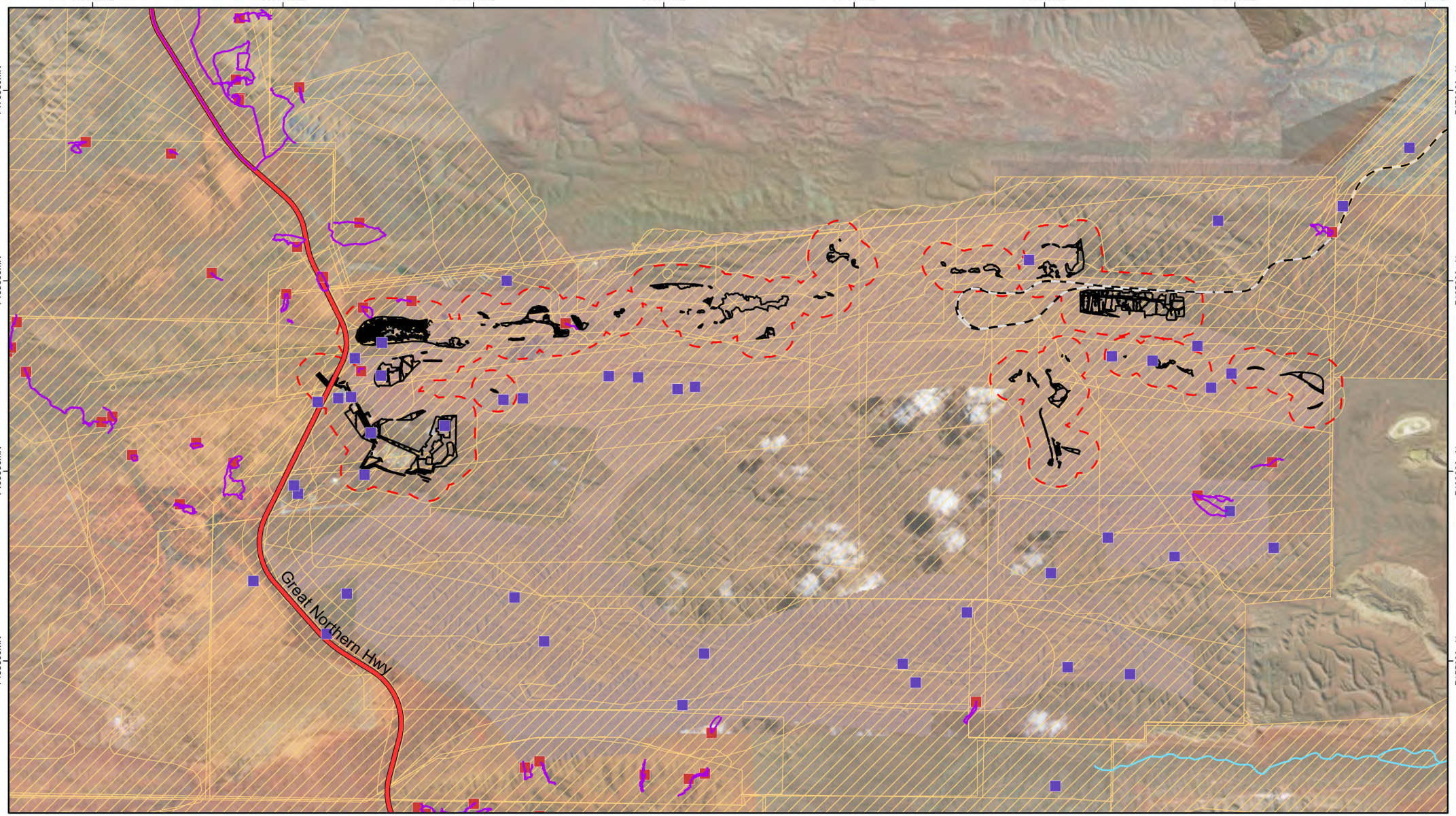
PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREY FALCON REGIONAL RECORDS AND DISTRIBUTION

WAIO PLANNING, TECHNICAL & ENVIRONMENT

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A4: | 1:3,500,000 | PREPARED: | GEOMATICS | FIGURE: | 5-31 |
| DATE: | 16/10/2026 | REQUESTOR: | ENV APPROVALS | NO: | A1469_020 RevC |




Activity Area
500m Buffer
Rail Centreline
Great Northern Highway
Watercourse
Survey Coverage

**Sample Method**
Bird Census
Targeted Search
Transect

N

0 1 2 3 4 5
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE
## GREY FALCON SURVEY COVERAGE AND METHODS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:135,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-32 |
| DATE: | 16/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-021 RevC |
| | | REVIEWED: | | | |

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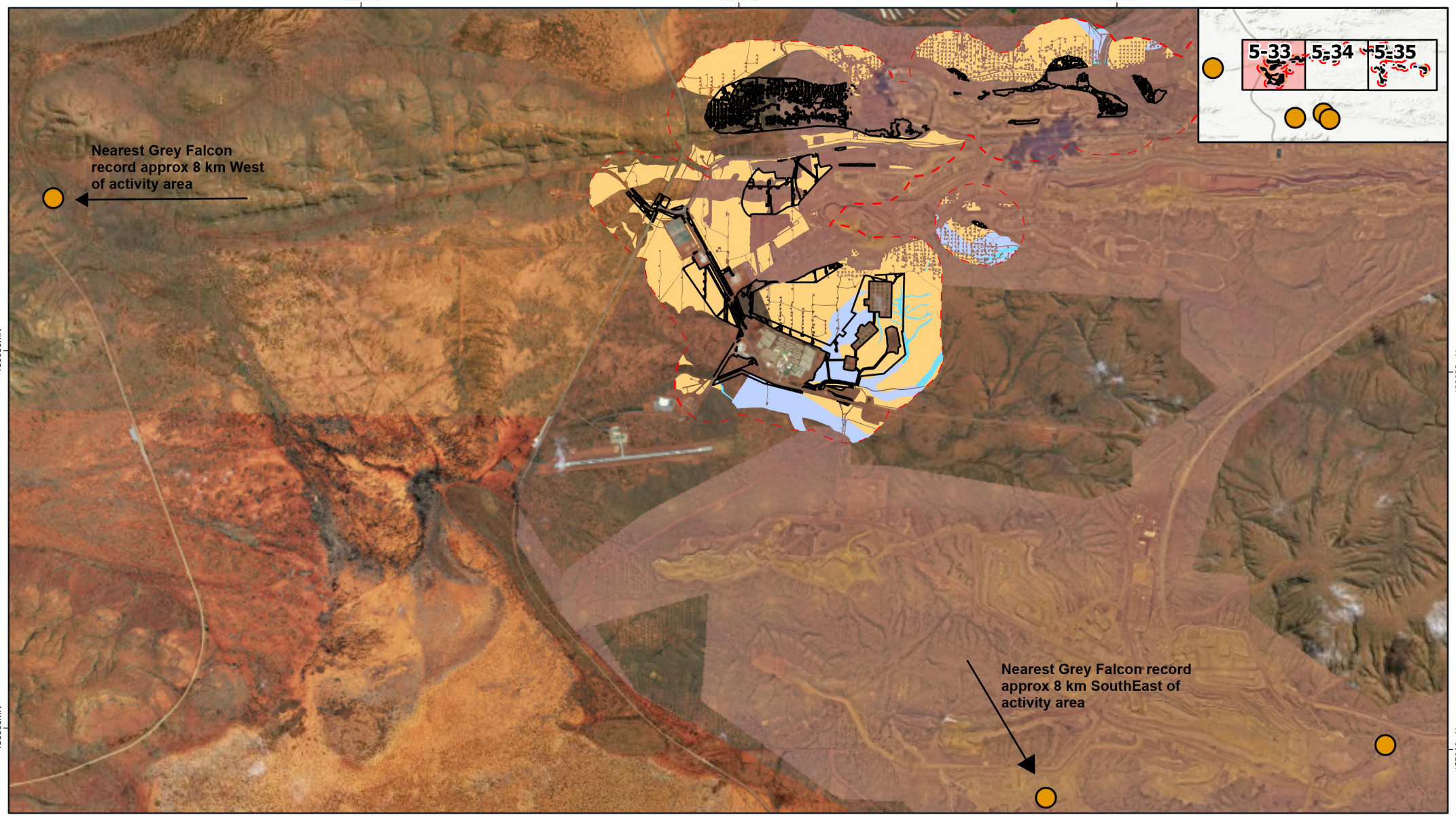


Activity Area
500m Buffer
Grey Falcon

**Supporting Habitat**
Drainage Area/ Floodplain
Minor Drainage Line
Stony Plain

N

0 1 2 3
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREY FALCON MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:68,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-33 |
| DATE: | 19/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-022 RevC |

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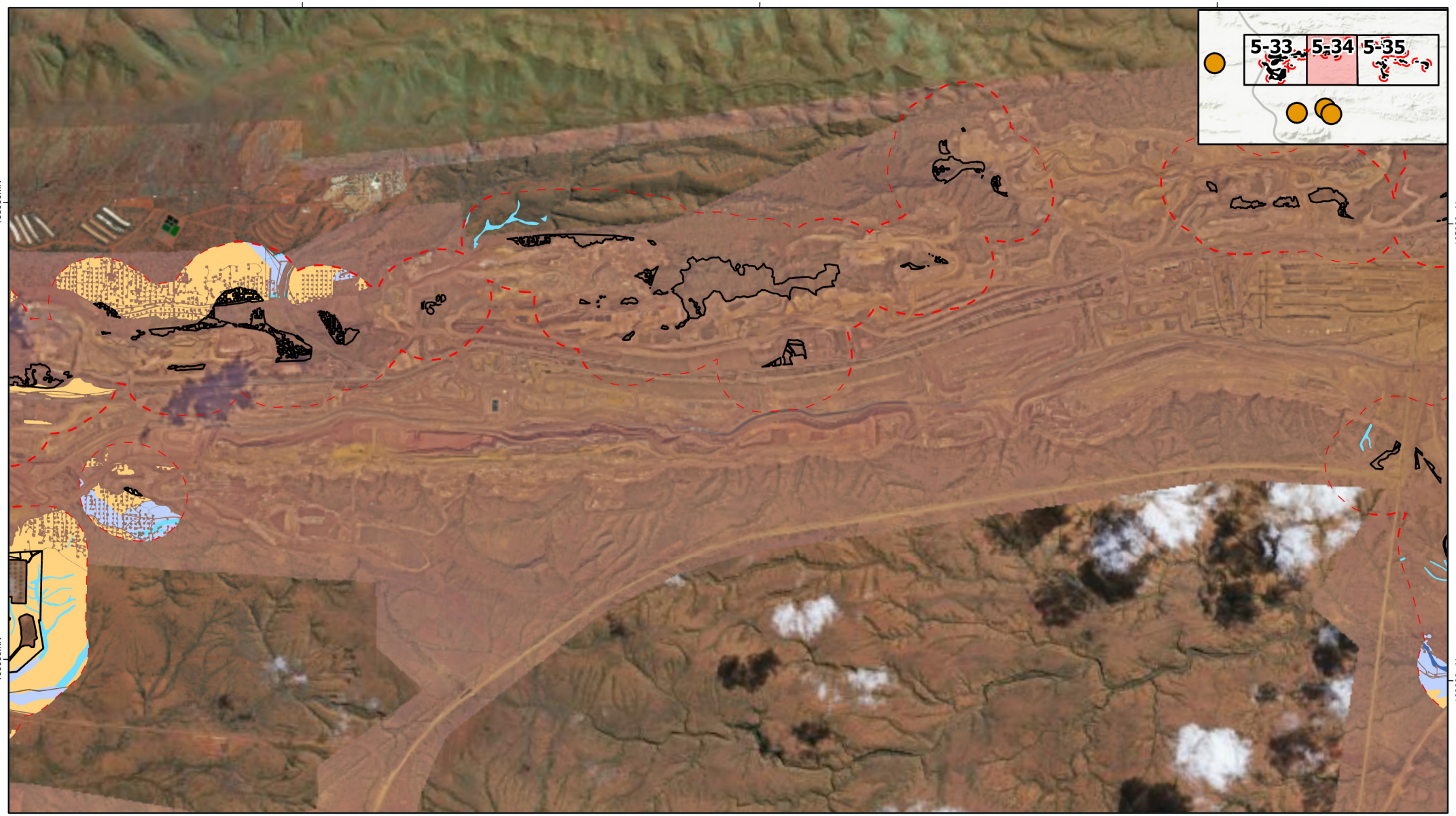


Activity Area
500m Buffer
Grey Falcon

**Supporting Habitat**
Minor Drainage Line
Stony Plain

N

0 1 2 3
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREY FALCON MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:56,190 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-34 |
| DATE: | 19/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-022 RevC |

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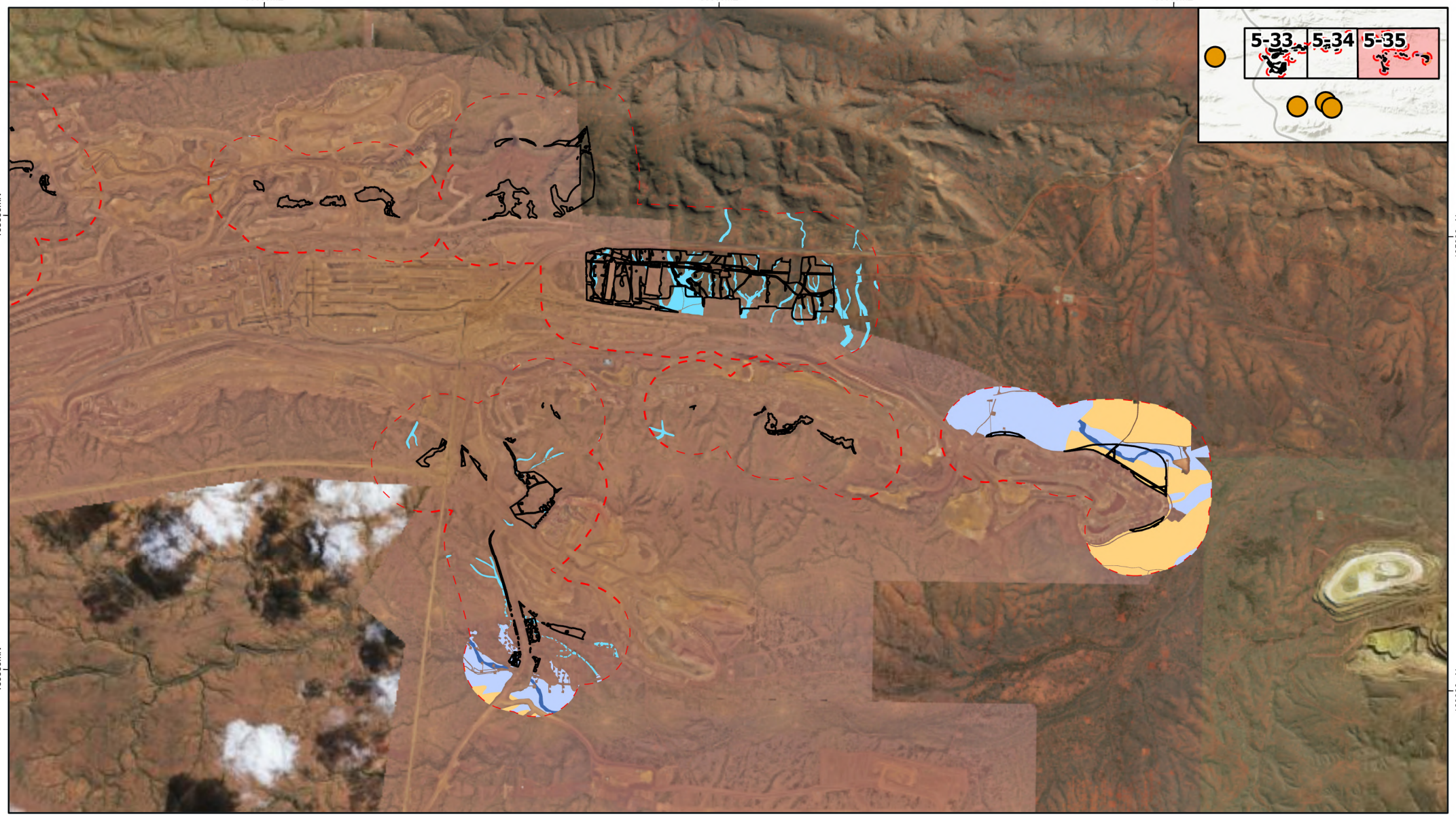


Activity Area
500m Buffer
Grey Falcon

**Critical Habitat**
Medium Drainage Line

**Supporting Habitat**
Drainage Area/ Floodplain
Minor Drainage Line
Stony Plain

N

0 1 2 3
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## GREY FALCON MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:56,527 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-35 |
| DATE: | 19/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-022 RevC |

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### 5.7.5 Impact assessment

The potential direct and indirect impacts to the Grey Falcon from the Activity are considered below.

#### Habitat loss

The Activity would result in the direct loss of up to 2.1 ha of critical habitat and 199.2 ha of supporting habitat as detailed in Table 5-13.

The nearest record of Grey Falcon is 7 km west of the Activity Area. Given the lack of records of Grey Falcon within the Activity Area or within the 500 m buffer, the proposed disturbance is not predicted to have residual impacts on the species.

#### Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of artificial light, noise or vibration beyond those already occurring within Mining Area C.

The Activity will be conducted in adherence to standard BHP procedures for dust, noise, vibration and light which will serve to minimise habitat degradation risk.

Given the lack of Grey Falcon records within the Activity Area or 500 m buffer, the lack of critical habitat or tall trees suitable for nesting, and the distance to the nearest records of the species, the potential risk of impact to Grey Falcon from habitat degradation or species disturbance is considered to be very low. Residual impacts to Grey Falcon from the Activity are considered unlikely.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (BHP 2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Introduced fauna species

Vegetation clearing can enhance the ability of feral predators, such as feral cats and/or the foxes, to move through the landscape, whilst construction activities can attract feral predators and result in increased predation on native fauna. Predation by feral cats and foxes are key threatening processes listed under the EPBC Act, with feral cats representing one of the greatest predatory threats to native fauna (DCCEEW 2026). Grey Falcon have been documented in the gut contents of cats and chicks may be vulnerable to cat predation at accessible nests (TSSC 2020).

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

The Activity may facilitate the spread of Cane Toads (*Rhinella marina*) through vehicle movements and the availability of artificial water sources. There is the potential that Grey Falcon could consume toadlets and/or toads, although this is not identified as a specific threat to the species (TSSC 2020). If Cane Toads are detected within the Activity Area, observations will be reported to the DBCA and individuals will be humanely euthanised in accordance with DBCA guidelines. Given the current distribution of Cane Toads and existing site controls, the risk of introduction is considered low.

Overall, the risk of introduced fauna to Grey Falcon as a result of the Activity is considered low and unlikely to result in residual impacts to the species.

#### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Grey Falcon habitat and contribute to population decline. Inappropriate fire regimes that can cause declines in biodiversity are also recognised as a key threatening process listed under the EPBC Act (DAWE 2022). Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area. This risk will be managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available on site to respond to fire incidents.

#### Habitat modification due to introduced weeds

There is potential for Grey Falcon habitat to be degraded by weeds. The application of standard weed and hygiene management procedures is expected to mitigate the spread of weeds or introduction of new weeds. Residual impacts to the species from weeds are considered unlikely.

#### Vehicle, machinery and infrastructure interactions

Interactions between fauna and vehicles, machinery or infrastructure have the potential to result in injury or mortality. However, given there are no records of the Grey Falcon in the Activity Area as well as the level of existing disturbances, injury or mortality from vehicle strike or interactions with vehicles, machinery or infrastructure are considered unlikely.

### 5.7.6 Summary

The Notifiable Action Triggers for the Grey Falcon are not applicable as no records exist within the Activity Area or within the 500 m buffer of the Activity Area boundary. The Activity is not predicted to result in residual impacts to the Grey Falcon through either direct or indirect impacts to Grey Falcon critical and supporting habitat.

## 5.8 Night Parrot

The following sections provide background information to demonstrate that Notifiable Action Triggers for Night Parrot are not met as no records exist within the Activity Area or within the 500 m buffer. Impacts to the Night Parrot are discussed to illustrate that the Activity is not predicted to result in residual impacts to the Night Parrot. As such, the PMO (as described below) for this species will be met.

Program Matter Objective: *“To support the long-term persistence and viability of the Night Parrot within the SAA.”*

### 5.8.1 General species information

The Night Parrot is listed as Endangered under the EPBC Act and Critically Endangered under the Western Australian *Biodiversity Conservation Act 2016*. The Night Parrot has long been considered one of Australia’s most mysterious birds. The species was presumed extinct until 2013, when, after more than a century since the last widely accepted sighting of a live individual, a population was discovered in south-west Queensland. Since then, the species has been recorded from isolated populations in south-west Queensland and northern inland Western Australia (TSSC 2016d).

Within the SAA, there are two known records of the Night Parrot: one from 1967 located in the far south-western portion of the SAA (DBCA) and another from 2005 from Minga Well in the northern portion of the SAA, approximately 2.5 km north of the Fortescue Marsh (Birdlife) (Biologic 2025a). Due to confidentiality constraints, the location of any additional records within the SAA boundary are not accessible via external databases.

The Night Parrot requires access to reliable food sources, shelter for breeding, protection from predators and the elements, and access to either free water or water-rich plant foods (Burbidge 2020). The spatial configuration requirements of Night Parrot habitat features have become increasingly evident through recent records of the species by Paruku Rangers, Birriliburu Rangers and others (Davis and Metcalfe 2008; Jackett *et al*. 2017; Murphy *et al.* 2017; Michelmore and Birch 2020 as cited in Burbidge 2020). The records indicate that suitable habitat typically comprises

productive feeding habitat (such as ephemeral grasslands, herb-fields or samphire, gilgais, run-on areas, flood plains, or salt lake systems) interspersed with old-growth, dense hummock-forming spinifex used for roosting/nesting. These spinifex patches are often fire-isolated by features such as ironstone, rocky bars, salt lakes or samphire flats, and are located within 50 km of free water (Burbidge 2020). The species also appears to depend on long-unburnt vegetation for roosting and nesting (TSSC 2016d).

The distribution of the Night Parrot is very poorly understood in Western Australia; however, the Activity Area occurs within the species' potential distribution Figure 5-36). The nearest record of the Night Parrot is approximately 70 km to the north/north-east adjacent to the Cloudbreak Mine (Figure 5-36; Biologic 2025b).

### 5.8.2 Studies and sampling effort

Five contemporary surveys have targeted the Night Parrot in the Activity Area and 500 m buffer (Table 4-1; Appendix 1), as well as numerous historical surveys. Survey coverage for Night Parrot is shown in Figure 5-37. Sampling methods for Night Parrot include habitat assessments, targeted searches to determine the presence of suitably sized spinifex patches likely to be used by night parrot and targeted passive acoustic surveys using Autonomous Recording Units (ARU), or microphones or Song Meter (SM4) acoustic recorders placed in the most prospective habitats (Biologic 2026a, 2025a, 2025b, 2025c and 2023a;Figure 5-37). The ARUs took recordings 1-hour pre-sunset to 1-hour post-dawn and covered the frequency range 100 kHz to 21,000 kHz, which brackets the night parrot call frequency range of 1,500 kHz to 3,500 kHz.

### 5.8.3 Local habitat

Habitat within the Activity Area was considered marginal for the species due to the absence of extensive long-unburnt spinifex hummock grasslands suitable for roosting and nesting, and the lack of chenopod shrublands that may provide important foraging habitat (Biologic 2026a, 2025a, b). Critical and supporting habitat for the Night Parrot is described below.

**Critical habitat**

There is no critical habitat in the Activity Area or the 500 m buffer for the Night Parrot.

**Supporting habitat**

Stony Plain habitat may provide marginal supporting habitat for foraging or dispersing individuals; however, areas of marginally suitable habitat were small in size with no connectivity to other areas of suitable habitat and are considered sub-optimal (Biologic 2026a, 2025a, b). There is 137.6 ha of potential, but marginal, supporting Night Parrot habitat within the Activity Area, and 835.2 ha within the 500 m buffer (Table 5-14; Figure 5-38).

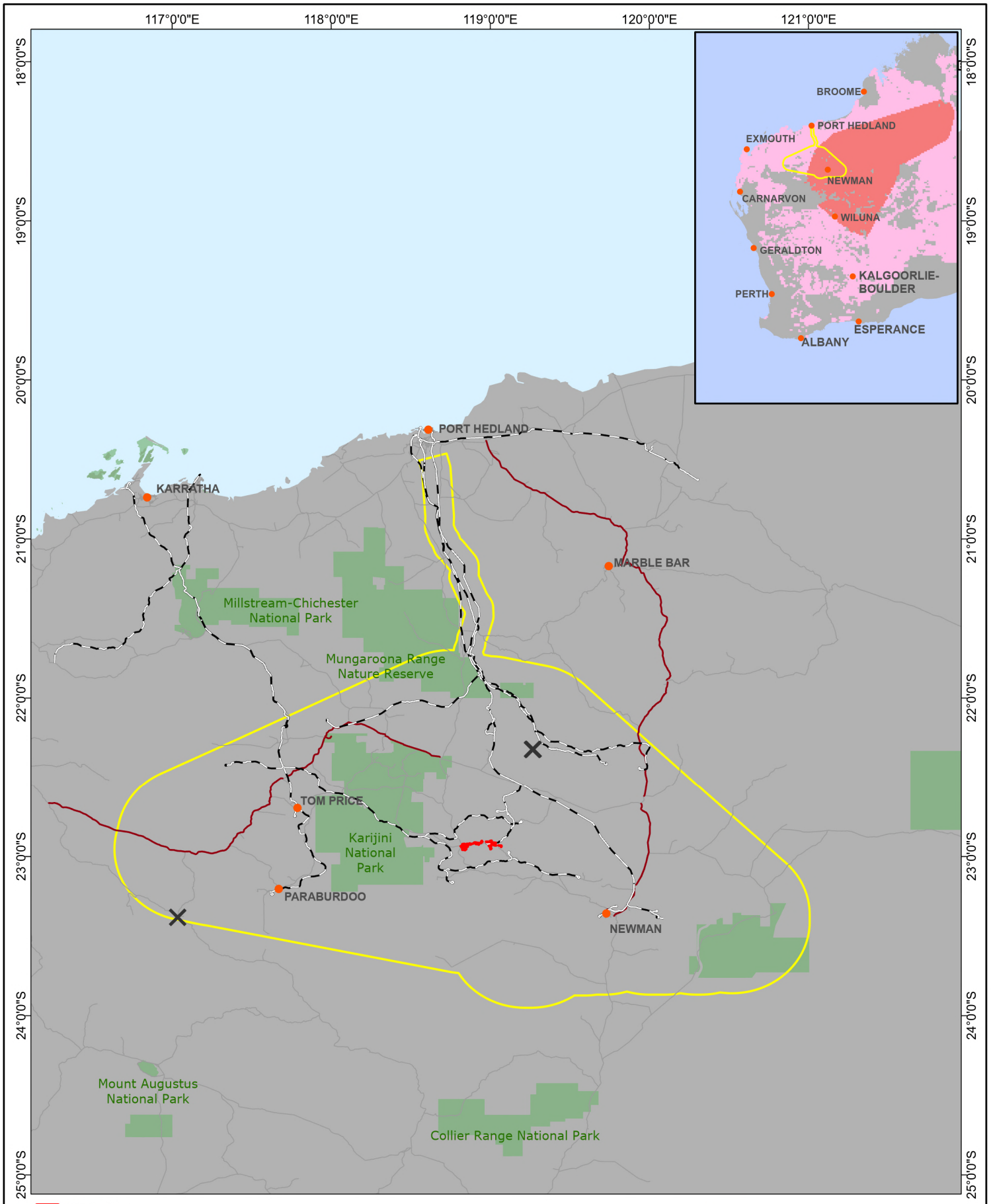
**Table 5-14: Night Parrot habitat**

| Habitat Type | Extent within Activity Area to be cleared (ha) | Extent within the 500 m Buffer (ha) |
|---|---|---|
| **Supporting habitat** | | |
| Stony Plain | 137.6 | 835.2 |
| **Total supporting habitat** | **137.6** | **835.2** |

### 5.8.4 Night Parrot records

There is no direct or indirect evidence of Night Parrot individuals or populations within the Activity Area or within a 500 m buffer. There is one record of the Night Parrot approximately 70 km north east of the Activity Area located on the floodplains south of the Fortescue Marsh (Figure 5-36). The species has also been recorded near Cloudbreak

Mine at Minga Well in 2005, with more recent records occurring over 350 km east north east (Biologic 2025a, 2026a). Given the lack of nearby records and lack of suitable habitat, it is considered unlikely that the Night Parrot occurs in the Activity Area or 500 m buffer.




Activity Area
Town
Major Roads
Rail Centreline
Strategic Assessment Area
Species or species habitat likely to occur
Species or species habitat may occur
Night Parrot Record

N

0 25 50 75
Kilometres
GCS GDA 1994

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

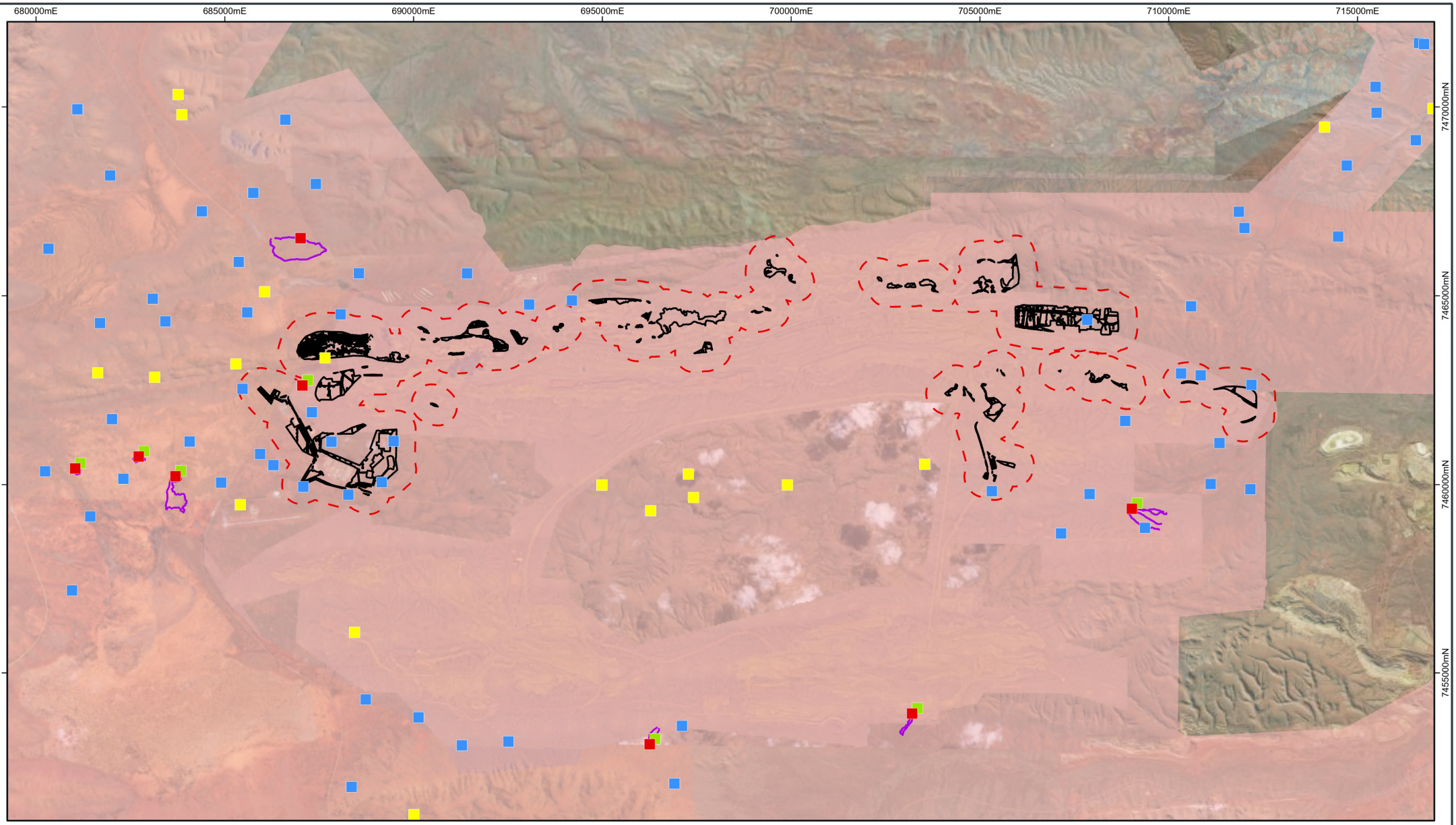
## NIGHT PARROT REGIONAL RECORDS AND DISTRIBUTION

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4: 1:3,500,000 PREPARED: GEOMATICS FIGURE: 5-36

DATE: 16/10/2026 REQUESTOR: ENV APPROVALS NO:

A1469_023 RevC




Activity Area
500m Buffer
Survey Coverage

**Sample Method**
- Acoustic Recorder
- Habitat Assessment
- Nocturnal Search
- Targeted Search
- Transect

N

0 1 2 3 4 5
KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NIGHT PARROT SURVEY COVERAGE AND METHODS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:135,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-37 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-024 RevD |
| | | REVIEWED: | | | |

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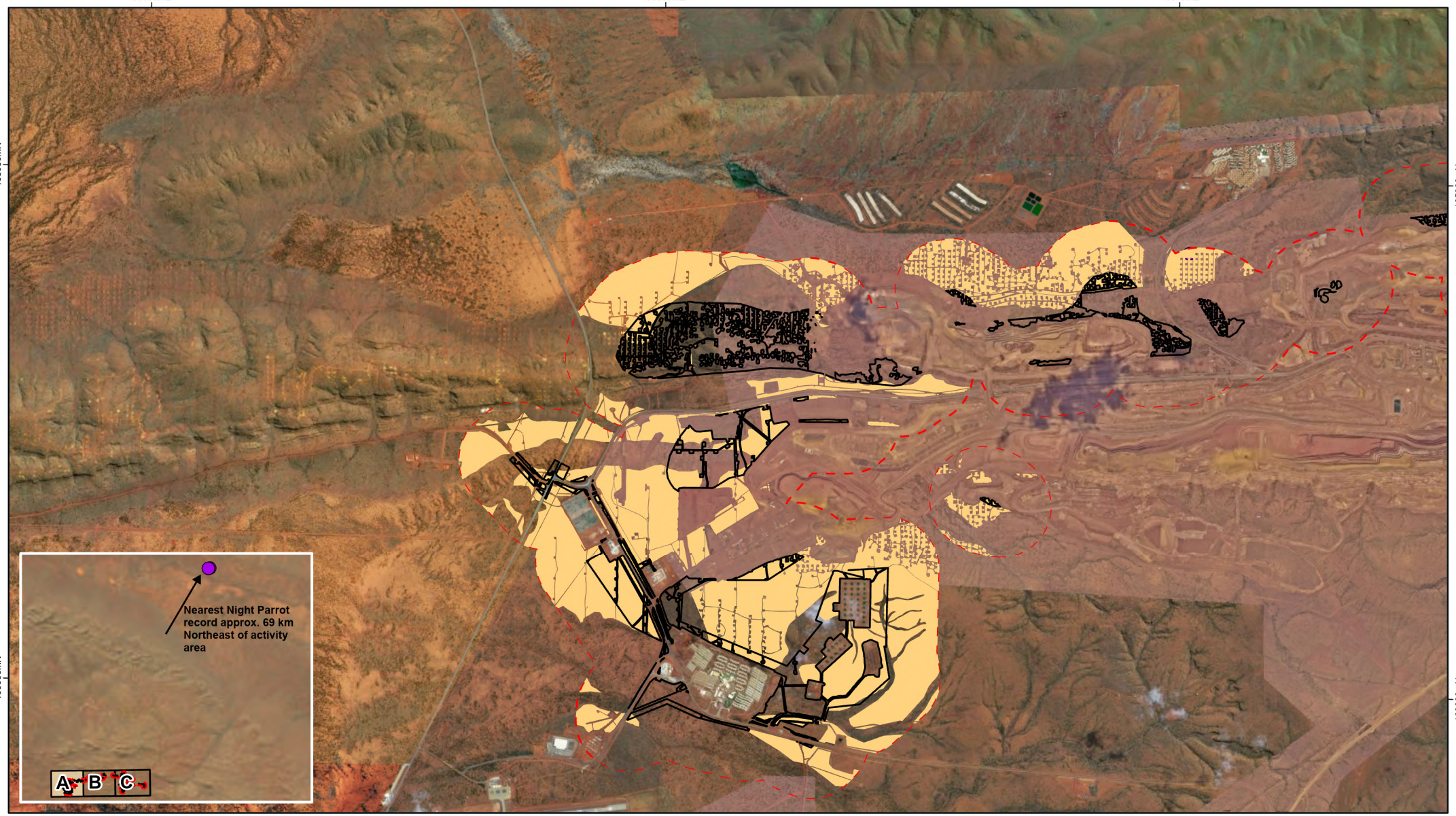


Activity Area

500m Buffer

Night Parrot

**Supporting (marginal) Habitat**

Stony Plain

N

0 1 2

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NIGHT PARROT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-38 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-027 RevD |

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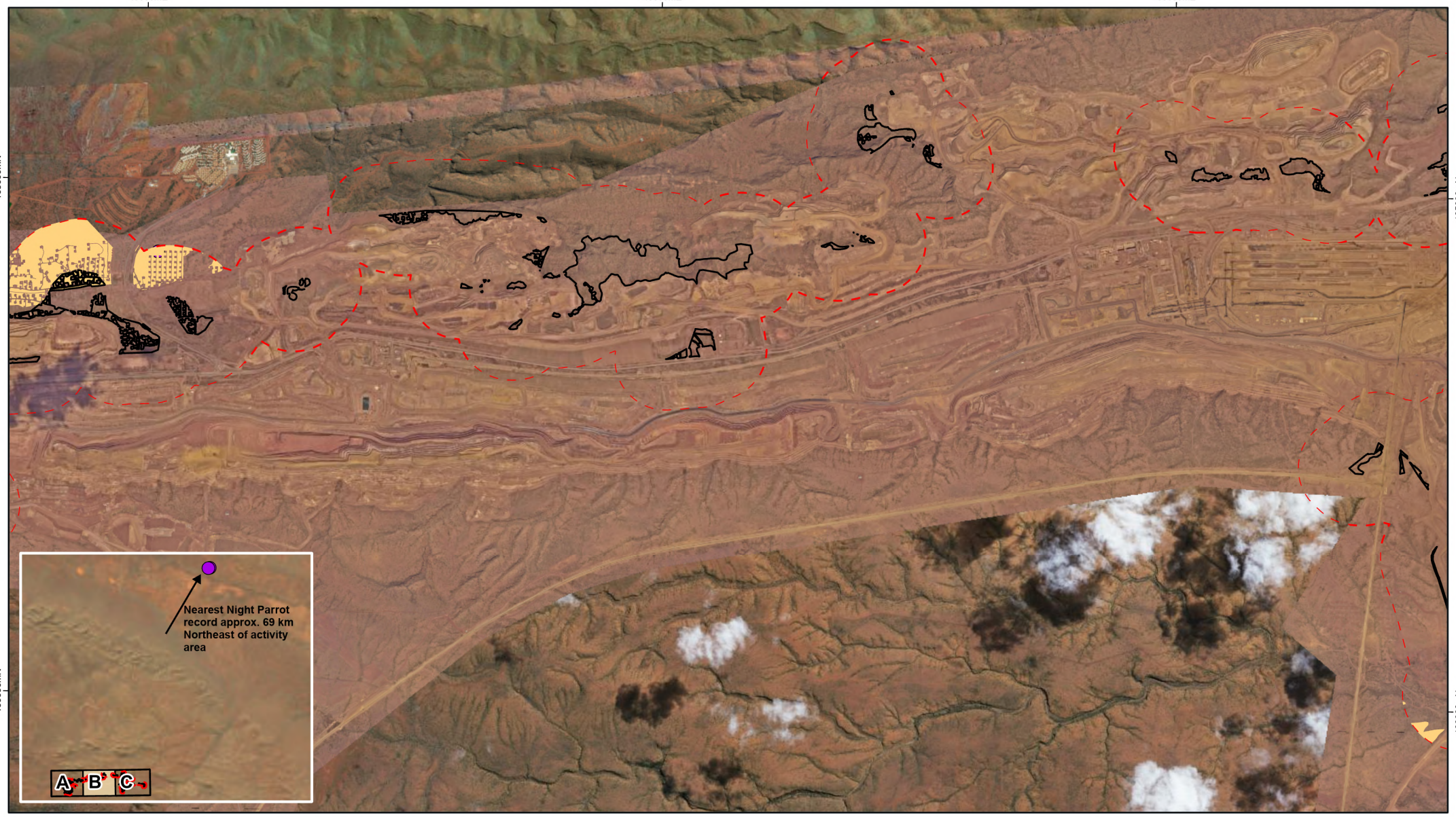


Activity Area

500m Buffer

Night Parrot

**Supporting (marginal) Habitat**

Stony Plain

N

0 1 2

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NIGHT PARROT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-39 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-027 RevD |

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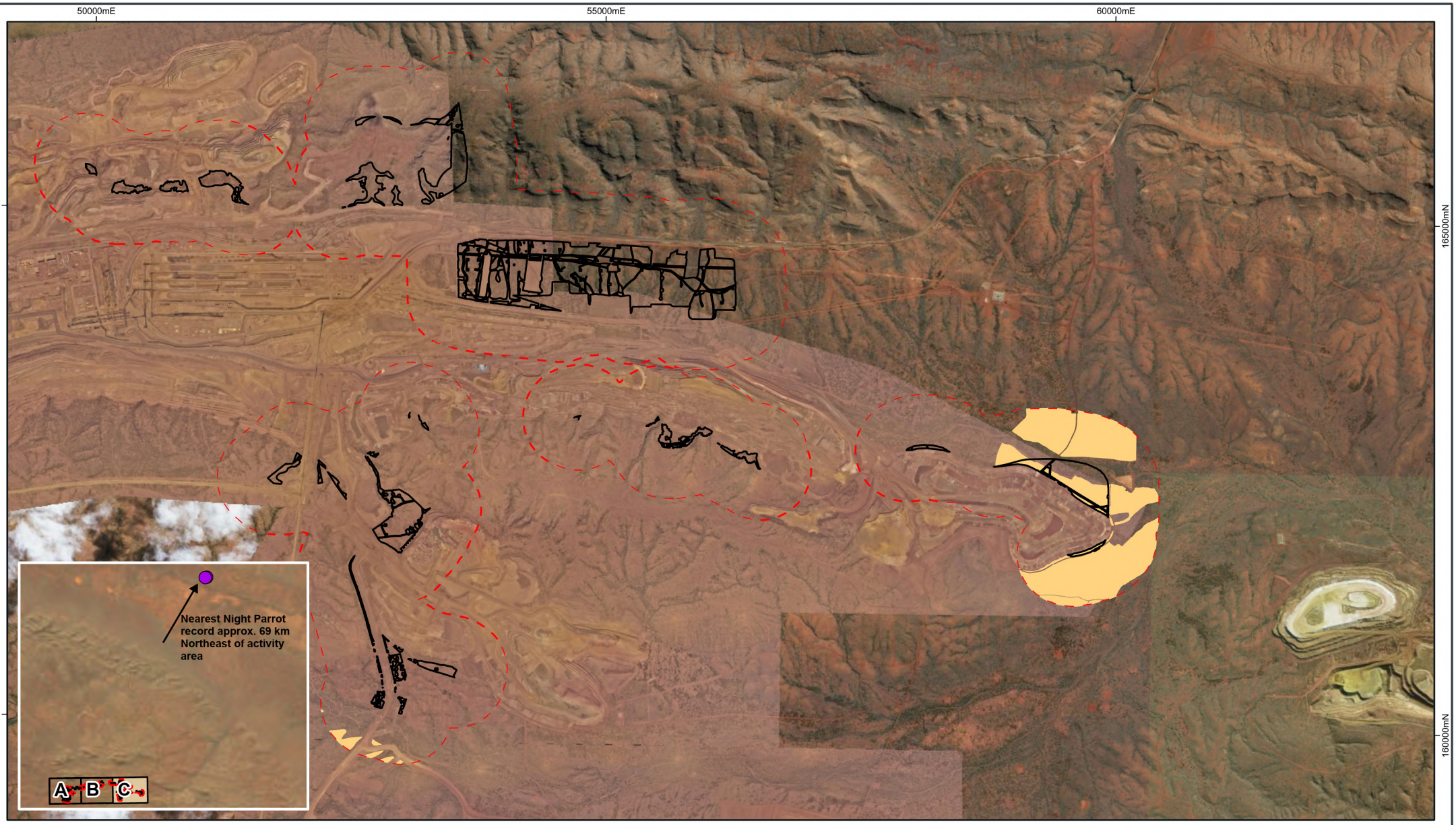


Activity Area

500m Buffer

Night Parrot

**Supporting (marginal) Habitat**

Stony Plain

N

0 1 2

KILOMETRES

GDA 1994 MGA ZONE 50

**BHP**

**PUBLIC**

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## NIGHT PARROT MAPPED HABITAT AND RECORDS

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
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| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 5-40 |
| DATE: | 30/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-027 RevD |

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### 5.8.5 Impact assessment

The potential direct and indirect impacts to the Night Parrot from the Activity (described in Section 2) are considered below.

#### Habitat Loss

The Activity will not result in the loss of critical habitat for the Night Parrot within the Activity Area and surrounding 500 m buffer. Up to 137.6 ha of marginal supporting Night Parrot habitat will be impacted by the Activity, comprising Stony Plain habitat.

Given the lack of records of Night Parrot within the Activity Area or within a 500 m buffer of the Activity Area, and given that the available habitat is marginal at best, the proposed disturbance is not predicted to have a residual impact on the species.

#### Habitat degradation or species disturbance due to increased dust, noise, vibration or light

Dust, noise, vibration and artificial light will be generated during clearing, blasting and ongoing 24-hour mining operations. The Activity represents an extension of existing mining activities within an established operational area and is unlikely to introduce new sources of disturbance or materially increase the spatial extent or intensity of dust, artificial light, noise or vibration beyond those already occurring within Mining Area C.

The Activity will be conducted in adherence to standard BHP procedures for dust, noise, vibration and light which will serve to minimise habitat degradation risk.

Given the lack of Night Parrot records and suitable habitats within the Activity Area or 500 m buffer, and the distance to the nearest records of the species, the potential risk of impact to Night Parrot from habitat degradation or species disturbance is considered to be very low. Residual impacts to Night Parrot from the Activity are considered unlikely.

#### Habitat modification due to altered hydrology

The Activity is unlikely to result in additional impacts to groundwater or surface water resources beyond those previously assessed and authorised under the *Mining Area C Validation Notice* (2018c) and the *CPHSW1 Validation Notice* (BHP 2026).

#### Introduced fauna species

Vegetation clearing can enhance the ability of feral predators, such as feral cats and/or the foxes, to move through the landscape, whilst construction activities can attract feral predators and result in increased predation on native fauna. Predation by feral cats and foxes are key threatening processes listed under the EPBC Act, with feral cats representing one of the greatest predatory threats to native fauna (DCCEEW 2024). Predation by feral cats is also among the most significant threats to the Night Parrot (DCCEEW 2025).

The Activity Area will benefit from the broadscale feral cat control programme proposed by BHP under the *Mining Area C-South Flank Offset Management Plan* (BHP 2026). This programme proposes aerial baiting and includes four felixers within the MACSF mining area to reduce feral cat abundance and associated predation pressure on native fauna.

Cane Toads are not a known threat to Night Parrot given that the species is a herbivore. Other potential impacts from introduced species include habitat degradation from feral herbivores; however, the Activity is unlikely to result in an increase of feral herbivores and any associated impacts to Night Parrot are therefore considered unlikely.

Overall, the risk of introduced fauna to Night Parrot as a result of the Activity is considered low and unlikely to result in residual impacts to the species.

#### Fire regimes that cause decline in biodiversity

Altered fire regimes have the potential to degrade Night Parrot habitat and contribute to population decline. Inappropriate fire regimes that can cause declines in biodiversity are also recognised as a key threatening process listed under the EPBC Act (DAWE 2022). Hot-work activities, vegetation clearing and increased vehicle movements may elevate the risk of fire within the Activity Area. This risk will be managed through existing site procedures and controls, including permit systems for hot work, workforce training, fire prevention measures and emergency response procedures. Personnel are trained in first response actions, including the use of fire extinguishers and fixed hose reels, while Emergency Services Officers are available on site to respond to fire incidents.

### Habitat modification due to introduced weeds

There is potential for Night Parrot habitat to be degraded by weeds. The application of standard weed and hygiene management procedures is expected to mitigate the spread of weeds or introduction of new weeds. Residual impacts to the species from weeds are considered unlikely.

### Vehicle, machinery and infrastructure interactions

Interactions between fauna and vehicles, machinery or infrastructure have the potential to result in injury or mortality. However, given there are no records of the Night Parrot in the Activity Area or wider region, as well as the level of existing disturbances, injury or mortality from vehicle strike or interactions with vehicles, machinery or infrastructure are considered unlikely.

## 5.8.6 Summary

The Notifiable Action Triggers for the Night Parrot are not applicable as no records exist within the Activity Area or within the 500 m buffer of the Activity Area boundary. The Activity is not predicted to result in residual impacts to the Night Parrot through either direct or indirect impacts to Night Parrot supporting habitat.

# 6 Compliance tracking and annual reporting

BHP will monitor compliance with this Validation Notice at an Activity scale to ensure that the Program Matter Objectives and Outcomes are being achieved. An Annual Environmental Report will be prepared to address all environmental obligations for each Notifiable Action under the SAA.

As a minimum, the following aspects relevant to this Validation Notice will be included in the Annual Environmental Report:

- status of implementation of the Notifiable Action (planned start date, action commenced and planned completion date; and action completed)
- offsets implemented for the Notifiable Action
- where applicable, accumulated disturbance against each PMO
- disturbance to critical and supporting fauna habitat for each of the Program Matter species that meet the Notifiable Actions Trigger criteria, from the date the Validation Notice becomes effective. Disturbance information will be reported in ha (to two decimal places) for the past financial year reporting period and provide a cumulative total disturbance for the Activity. Figures will be included to support disturbance data.
- monitoring, management and corrective actions implemented during the reporting period to avoid, mitigate and offset impacts to Program Matters
- attainment of PMOs and Outcomes
- summary of any exceedances of the PMO relevant to each Notifiable Action, including any corrective actions taken
- deviations from the Program or from information and management commitments contained in a Validation Notice for the Notifiable Action.

# 7 Offset activity

## 7.1 Residual impacts

Following implementation of the mitigation hierarchy, BHP has determined that residual impacts requiring offset are associated with the loss of the following Program Matter habitat values:

- Ghost Bat (refer to Section 5.2.5)
    - loss of up to 430.4 ha of critical habitat
    - loss of up to 156.8 ha of supporting habitat.
- Pilbara Olive Python (refer to Section 5.3.5)
    - loss of up to 45 ha of critical habitat
    - loss of up to 24.4 ha of supporting habitat.

Residual impacts to Program Matters requiring offset are summarised in Table 7-1 and habitat types to be offset are illustrated in Figure 7-1, Figure 7-2, and Figure 7-3.

## 7.2 Offset requirements

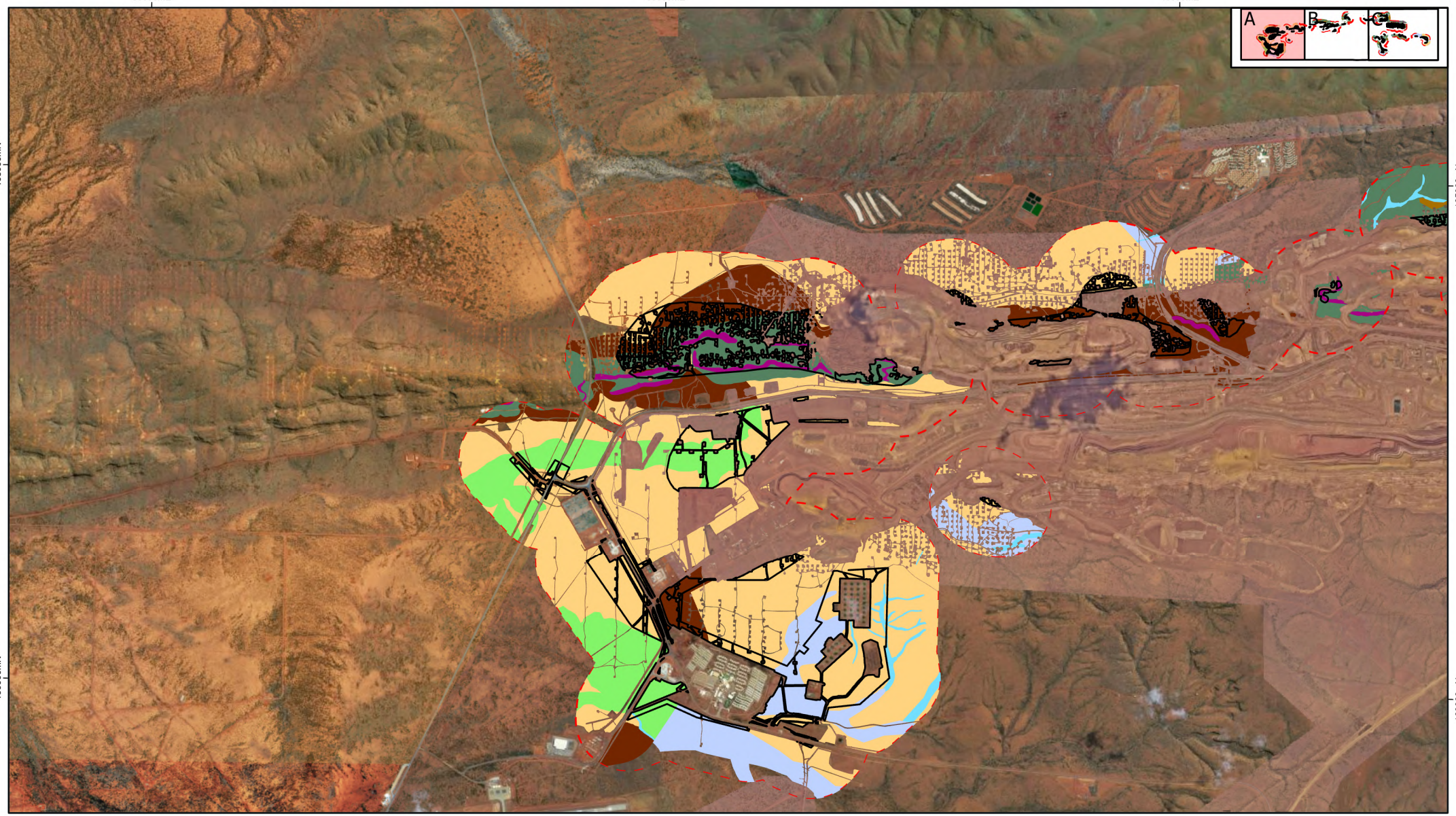
BHP has developed the following objectives for each of the relevant Program Matters based on *the Standards for Accreditation of Environmental Approvals under the Environment Protection and Biodiversity Conservation Act 1999* and in consultation with the DCCEEW (Section 3.1.1 of the Program):

- ‘To support the long-term persistence and viability of the Ghost Bat within the strategic assessment area’
- ‘To support the long-term persistence and viability of the Pilbara Olive Python within the strategic assessment area’.

Offsets applied to residual impacts to the Program Matter values identified in Table 7-1, are required to achieve these Program Matter Objectives.

**Table 7-1: Residual impacts to Program Matters requiring offset**

| Residual Impact | Habitat types and extent to be offset (ha) | Total area to be offset (ha) | Habitat Rating | Current Offset Rate ($ per ha) excluding GST (rate to be adjusted annually with CPI) | Total minimum estimated financial offset ($) excluding GST |
|---|---|---|---|---|---|
| **Ghost Bat** | | | | | |
| Clearing of Critical Habitat | Gorge/Gully (21.8)<br>Breakaway/Cliff (23.2)<br>Medium Drainage Line (2.1)<br>Mulga Woodland (36.4)<br>Drainage Area/Floodplain (39.3)<br>Stony Plain (137.6)<br>Minor Drainage Line (22.3)<br>Undulating Low Hills (147.7) | 430.4 | Critical | $3,306 | $1,422,902.40 |
| Clearing of Supporting Habitat | Hillcrest/Hillslope | 156.8 | Supporting | $1,653 | $259,190.40 |
| **Pilbara Olive Python** | | | | | |
| Clearing of Critical Habitat | Gorge/Gully (21.8)<br>Breakaway/Cliff (23.2) | 45.0 | Critical | $3,306 | $148,770.00 |
| Clearing of Supporting Habitat | Minor Drainage Line (22.3)<br>Medium Drainage Line (2.1) | 24.4 | Supporting | $1,653 | $40,333.20 |
| **Total Amount to be offset** | | | | | **$1,871,196.00** |
| **Initial 10% advance payment** | | | | | **$187,119.60** |




Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Minor Drainage Line
Mulga Woodland
Stony Plain
Undulating Low Hills

N

0 1 2
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

PUBLIC

# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## FAUNA HABITATS TO BE OFFSET

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
|---|---|---|---|---|---|
| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 7-1 |
| DATE: | 16/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-028 RevA |

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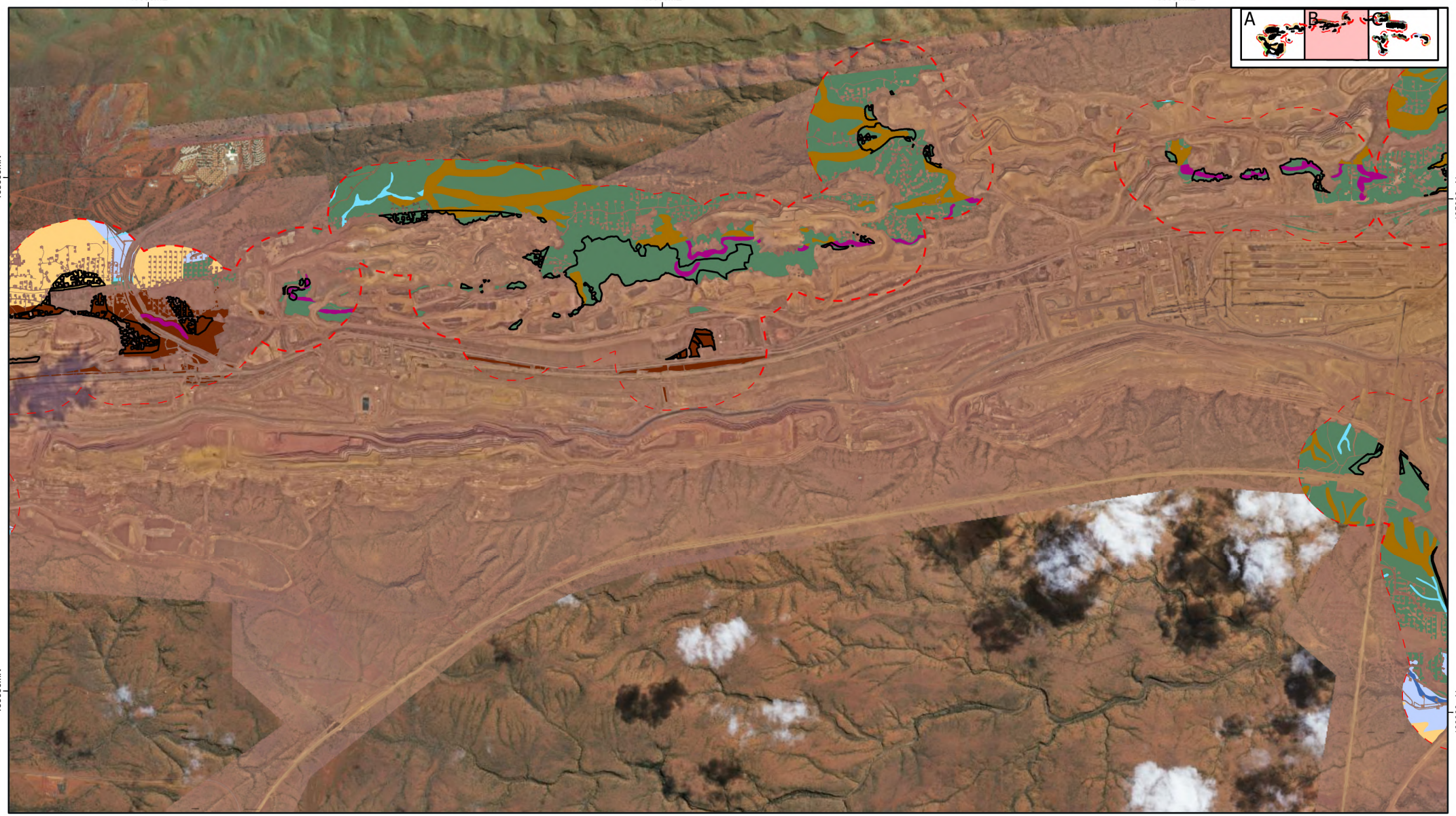


Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Medium Drainage Line
Minor Drainage Line
Stony Plain
Undulating Low Hills

N

0 1 2
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## FAUNA HABITATS TO BE OFFSET

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

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| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 7-2 |
| DATE: | 16/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-028 RevA |

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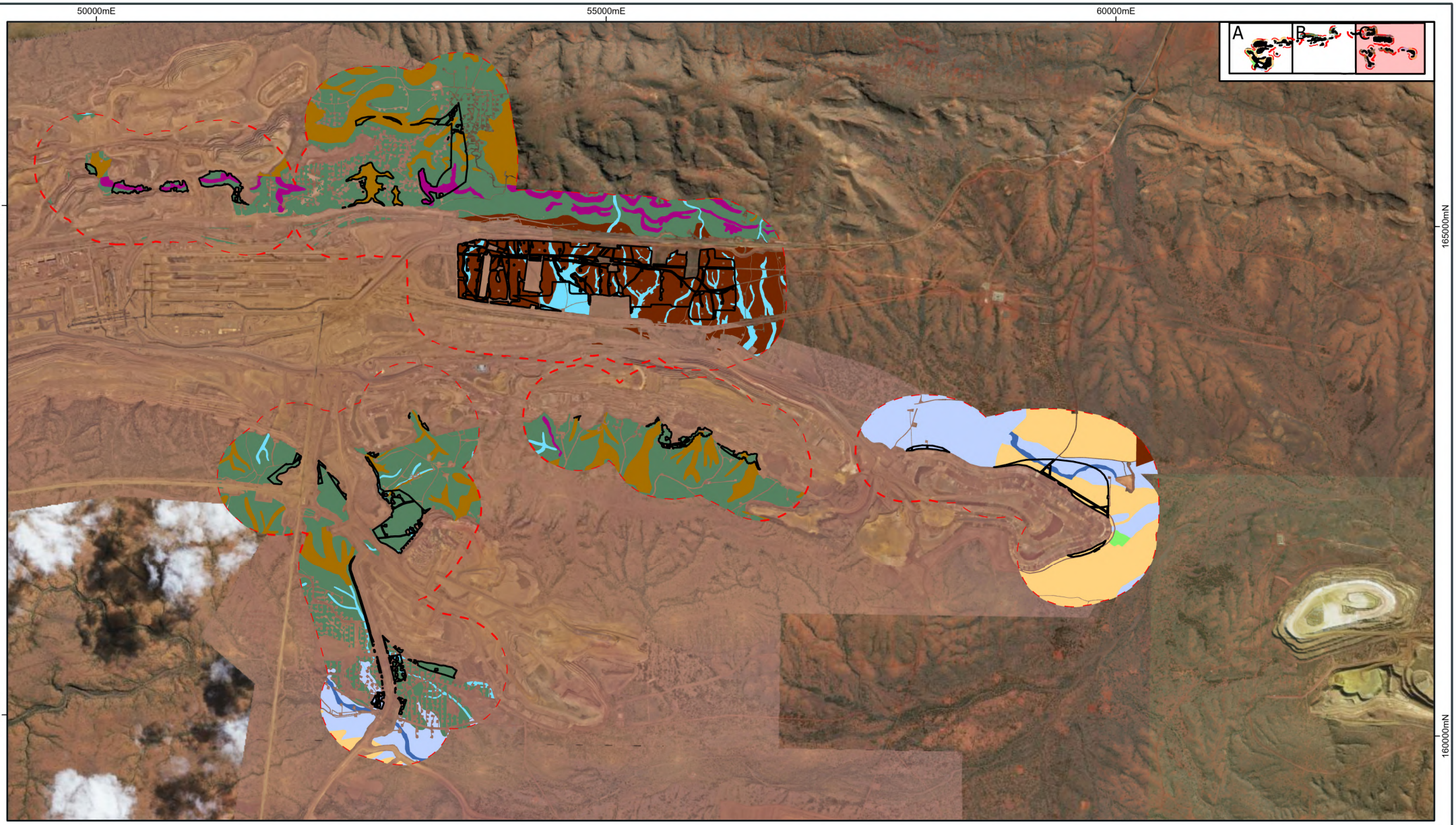


Activity Area
500m Buffer

**Habitat Type**

Breakaway/ Cliff
Drainage Area/ Floodplain
Gorge/ Gully
Hillcrest/ Hillslope
Medium Drainage Line
Minor Drainage Line
Mulga Woodland
Stony Plain
Undulating Low Hills

N

0 1 2
KILOMETRES
GDA 1994 MGA ZONE 50

BHP

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# NORTHERN FLANK AND PACKSADDLE VALIDATION NOTICE

## FAUNA HABITATS TO BE OFFSET

**WAIO PLANNING, TECHNICAL AND ENVIRONMENT**

| | | | | | |
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| SCALE @ A3: | 1:50,000 | REQUESTOR: | ENVIRONMENT | FIGURE: | 7-3 |
| DATE: | 16/10/2026 | PREPARED: | GEOMATICS | NO: | A1469-028 RevA |

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## 7.3 Proposed offset contributions

Typical offset methods available in the Pilbara that BHP may use include, financial, land management and research offsets. DCCEEW has agreed that financial contributions to the PEOF are an appropriate mechanism to address clearing of critical and supporting habitat. The loss of critical and supporting habitat (Table 7-1) is therefore proposed to be offset by a financial contribution to the PEOF (habitat types to be offset are shown in Figure 7-1, Figure 7-2, and Figure 7-3).

The financial contribution will comprise of the following components:

- **Advance payment of 10%** of the estimated total offset contribution to be paid into the PEOF within one month of the Validation Notice becoming effective. This is to ensure timely commencement of offset obligations.
- **Biennial (every two years) payment** for each hectare of clearing to Program Matter values described in Table 7-1.

BHP is proceeding on the basis that offsets will be acquitted via payment to the PEOF.

Financial contributions to the PEOF will support on-ground conservation projects in the Pilbara, benefitting relevant Program Matters. These contributions will achieve the Program Matter Objectives and Outcomes through investment in one or more of the following project types:

- Landscape scale programs targeting key threats such as invasive weeds, feral animals, and inappropriate fire regimes.
- Priority area programs build on the landscape-scale outcomes to further improve and protect vegetation and species habitat in identified priority areas.
- Site specific projects aimed at protecting and improving specific environmental values such as Priority Ecological Communities or a particular habitat with unique attributes.

A summary of any financial contribution to the PEOF for Notifiable Actions, will be included in the Annual Environmental Report.

## 7.4 Offset processes

### 7.4.1 Baseline datasets

As part of the assessment process, fauna habitat survey data for each relevant Program Matter is collected. This includes the identification and mapping of critical and supporting habitats within the Activity Area for each of the Program Matters.

The following baseline spatial datasets will be provided to the PEOF to assist in determining the offset value to be applied:

- the Activity Area boundary,
- existing disturbance areas (as of FY 2027),
- fauna habitat mapping and relevant Program Matter records within the Activity Area or nominated buffer, and
- baseline aerial photography (as of FY 2027).

The baseline spatial datasets will be provided with the EPBC Act Impact Reconciliation Report for the first reporting period.

### 7.4.2 Offset methodology

The methodology used to calculate direct impacts to the Program Matter values that require offsets via the PEOF, includes the following steps:

1) **Land disturbance data is captured**

   BHP captures and prepares a land disturbance dataset to quantify the impacts within the reporting period, through:

   - Financial Year-based aerial imagery capture of the Validation Notice Activity Area.
   - Digitisation of land disturbance using the aerial imagery closest to the beginning and end of each financial year.
   - Preliminary attribution and categorisation of land disturbance data in accordance with the *Instructions for preparing Impact Reconciliation Procedures and Impact Reconciliation Reports* (EPA 2021) and associated templates, the APOP and any previous feedback from the PEOF.
   - Further digitalisation, consolidation and analysis of the land disturbance data at a 1:1,000 scale, meaning that 1 mm on the computer screen is equivalent to 1 m on the ground[2]. This ensures consistency with the precision of all BHP datasets.
   - Preparation of the land disturbance dataset for impact reconciliation and validation.

2) **Data reconciliation and validation**

   The land clearing dataset is further reconciled and validated to ensure that all land disturbance activities for the reporting period have been streamlined, categorised and attributed for further processing.

3) **Processing of datasets**

   BHP uses an automated methodology to assess the land clearing dataset against the baseline dataset. This process calculates:

   - the hectares of land disturbance for each area of the Program Matter value requiring offsets, and
   - areas subject to offset exclusions.

   The automated methodology ensures the process of deriving the final product is consistent and repeatable, across other approvals and reporting periods.

4) **Production of Impact Reconciliation Report final dataset**

   An EPBC Act Impact Reconciliation Report spatial dataset is produced for the reporting period. This dataset is used for calculating and documenting the number of hectares for each Financial Year, within the reporting period, and deriving the cumulative totals. The final EPBC Act Impact Reconciliation Report dataset will be provided with the EPBC Act IRR document, for review and assessment by PEOF.

### 7.4.3 Offset rates

The relevant financial offset rates, as determined by the DCCEEW, apply per ha of Program Matter habitat loss:

- Critical habitat or critical foraging habitat: A minimum of $3,306 per ha
- Supporting habitat: A minimum of $1,653 per ha

2 BHP captures baseline land disturbance at 1:1,000 (i.e. +/- 0.5m on the ground) hence any polygon slivers or gaps in the dataset under one square metre are ignored and are considered acceptable in the context of analysing datasets at vastly different scales.

## 7.5 Proposed schedule

Key anticipated steps and the schedule for the provision of the biennial EPBC Act Impact Reconciliation Reports, to enable PEOF to determine the financial contributions payable are outlined in Table 7-2 and Table 7-3.

**Table 7-2: Reporting Timeframes**

| Reporting Period | Action | Timing |
|---|---|---|
| Biennial (Two-Yearly) | EPBC Act Impact Reconciliation Reporting and Financial Contributions | First period commences on day Validation Notice is effective and ends on the second 30 June following (30 June 2028).<br>Successive reporting 1 July to second 30 June following, unless otherwise agreed. |

**Table 7-3: Offset contributions schedule**

| Validation Process Stage | Action | Timing |
|---|---|---|
| Consultation on PEOF contributions | Provision of the Validation Notice, inclusion of Offset Activity (Section 7) with proposed contribution process. | During 28-day public comment period |
| Authorisation | Validation Notice becomes effective | 20 business days after publication of Final Validation Notice. |
| Implementation<br>Advanced Payment | Advanced Payment (10% of the estimated total contribution), in accordance with the APOP | Within one month of Validation Notice becoming effective. Payment subject to receipt of timely invoice from PEOF. |
| | BHP to report Advanced Payment in the AER | By 1 October 2027 |
| Implementation Period 1*<br>(Financial Years 2027 and 2028) | Disturbance undertaken during period | Authorisation date to 30 June 2028 |
| | Aerial survey/ground truthing | 30 June 2026 and 30 June 2028 |
| | EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW | 31 October 2028 |
| | BHP to provide Offset Payment to PEOF | 20 business days of receipt of invoice |
| | BHP to report Offset Payment for Period 1 in next AER | By 1 September 2029 |
| Implementation Period 2<br>(Financial Years 2029 and 2030) | Disturbance undertaken during period | 1 July 2028 to 30 June 2030 |
| | Aerial survey/ground truthing | 30 June 2028 and 30 June 2030 |

| Validation Process Stage | Action | Timing |
|---|---|---|
| | EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW | 31 October 2030 |
| | BHP to provide Offset Payment to PEOF | 20 business days of receipt of invoice |
| | BHP to report Offset Payment for Period 2 in AER | By 30 September 2030 |
| Implementation Period 3<br>(Financial Years 2031 and 2032)<br>*and so forth until final offset contributions are completed* | Disturbance undertaken during period | 1 July 2030 to 30 June 2032 |
| | Aerial survey/ground truthing | 30 June 2030 and 30 June 2032 |
| | EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW | 31 October 2032 |
| | BHP to provide Offset Payment to PEOF | 20 business days of receipt of invoice |
| | BHP to report Offset Payment for Period 3 in AER | By 1 October 2033 |

*Period 1 is less than two years to align with a financial year reporting period.

## 7.6 Offsets reporting

### 7.6.1 Content of Impact Reconciliation Report

Each EPBC Act IRR will include:

- Identification of the relevant Validation Notice and applicable commitments.
- Summary of the Program Matter values covered by the EPBC Act IRR.
- Purpose of clearing undertaken within the reporting period.
- A table showing the current extent of clearing during the reporting period in ha, the offset rate ($/ha) for each Program Matter value (shown in Table 7-1) and an estimate of the total amount due.
- A table estimating the clearing expected in the next reporting period.
- A figure(s) illustrating the Clearing Extent for the reporting period, against the Program Matter fauna habitat baseline dataset.
- A spatial data package, as supporting information.

The IRR and accompanying spatial data package will be prepared in accordance with the '*Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports'* (EPA 2021) or equivalent guidance published by DWER and DCCEEW applicable at the time of preparing the IRR.

### 7.6.2 Implementation of PEOF projects

BHP will provide a progress summary of the offsets implemented and achievement of outcomes from the funding provided to the PEOF in the AER. Annual reports, evaluations or other progress reports provided by the PEOF and its delivery agents to BHP, will be retained for auditing purposes.

# 8 Commitments

Key commitments of the Validation Notice are summarised in the following sections. Implementation of each of the commitments will be reported in the SEA AER.

## 8.1 Monitoring commitments

For the proposed Activity Area, potential impacts to Program Matters have been assessed and are considered capable of being effectively managed through the application of the mitigation hierarchy, including targeted management measures (see Section 8.3) and the implementation of appropriate offsets (see Section 8.4) to address any residual impacts.

Ongoing monitoring of Program Matters is undertaken for MACSF including monitoring of Ghost Bat caves within the MACSF Activity Area as outlined in the Mining Area C Validation Notice (BHP 2018c) and the Fauna Management Plan (Ghost Bats) (BHP 2025b). Additional cave monitoring for CEPA-37 is proposed for this Activity as detailed in Table 8-1.

The Mining Area C Validation Notice (BHP 2018c) also commits to undertaking 5 yearly population monitoring of the Pilbara Olive Python to determine the presence of the species consistent with baseline data. This monitoring is detailed in Table 8-1.

**Table 8-1: Proposed monitoring commitments – Ghost Bat and Pilbara Olive Python**

| Commitment | Action | Frequency | Performance target | Contingency | Reporting |
|---|---|---|---|---|---|
| Undertaken monitoring of CEPA-37 (isolated Category 3 cave). | Routinely monitor Ghost Bat presence through scat collection, autonomous recording unit and/or camera. | Quarterly | Establish an understanding of Ghost Bat usage at CEPA-37.<br>Contribute to broader understanding of Ghost Bat populations within MACSF and monitoring undertaken as part of the Fauna Management Plan (BHP 2025b). | Review monitoring results in context of other Category 3 caves within MACSF. | Annual at AER. |
| Undertake vibration monitoring for caves within an MMZ: Category 3 Caves (CEPA-37, CMAC-39 and AC-20) and unclassified caves (CMAC-10, CMAC-22, CMAC-24 and CMAC-25; unless reclassified as Category 4 or 5 caves)). | Monitor vibration levels at the cave entrance during blasting.<br>Should unclassified caves be assessed and assigned a Category 4 classification or deemed to have lower habitat suitability, the requirement for vibration monitoring will be reviewed and may be discontinued. | When blasting is planned. | Vibrations levels are 15 mm/s or less at the cave entrance where no cave inspection is undertaken. | Should vibrations exceed the performance target corrective actions will be undertaken to reduce the risk of future exceedances. | Exceedances to be reported annually within the AER. |
| Pilbara Olive Python Monitoring | Undertake monitoring for presence of Pilbara Olive Python in the Activity Area | 5 yearly | Complete 5-yearly targeted monitoring program for Pilbara Olive Python in the Activity Area | If target not met, reschedule as soon as possible, taking into consideration safety requirements | Any new records will be reported to DBCA and will be recorded in BHP's internal GIS system within 60 days of finding |

## 8.2 Clearing commitments

The key clearing commitments which form part of this Validation Notice, inclusive of proposed clearing allowances, are presented in Table 8-2.

**Table 8-2: Proposed clearing commitments – Ghost Bat and Pilbara Olive Python**

| Clearing Commitment | Action | Monitoring And Frequency | Reporting |
|---|---|---|---|
| Clearing no more than 593 ha of native vegetation including no more than 587.2 ha of Ghost Bat habitat, and 69.4 ha of Pilbara Olive Python habitat. | Implement BHP's land disturbance permit system to ensure clearing does not exceed the identified limits | Annual review of land clearing undertaken | SEA AER |
| No clearing will occur outside the approved clearing areas | Implement BHP's land disturbance permit system to ensure clearing does not exceed the identified limits | Annual review of land clearing undertaken | SEA AER |

## 8.3 Management commitments

The key management commitments which form part of this Validation Notice are presented in Table 8-3.

**Table 8-3: Proposed management commitments – Ghost Bat and Pilbara Olive Python**

| Management Commitment | Action | Monitoring And Frequency | Reporting |
|---|---|---|---|
| Minimise the risk of injury or mortality to Ghost Bats from entanglement in barbed wire fences | No new barbed wire fencing installed, unless required by legislation.<br>Where new barbed wire fencing is required by legislation, bat reflectors or other mitigation device installed. | Inspect any areas which require barbed wire fencing after installation, to ensure that bat reflectors have been installed | SEA AER |
| Disturbance Management Zone | Implement a Disturbance Management Zone of 150m around CEPA-37 cave to minimise disturbance.<br>To be managed in BHP's internal ground disturbance permits. | During the life of the Activity | SEA AER |
| Mining Management Zone | Assess vibration impacts for caves within the MMZ, should vibration limits be predicted to exceed 15 mm/s a blast management plan to be prepared and inspection of roost prior to blasting to ensure no | Prior to blasting | SEA AER |

| Management Commitment | Action | Monitoring And Frequency | Reporting |
|---|---|---|---|
| | Ghost Bats are present prior to blasting.<br>Condition to be included in BHP's internal ground disturbance permits. | | |
| Minimise risk of vehicle related mortality of Program Matters (access roads). | Light vehicle speed limits restricted on unsealed access roads (60km/h), and speed limit signage installed, to minimise vehicle-strike risks to Program Matters. | Site inspections to verify speed limit signage.<br>Site vehicles and plant will have IVMS which will report any speed breach incidents in a specific area.<br>Reported light vehicle fauna strike incidents. | SEA AER |
| Implement weed management | Implement BHP WAIO Weed Management Procedure for the duration of the Activity. | For duration of the Activity | SEA AER |
| Targeted feral cat control program implemented to reduce predation impacts on Program Matters | Feral cat control program implemented in accordance with the WAIO Animal and Pest Management Plan.<br>Environmental induction provided to site personnel.<br>Report sightings of feral cats in the BHP Event Management System as an environment event. | Annual assessment of feral cat sightings and the feral animal control program implementation status.<br>Periodic review of feral cat management actions. | SEA AER |
| Implement fire management | Maintain existing site procedures for hot work, fire prevent measures and emergency response. | During operations phase. | SEA AER |
| Event Management System – reporting sightings and events of Program Matters and Cane Toads | All sightings and events involving Program Matters and Cane Toads (including vehicle strike) will be identified and captured in WAIOs Event Management System. Program Matter sightings will be recorded in BHP's internal GIS system as soon as practicable and within 60 days of finding. | For duration of the Activity | SEA AER |

| Management Commitment | Action | Monitoring And Frequency | Reporting |
|---|---|---|---|
| Environmental awareness | Site personnel will undertake inductions containing environmental awareness information. | For duration of the Activity | SEA AER |
| Implementation of the Fauna Management Plan (BHP 2025) | BHP will continue to implement the Fauna Management Plan that monitors local Ghost Bat populations. | For duration of the Activity | SEA AER |
| Clearing will be mostly undertaken during daylight hours to minimise impacts on nocturnal Program Matters. | Condition to be included in BHP's internal ground disturbance permits. | For duration of the Activity | SEA AER |
| Implement dust management | Excessive dust will be minimised as far as practical to minimise degradation of fauna habitats. | For duration of the Activity | SEA AER |
| Prohibition of domestic pets or animals | The keeping of domestic pets or animals on site will be prohibited. | For duration of the Activity | SEA AER |

## 8.4 Offset commitments

The key offset commitments which form part of this Validation Notice are presented in Table 8-4.

**Table 8-4: Proposed offset commitments – Ghost Bat and Pilbara Olive Python**

| Offset Commitment | Action | Monitoring And Frequency | Reporting |
|---|---|---|---|
| Payment of financial contribution to PEOF | Advanced payment of 10% off offset amount within one month of the Validation Notice becoming effective. Provided timely issue of invoices by PEOF. | One off payment within one month of Validation Notice becoming effective. | EPBC Act Impact Reconciliation Report<br>Provide DCCEEW with receipt of payment to PEOF |
| | Biennial submission of EPBC IRR and subsequent payment for clearing of relevant habitat for Notifiable Action Program Matters. | Disturbance captured during each Financial Year.<br>EPBC Act IRR provided biennially (every 2 years).<br>Financial contribution to PEOF for EPBC Act IRR reporting period, upon receipt of invoice. | |
| Provide PEOF funding progress summary | A progress summary of offsets implemented and achievement of outcomes from the funding provided to the PEOF will be provided in the AER | Annually | SEA AER |

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# Appendices

## Appendix 1: Contemporary MNES Fauna Survey Reports