BHP

BHP Pilbara Strategic Assessment

Ministers North Project

Final Validation Notice

5 June 2026

Foreword

Document Version

Rev	Description Of Amendment	Date Validation Notice Finalised	Date Validation Notice Effective From
Rev 0	Draft Validation Notice for Ministers North for public comment.	18 March 2026	-
Rev 1	Final Validation Notice following 28-day public comment period. DCCEEW comments addressed.	5 June 2026	3 July 2026

Glossary and Abbreviations

Term	Meaning
$/ha or $ per ha	Australian dollar amount per hectare
Activity	The Activity refers to the Ministers North Activity as described in Sections 1.4 and 2.2
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 disturb may occur.
AER	Annual Environmental Report
AMD	Acid and Metalliferous Drainage
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
BNTAC	Banjima Native Title Aboriginal Corporation
CPI	Consumer Price Index
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water (formerly DAWE)
DEED	Department of Energy and Economic Diversification (formerly DJTSI)
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 DEMIRS)
DoE	Department of the Environment

Term	Meaning
DWER	Department of Water and Environment Regulation
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986* (WA)
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 recover (N.B. variations of this definition may exist for the Program Matters - See Section 4.1.1)
Indicative Footprint	Represents the planned maximum extent of where the conceptual clearing may be located within the Activity Area. The exact location of the Indicative Footprint is subject to change pending detailed design and implementation; however, will remain within the Activity Area
IRR	Impact Reconciliation Report
km	Kilometre
LiDAR	Light Detection and Ranging
MAC/SF	BHP's Mining Area C – Southern Flank operations
m	Metre
mAHD	The abbreviation for elevation in metres with respect to the Australian Height Datum
MCP	Mine Closure Plan
MEZ	Mining Exclusion Zone
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

Term	Meaning
mRL	metres Relative Level
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
New Matters	Other matters protected by a controlling provision of Part 3 of the EPBC Act (other than listed threatened species) that may be identified in accordance with section 4.1.2 of the Program
NMD	Neutral metalliferous drainage
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
Notifiable Action Triggers	Criteria within the APOP that determine when a Validation Notice is required
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
OHP	Ore Handling Plant
OSA	Overburden Storage Area
PEOF	Pilbara Environmental Offset Fund
PMO	Program Matter Outcomes - measurable outcomes that BHP must meet to achieve the objectives developed for each Program Matter.
PMST	Protected Matters Search Tool
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

Term	Meaning
Program Matters	The listed threatened species Pilbara Leaf-nosed Bat (*Rhinonicteris aurantius*), 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
RoM	Run of Mine
SAA	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
SM4	Song Meter 4 (acoustic recording device)
SME	Small Mining Equipment
Study Area	The geographical extent of a survey's 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 endorsed program
WA	Western Australia

Contents

Tables

Figures

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 kilometres (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.

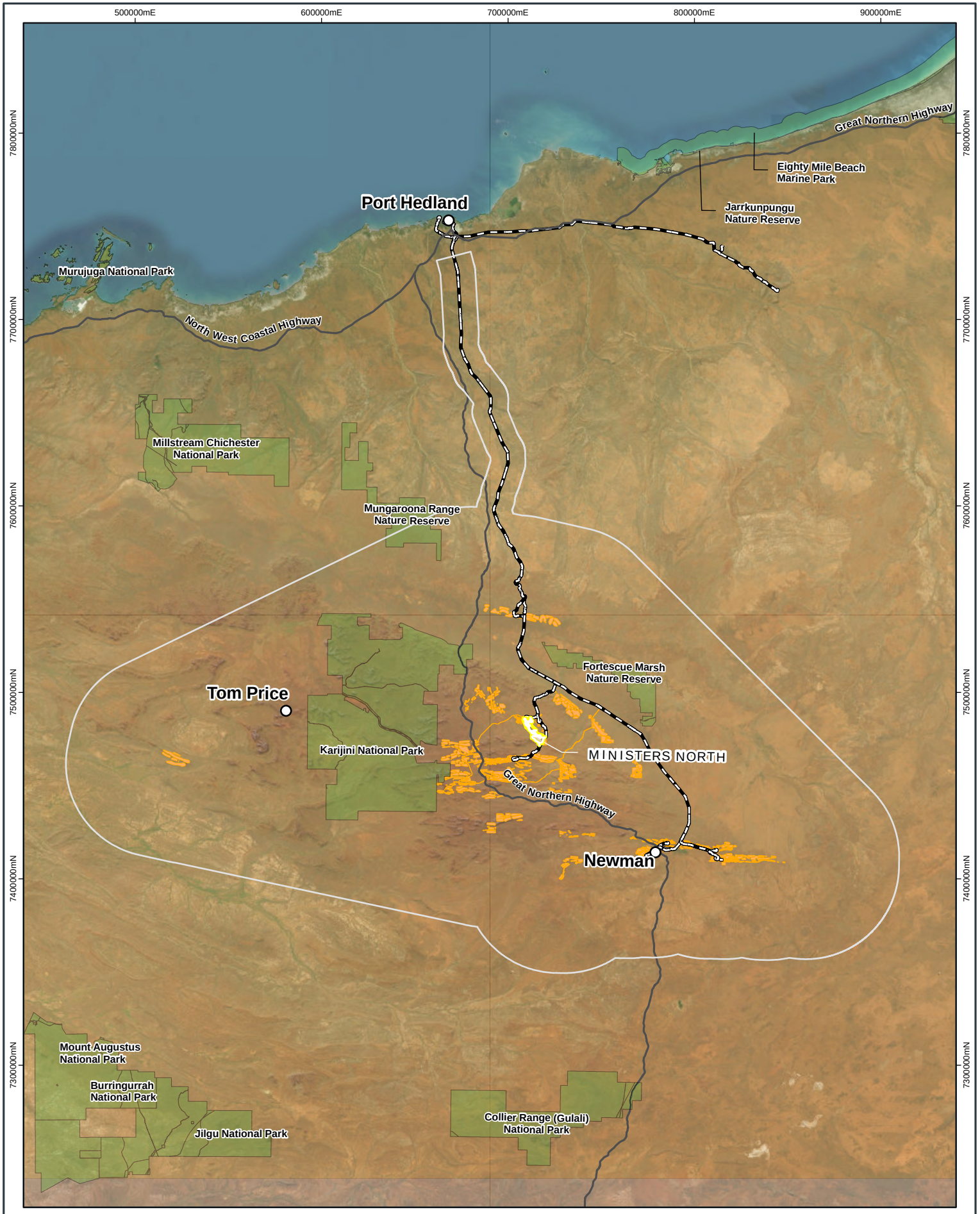
Ore from these operations is transported by rail to Port Hedland via the BHP Newman to Port Hedland Mainline and associated spur lines. From there, it is then exported overseas via BHP port facilities at Nelson Point and Finucane Island in Port Hedland.

BHP proposes to implement the Ministers North above water table mining operations (the Activity). This Validation Notice has been prepared to document the validation process for the Activity, as required under the *BHP Billiton Iron Ore Pilbara Strategic Assessment Program* (the Program) (BHP 2017).

1.2 Framework

The Program (BHP 2017) was endorsed by the Australian Government Minister for the Environment and Energy on 11 May 2017. Subsequently, an Approval Decision (the Approval) for taking actions in accordance with the Program was issued on 19 June 2017.

The 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).



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Strategic Proposal Area (7,650,074 ha)
- Strategic Proposal Full Conceptual Development Scenario (98,500 ha)
- Conservation Area
- Townsite
- Major Roads
- Rail (BHP)

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GDA 1994 MGA ZONE 50

BHP

PUBLIC

MINISTERS NORTH
REGIONAL LOCATION

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:2,600,000	REQUESTOR:	PROJECTS	FIGURE:	1-1
DATE:	27/02/2026	PREPARED:	GEOMATICS	NO:	A1412-001 RevB
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Key commitments of the endorsed 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 action that is a 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 Plan 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.

Additionally, during the validation process for Notifiable Actions, BHP must apply a 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 relevant to the Activity are achieved across the SAA.

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

- falls within the scope of the Program (i.e. Activity within the SAA and directly related to the development of future mining activities identified within the SEA), and
- meets one or more of the Notifiable Action Triggers defined in the APOP (i.e. meets the Notifiable Action Trigger for Ghost Bat).

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	Project description including Activity location and timeframes for the duration of activities	2
5	Stakeholder engagement and public consultation	3

Requirement	Strategic Assessment Program Offsets Plan Requirements	Sections which address these Requirements
6	Review of baseline and contemporary data with a description of the direct and indirect impacts	5
7	Estimates of disturbance and residual impacts	2 and 5.2.7
8	Application of the mitigation hierarchy	5.2.6
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

1.4 Activity overview

The proposed Activity at Ministers North is located 85 km north-west of Newman and 15 km south-east of the existing BHP Yandi mining operations (Yandi). The proposed Activity is included in the SAA of the Program endorsed by the Minister responsible for administering the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) on 11 May 2017.

Mining will occur above groundwater level only in two mine pits (north and south), with waste rock disposal to a Central Overburden Storage Area (OSA) and in-pit backfilling of the mine pits. The Activity includes an infrastructure corridor connecting Ministers North to Yandi, including a dual lane Haul Road (and associated infrastructure i.e. powerlines, water pipelines) with an overpass over a third-party railway, land bridge over Yandi W5 Mine Pit (existing operational pit) and a widening of an existing creek crossing over Marillana Creek watercourse and crossings of other minor watercourses (includes disturbance to watercourse bed/banks).

Further detail is provided in Section 2.

1.5 Activity Area

The Activity Area (Figure 1-2) encompasses a total of 5,557 ha. The Activity Area consists primarily of native vegetation with some existing disturbed/cleared areas (4,402 ha of native vegetation and 1,155 ha of cleared/degraded land).

The Activity includes an Indicative Footprint of 2,360 ha, of which up to 1,848 ha of native vegetation will be cleared for the Activity and 512 ha of existing cleared/ disturbed land will be utilised (i.e. clearing at existing BHP Yandi operations and historic exploration tracks and pads). The Indicative Footprint is wholly within the Activity Area (Figure 1-2).

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 Notifiable Activity is forecast to be completed within approximately 20 years from the date of this Validation Notice. This timeframe reflects the predicted life span of the Activity including construction, mining (approx. 16 years), rehabilitation and closure.

1.7 Decision for a Validation Notice

A Validation Notice is required for actions that are Notifiable, 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 (*Macroderma gigas*)

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

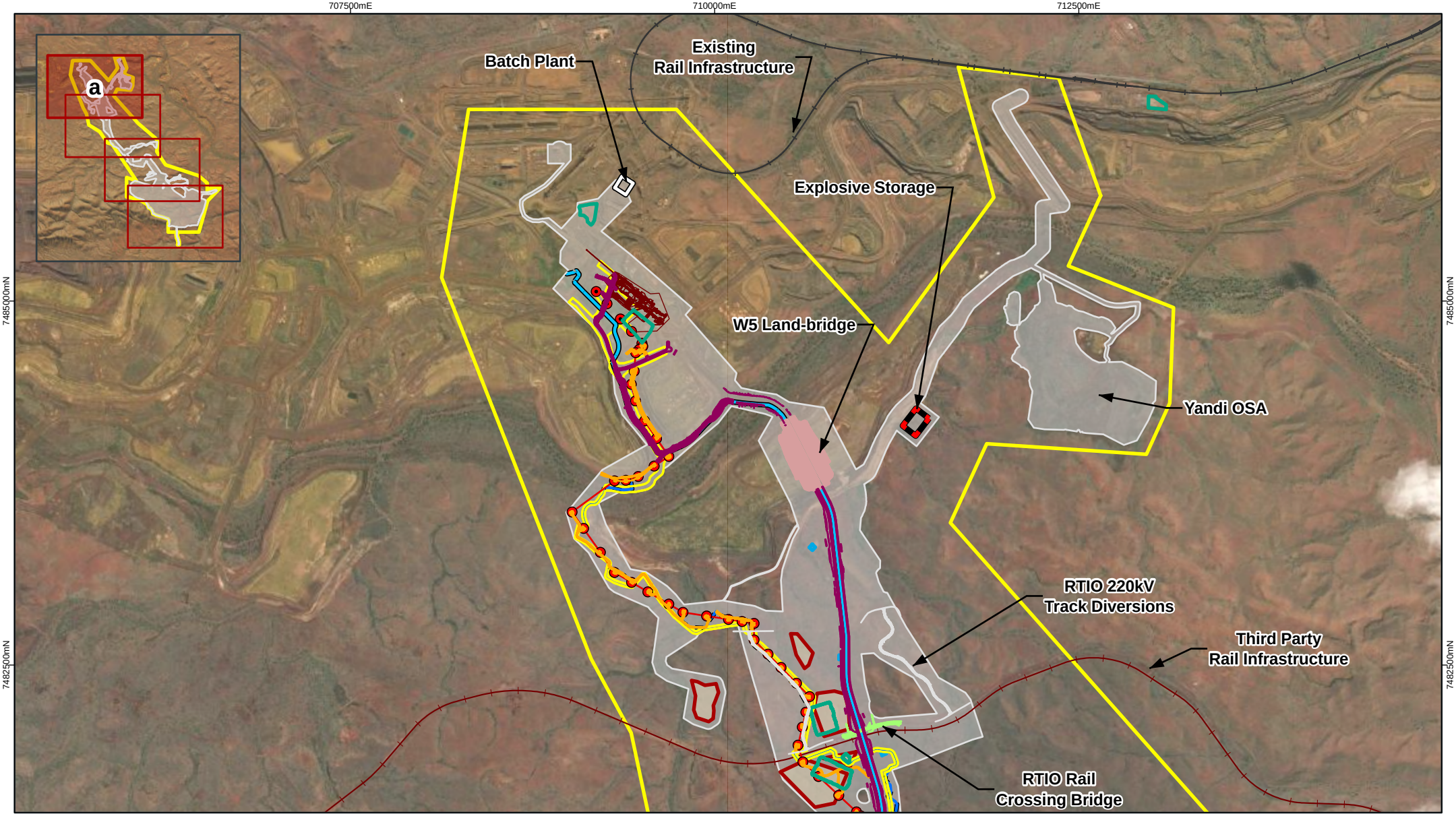
- Greater Bilby (*Macrotis lagotis*)
- Northern Quoll (*Dasyurus hallucatus*)
- Pilbara Olive Python (*Liasis olivaceus barroni*)
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)
- Grey Falcon (*Falco hypoleucos*)
- Night Parrot (*Pezoporus occidentalis*)

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 has been subject to a comprehensive and contemporary survey effort (Table 4-1 and Table 4-2). The biological surveys include 'desktop' literature reviews and field-based 'detailed' and 'targeted' survey methodologies. The biological surveys were undertaken by suitably qualified and experienced environmental professionals in the survey and identification of vertebrate and invertebrate terrestrial fauna for the bioregion. Each of the biological surveys conform to the relevant survey guidance requirements that were applicable to the type of survey completed.

All target habitats considered suitable for Matters of National Environmental Significance (MNES) species within the Activity Area have been adequately surveyed. The breadth of and results of the multiple biological surveys, as shown

on Figure 4-1 and Figure 4-2 and discussed in Table 4-1 and Table 4-2, provide a high level of confidence as to the understanding of the terrestrial fauna values present, and upon which the potential environmental impacts of the Activity can be appropriately assessed.



Activity Area (5,557 ha)

Indicative Footprint (2,360 ha)

Proposed Infrastructure (Permanent)

- Haul Road
- Plant
- 33kV Access Tracks
- RTIO Access Track Realignment
- Permanent MN to Yandi Water Pipeline
- 33kV Powerline Pole
- 33kV Powerline Alignment

Proposed Temporary Infrastructure

- Road
- Temporary W4 to MN Water Pipeline
- Turkeys Nest
- Borrow Areas
- Laydowns

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BHP

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MINISTERS NORTH
ACTIVITY AREA AND INDICATIVE FOOTPRINT

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

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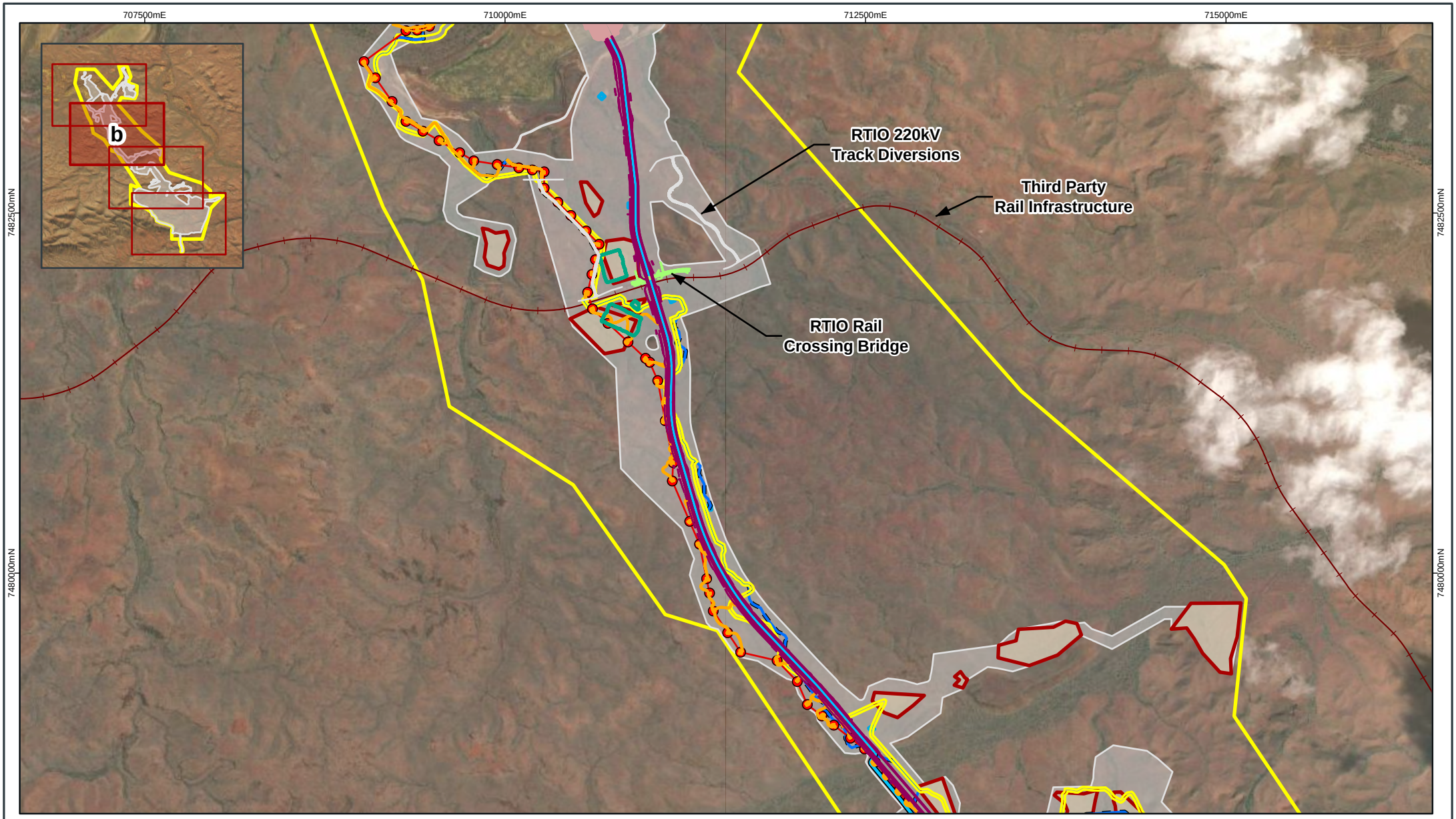

Activity Area (5,557 ha)

Indicative Footprint (2,360 ha)

Proposed Infrastructure (Permanent)

- Haul Road
- 33kV Access Tracks
- RTIO Access Track Realignment
- Permanent MN to Yandi Water Pipeline

33kV Powerline Pole

33kV Powerline Alignment

Proposed Temporary Infrastructure

- Road
- Temporary W4 to MN Water Pipeline
- Turkeys Nest
- Borrow Areas

Laydowns

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MINISTERS NORTH
ACTIVITY AREA AND INDICATIVE FOOTPRINT

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

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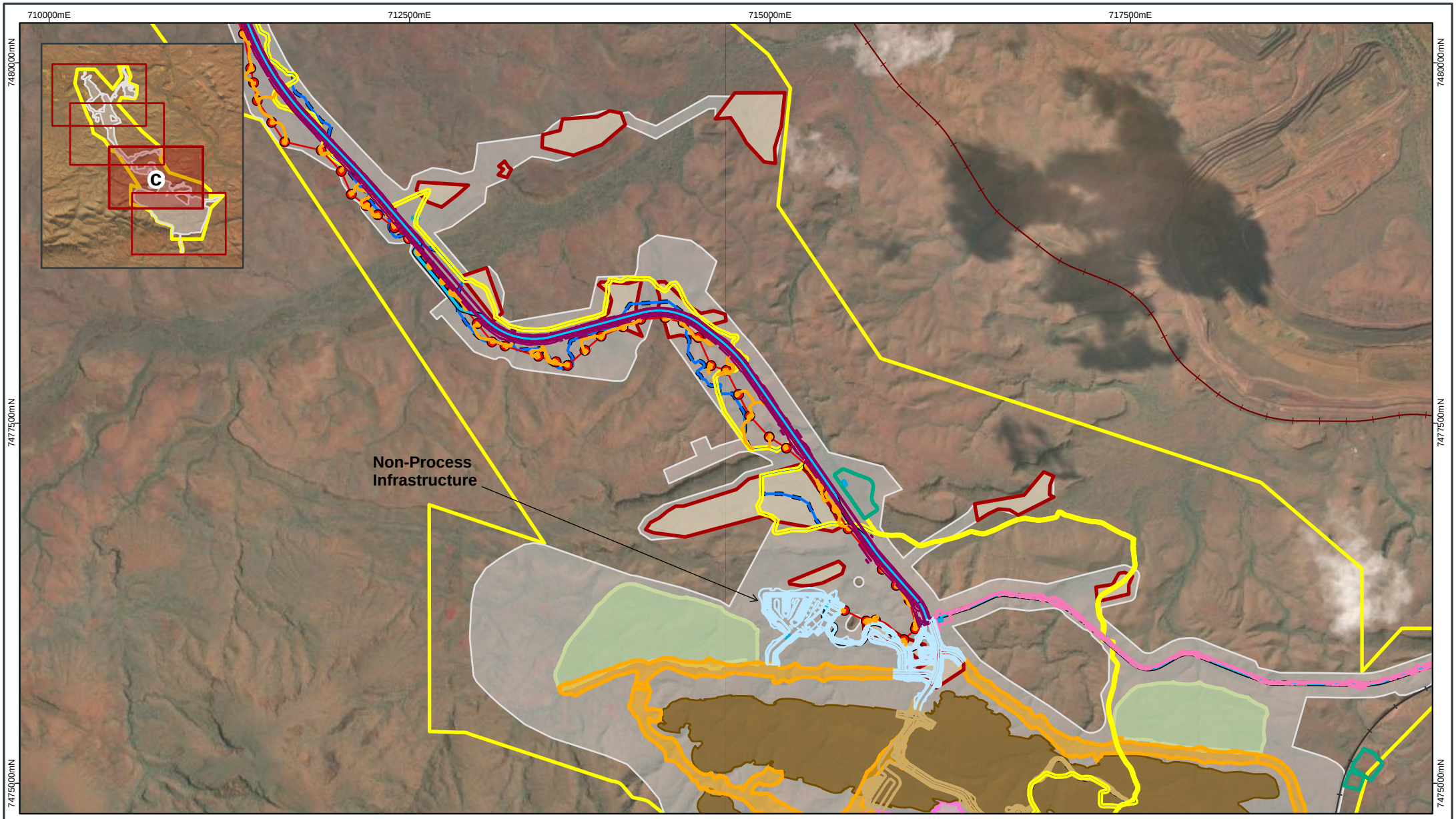

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)

Proposed Infrastructure (Permanent)

- Haul Road
- 33kV Access Tracks
- Non-Process Infrastructure
- Permanent MN to Yandi Water Pipeline
- CPHSW Pipeline Corridor
- 33kV Powerline Pole
- 33kV Powerline Alignment

Proposed Temporary Infrastructure

- Road
- Temporary NPI and Goline
- Temporary W4 to MN Water Pipeline
- Turkeys Nest
- Borrow Areas
- Laydowns

Mining

- Pit
- Haul Roads Area Outline
- Stockpiles
- Ex-Pit OSA

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KILOMETRES
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MINISTERS NORTH
ACTIVITY AREA AND INDICATIVE FOOTPRINT

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

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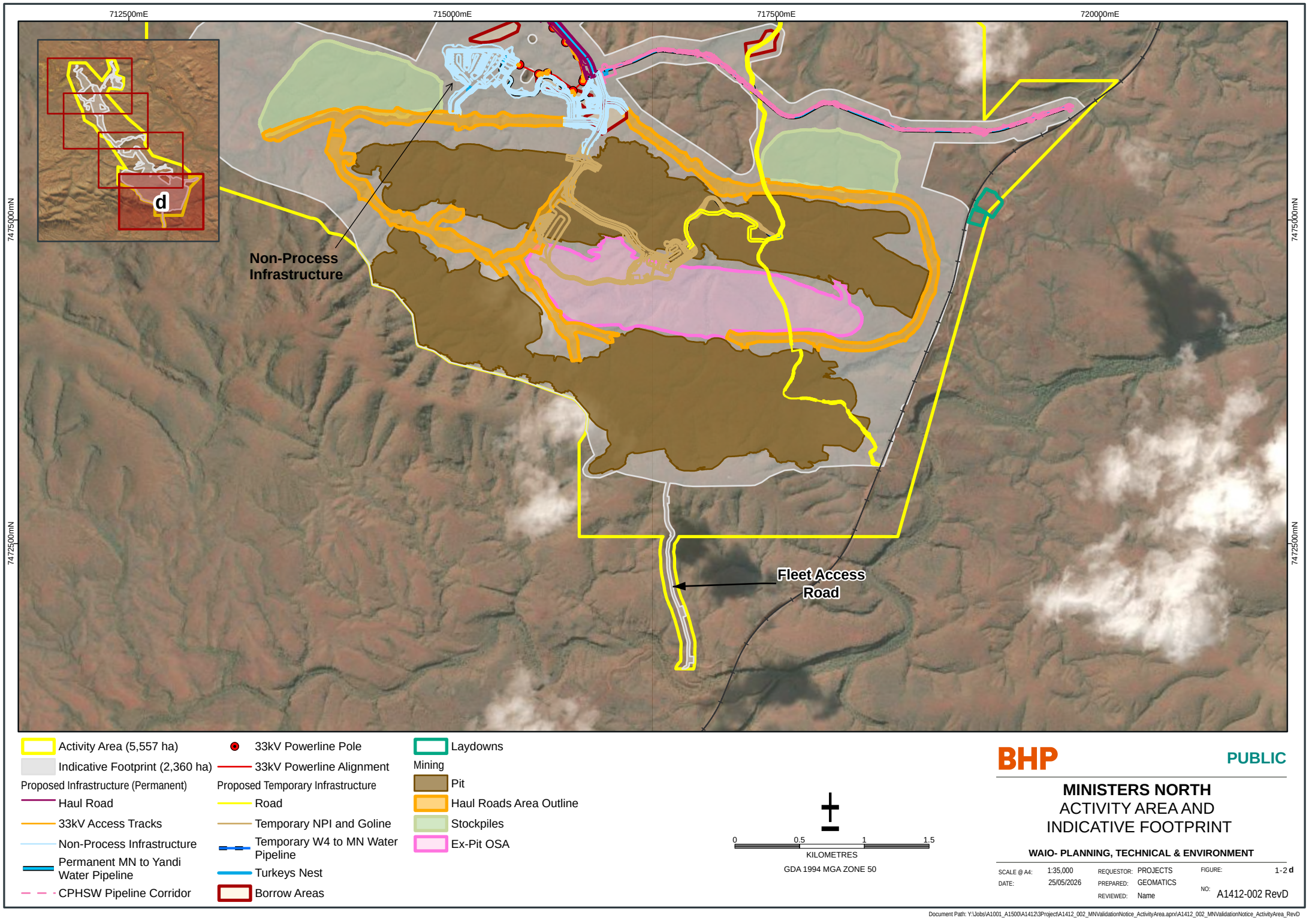
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Non-Process Infrastructure
Fleet Access Road
Activity Area (5,557 ha)
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33kV Powerline Alignment
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Temporary NPI and Goline
Temporary W4 to MN Water Pipeline
Turkeys Nest
Borrow Areas
Laydowns
Mining
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Haul Roads Area Outline
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KILOMETRES
GDA 1994 MGA ZONE 50
BHP
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MINISTERS NORTH
ACTIVITY AREA AND INDICATIVE FOOTPRINT
WAIO- PLANNING, TECHNICAL & ENVIRONMENT
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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: Presence of Ghost Bat critical habitat and or supporting habitat **AND** Presence or sign/s of Ghost Bat colony or residing individuals	Critical habitat is present in the Activity Area, in the form of Breakaway/Cliff and Gorge/Gully habitats. In addition, critical foraging habitat is also present. There are records of Ghost Bat within the Activity Area from two caves (CMN-02 (Category 3) and CMNY-05 (Category 3)) in the form of observations and scats. A heritage team observed six individual Ghost Bats roosting in the CMN-02 cave in late March/early April 2023 (pers. comm. cited in Astron 2025). During the most recent fauna survey (Astron 2025), CMN-02 (Category 3 roost) was investigated on two separate occasions, and no Ghost Bats were observed, however, approximately 50 to 100 Ghost Bat scats were recorded. A bat detector was deployed at the entrance of the cave for three nights and did not detect Ghost Bat presence and scats from the cave were considered not to be recent. An additional long-term bat detector and scat sheet were placed within the cave between September 2023 and June 2024, and no evidence of Ghost Bat was detected over this time via either sampling method. Moreover, no additional scat was identified during revisitation of the cave (Astron 2025). Astron (2025) also investigated CMNY-05 in which approximately 50 to 100 Ghost Bat scats were recorded. No further records were identified at this cave during the additional monitoring.	**No** Although critical habitat, critical foraging habitat and supporting habitat is present in the Activity Area, there is no evidence of a Ghost Bat colony or residing individuals.

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
		Despite records of Ghost Bat occurring within the Activity Area, evidence does not suggest these to be a Ghost Bat colony or residing individuals.	
	Within the Activity Area there is: Presence of Ghost Bat critical habitat and or supporting habitat **AND** Presence or sign of Ghost Bat transient, infrequent or dispersing individual/s	Critical habitat is present in the Activity Area, in the form of Breakaway/Cliff and Gorge/Gully habitats. In addition, critical foraging habitat is also present. There are records of Ghost Bat within the Activity Area from two caves (CMN-02 (Category 3) and CMNY-05 (Category 3)) in the form of observations and scats.	**Yes** Critical and supporting habitat is present in the Activity Area. Records of Ghost Bats also occur within the Activity Area.

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
Greater Bilby (*Macrotis lagotis*)	Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is: Presence of Greater Bilby critical habitat and or supporting habitat **AND** Presence or sign/s of Greater Bilby residing individuals	No critical habitat for the Greater Bilby occurs within the Activity Area. Supporting habitat occurs in the form of Mulga Woodland, Sand Plain, Stony Plain, and Drainage Area / Floodplain. No evidence of Greater Bilby individuals, population or colonies have been recorded within the Activity Area or within 500 m of the Activity Area (Astron 2025). The nearest record was identified over 35 km east of the survey boundary (Astron 2025). The preferred habitat of sandplain is limited within the broader area and does not occur within the Activity Area.	**No** No presence or signs of residing individuals or a population of the Greater Bilby have been recorded within the Activity Area or within 500 m of the Activity.
	Within the Activity Area there is: Presence of Greater Bilby critical habitat and or supporting habitat **AND** Presence or sign of Greater Bilby transient, infrequent or dispersing individual/s	As above	**No** No presence or signs of transient, infrequent or dispersing individuals have been recorded within the Activity Area.
Northern Quoll (*Dasyurus hallucatus*)	Within the Activity Area or within a 500 m buffer of the Activity boundary there is: Presence of Northern Quoll critical habitat and or supporting habitat **AND**	Critical habitat for the Northern Quoll occurs within the Activity Area in the form of Gorge/Gully habitat, Breakaway/Cliff and Major Drainage Line Habitat. Supporting habitat occurs in the form of Hillcrest/Hillslope and Stony Plain.	**No** Whilst critical and supporting habitat is present, and records of Northern Quoll occur in within 500 m of the Activity (Astron 2024); these records are representative of a transient individual (not a population or residing individuals). As such, there is

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
	Presence or sign/s of Northern Quoll colony or residing individuals	Records of Northern Quoll occur within 500 m of the Activity (Astron 2025). The Northern Quoll was recorded on nine occasions during the current survey from four separate locations (three camera trap locations, and one scat) within Gorge/ Gully and Major Drainage Line habitats. A review of the spot patterning of the captured individuals indicates that the eight records from the camera traps are likely attributed to the same individual, however, this could not be confirmed from camera trap imagery alone. Results of this survey and historic surveys suggest the Northern Quoll is likely to be only patchily distributed and not representative of a significant population. Hence, there is no presence or sign/s of a Northern Quoll colony or residing individuals.	no presence or sign/s of a Northern Quoll colony or residing individuals.
	Within the Activity Area: Presence of Northern Quoll critical habitat and or supporting habitat **AND** Presence or sign of Northern Quoll transient, infrequent or dispersing individual/s.	No records of Northern Quoll directly intersect the Activity Area.	**No** No presence or sign of transient, infrequent or dispersing individuals of Northern Quoll directly intersect the Activity Area.
Pilbara Olive Python *(Liasis olivaceus barroni)*	Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is: Presence of Pilbara Olive Python critical habitat and or supporting habitat	Critical and supporting habitat for the Pilbara Olive Python occurs within the Activity Area in the form of Gorge/gully, Breakaway/Cliff, Major Drainage and Minor Drainage Line habitat types (Astron 2025).	**No** No presence or signs of a population or residing individuals have been recorded within the Activity Area or within 500 m of the Activity Area.

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
	AND Presence or sign/s of a Pilbara Olive Python population or residing individuals	Whilst one record of a Pilbara Olive Python was recorded within 500 m of the Activity, this was ascat record (6 to 12 months old). eDNA samples were collected from three water features including WMN-6 (in proximity to the scat) and all samples failed to detect Pilbara Olive Python. The lack of eDNA from these pools indicates that no or very little Pilbara Olive Python occurred during the sampling period (or weeks prior) suggesting no significant resident population occurs in that area. Therefore, the is no evidence of a Pilbara Olive Python population within the Activity Area or within 500 m of the Activity Area (Astron 2025).	
	Within the Activity Area there is: Presence of Pilbara Olive Python critical habitat and or supporting habitat **AND** Presence or sign of Pilbara Olive Python transient, infrequent or dispersing individual/s	As described above, there is a historical scat record of the Pilbara Olive Python within 500 m of the Activity. Whilst supporting habitat present, specifically Gorge/Gully, Major Drainage Line and Minor Drainage Line habitat types, there is no evidence of transient, infrequent or dispersing individuals within the Activity Area.	**No** No presence or signs of transient, infrequent or dispersing individuals have been recorded within the Activity Area.
Pilbara Leaf-nosed Bat *(Rhinonicteris aurantia)*	Within the Activity Area and or within a 500 m buffer of the Activity boundary, there is: Presence of Pilbara Leaf-nosed Bat critical habitat and or supporting habitat **AND**	No roosting sites, colonies, or individuals of the Pilbara Leaf-nosed Bat have been recorded within the Activity Area or the 500 m buffer. The closest known record for this species is approximately 8 km north- of the Activity and the nearest known significant	**No** No presence or sign/s of a colony or residing individuals of the Pilbara Leaf-nosed Bat have been recorded within the Activity Area or within 500 m of the Activity.

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
	Presence or sign/s of Pilbara Leaf-nosed Bat colony or residing individuals	roosts are at Gudai-Darri adit (approximately 26 km north) and Kalgan Creek (approximately 80 km southeast).	
	Within the Activity Area there is: Presence of Pilbara Leaf-nosed Bat critical habitat and or supporting habitat **AND** Presence or sign of Pilbara Leaf-nosed Bat transient, infrequent or dispersing individual/s	While supporting habitat has been identified, specifically Mulga Woodland, Major Drainage Line, Minor Drainage Line, Gorge/Gully, Breakaway/Cliff, Hillcrest/Hillslope, Sand Plain, Drainage Area/Floodplain and Wetland habitat types, no critical habitat features (e.g. caves or subterranean roosts) have been identified within the Activity Area. Recent surveys did not detect any signs of transient, residing, or dispersing individuals, and no known roosts occur within proximity to the Activity Area	**No** No presence or signs of transient, infrequent or dispersing individuals of the Pilbara Leaf-nosed Bat have been recorded within the Activity Area or within 500 m of the Activity.
Grey Falcon *(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 **AND** Presence or sign/s of Grey Falcon colony or residing individuals	No records of the Grey Falcon have been identified within the Activity Area or the 500 m buffer. While critical habitat and supporting habitat is present within the Activity Area and 500 m buffer, specifically Major Drainage Line, Drainage Area/Floodplain, Mulga woodland, Sand plain, Stony Plain and Undulating Low Hills, there is no evidence of residing, transient, or breeding individuals within or near the Activity Area. The nearest known records are approximately 26 km south-west of the Activity Area.	**No** No presence or signs of residing individuals or a colony of the Grey Falcon have been recorded within the Activity Area or within 500 m of the Activity.
	Within the Activity Area there is:	As above.	**No**

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
	Presence of Grey Falcon critical habitat and or supporting habitat **AND** Presence or sign/s of Grey Falcon transient, infrequent or dispersing individual/s		No presence or signs of transient, infrequent or dispersing individuals have been recorded within the Activity Area.
Night Parrot (*Pezoporus occidentalis*)	Within the Activity Area and or within a 500 m buffer of the Activity boundary there is: Presence of Night Parrot critical habitat and or supporting habitat **AND** Presence or sign(s) of Night Parrot population(s) or residing individuals	The species was presumed extinct for a century, until a population was rediscovered in 2013. It is restricted to remote parts of the arid zone, with few confirmed records. No records of the Night Parrot have been identified within the Activity Area or the 500 m buffer. No critical habitat suitable for the Night Parrot has been identified within the Activity Area or its immediate surroundings. The habitat required for this species, being old growth hummock grassland and/or chenopod shrubland, does not occur within the Activity Area (Astron, 2025). Supporting habitat does occur in the form of Drainage Area/Floodplain, Sand plain, Stony Plain and Undulating Low Hills. However, no evidence of transient, residing, or breeding individuals has been recorded during current or historical surveys. The nearest known record was from the DBCA Threatened and Priority Fauna Database capturing three individuals from 2005 approximately 52 km north in the Fortescue Marsh	**No** No presence or signs of residing individuals or a population of the Night Parrot have been recorded within the Activity Area or within 500 m of the Activity.

Program Matter	Notifiable Action Trigger	Activity Area Program Matter Data	Applicable Trigger? Yes/No
	Within the Activity Area there is: Presence of Night Parrot critical habitat and or supporting habitat **AND** Presence or sign(s) of Night Parrot transient, infrequent or dispersing individual/s	As above.	**No** No presence or signs of transient, infrequent or dispersing individuals have been recorded within the Activity Area.

2 Project disturbance and description

Section 2.1 summarises the proposed disturbance for the Activity, while Section 2.2 below describes the Activity in detail. Figure 1-2 illustrates the location of the proposed works comprising the Activity under assessment in this Validation Notice.

2.1 Proposed disturbance

The proposed Activity will result in the disturbance of up to 1,848 ha of native vegetation and fauna habitat within the Activity Area, as defined in Figure 1-2. Proposed clearing will be minimised by utilising existing infrastructure (including existing processing infrastructure at the Yandi operations) and planning new proposed infrastructure within previously disturbed areas where possible.

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 2018	16,000	94,000
Jimblebar OSA1 Stage 1	Not a Notifiable Action	August 2018	95	93,905
Western Creek Diversion	Not a Notifiable Action	February 2020	15	93,890
MAC Surplus Water	Not a Notifiable Action	April 2020	0	93,890
Jimblebar Optimisation Project	Validation Notice	June 2020	2,000	91,890
OB31 Stage 1 clearing	Not a Notifiable Action	December 2022	5	91,885
Mooka Rail Siding	Validation Notice	April 2023	23	91,862
Revised Jimblebar Optimisation Project	Validation Notice	May 2023	1,042 (in addition to 2,000 ha as provided under the Previous Validation Notice)	90,820
Western Ridge	Validation Notice	July 2023	4,266	86,554
Yeerabiddy Rail Works	Validation Notice	August 2023	60	86,494

Project Name	Decision Made	Date Decision Documented	Proposed Disturbance (ha)	Overall Cumulative Program Disturbance Remaining (ha)
Thirteen Creek Drilling Program	Not a Notifiable Action	August 2023	11	86,483
Rail Decarbonisation Electrification Project	Not a Notifiable Action	August 2023	0.02	86,483
Orebody 32 BWT	Not a Notifiable Action	July 2023	224	86,259
Newman West (Mount Whaleback Mine)	Not a Notifiable Action	November 2023	155	86,104
Newman Water Treatment Plant Tank Replacement and Upgrades	Not a Notifiable Action	November 2023	7	86,097
Jimblebar Met Mast Decision Report	Not a Notifiable Action	November 2023	2	86,095
Jimblebar Validation Notice	Validation Notice	February 2024	2,067	84,028
East Pilbara Surplus Water Drilling Validation Notice	Validation Notice	May 2024	45	83,983
Yandicoogina Gorge Supplementation Trial Project	Not a Notifiable Action	May 2024	1	83,982
Whaleback Hub Landfarm	Not a Notifiable Action	December 2024	12	83,970
Newman Water Treatment Plant Tank Replacement and Upgrades (Rev 2)	Not a Notifiable Action	May 2025	1	83,969
Homestead Bore 46	Not a Notifiable Action	June 2025	38	83,931
Yandicoogina Gorge Mitigation Trial Additional Bore Installation	Not a Notifiable Action	July 2025	5.4	83,925

Project Name	Decision Made	Date Decision Documented	Proposed Disturbance (ha)	Overall Cumulative Program Disturbance Remaining (ha)
Orebody 29/30/25	Validation notice	August 2025	116	83,809
Yarnima IPG1 Project	Not a Notifiable Action	September 2025	3	83,806
Orebody 25 West	Validation Notice	TBC	175	83,631
Newman Source Water Upgrade	Not a Notifiable Action	December 2025	29	83,602
Orebody 32 BWT Creek Discharge	Not a Notifiable Action	TBC	40	83,562
Ministers North Enabling Communications	Not a Notifiable Action	March 2026	1.1	83,560.90
Ministers North 132kV Relocation	Not a Notifiable Action	March 2026	64.5	83,496.40
Mesa Gap	Not a Notifiable Action	April 2026	59	83,437.40
OB32 Go Line	Not a Notifiable Action	TBC	9.8	83,427.60
Marillana Creek (Yandi)	Validation Notice	May 2026	95	83,332.6
Ministers North	Validation Notice	June 2026	1,848	81,484.6

2.2 Activity description

The Activity includes the following key activities and elements:

- mining above the groundwater level in two mine pits (north and south)
- stockpiling of ore on a RoM pad (including mobile crushing units, if required)
- waste rock disposal to Central OSA, and in-pit backfilling of the mine pits
- infrastructure corridor connecting Ministers North to Yandi, including:
  - a dual lane Haul Road with an overpass over a third-party railway
  - land bridge over Yandi W5 Mine Pit (existing approved pit) and
  - a widening of an existing creek crossing over Marillana Creek watercourse and crossings of other minor watercourses (includes disturbance to watercourse bed/banks)
- infrastructure changes at the existing Yandi OHP including a new primary and secondary crushing facilities to accommodate the Brockman-type ore supply
- mine access roads to connect various mining infrastructure
- borrow pits[1] to supply civil construction works (roads, RoM)
- laydown areas for equipment storage and construction
- stockpiles for cleared rehabilitation materials (topsoil, subsoil, vegetation)
- temporary and localised minor diversion of drainage lines / watercourses comprising earthworks, earthen bunds, swale drains and/or culverts
- water supply pipelines including water storage (e.g. turkey's nest) and pump stations
- associated infrastructure to support the mine construction and operation including but not limited to administration, workshops, warehouse/storage, vehicle parking, vehicle and equipment wash-down, fuel storage and transfer, explosives storage, power generation and transmission powerlines, services infrastructure, wastewater treatment, and communications.

2.2.1 Clearing and ground disturbance

Clearing of up to 1,848 ha of native vegetation and fauna habitat will be undertaken for the Activity. A total of 13 fauna habitat types have been mapped across the Activity Area, including critical and/or supporting habitat for all Program Matters. Clearing of the 1,848 ha of native vegetation will result in impacts to the critical and/or supporting habitats.

In relation to the Notifiable Program Matter, and as discussed further in Section 5.2, the ground disturbance includes clearing of critical and supporting habitat for Ghost Bat, including 99.6 ha of critical habitat, 157.2 ha of critical foraging habitat and 19.7 ha of supporting habitat.

2.2.2 Haul road fill material sources

The construction of the haul road requires substantial fill volumes which will be sourced through a number of options which may include borrow pits, Ministers North mine waste, Yandi mine waste and material from the Yandi OSA (C1

[1] Suitable areas for borrow pits have been identified and accounted for within the current Indicative Footprint. However, if constructability requirements identify potential borrow deficits, BHP may seek additional borrow material from outside the Activity Area. Any additional borrow requirements that are identified would be subject to separate Government approvals process.

OSA rehabilitated). Sources such as mine waste and existing OSA allows for minimising overall disturbance to native vegetation and minimises the extent of out of pit waste dumps. All fill will be non-polluting.

The haul road is to be rehabilitated, including removal of culverts and all other infrastructure associated with the haul road with the aim of returning land to pre-disturbance drainage and topography where practicable. Rehabilitation of the haul road will be designed to meet agreed post mining land use requirements.

The following rehabilitation principles will be incorporated:

- Reinstatement of natural water ways/drainage paths/surface water flows
- Removal of haul road fill material if no longer required for post mining land use
- Road cuttings would remain in place
- Remainder will be reprofiled and contoured to natural topography where practicable.

2.2.3 Connection to Yandi (W5 landbridge and Marillana Creek crossing)

In order to enable vehicle movements to the Yandi OHP, the haul road will require traversing across the Yandi W5 Mine Pit. BHP has included provision to build a landbridge across the W5 Pit within the Activity Area. The landbridge will subsequently connect the haul road to an existing crossing over the Marillana Creek watercourse (as described below). BHP is currently backfilling W5 pit in accordance with the Marillana Creek (Yandi) Closure Plan. Backfilling of the Yandi W5 Mine Pit has previously been approved to an elevation of approximately 545 mAHD. As part of the Activity, BHP proposes to raise the central section of the pit to an elevation of nominally 575 mAHD to form the basis of the landbridge. Given the location is an existing mine pit with limited value for Program Matters, this scope of the Activity is unlikely to result in significant impacts to any Program Matter.

In order to connect the Activity to BHP's Yandi, crossing over the Marillana Creek will be necessary. The Marillana Creek traverses in a generally east to west direction through Yandi, with the Ore Handling Plant, ore stockpiles and the railway infrastructure all being located on the northern side of the Marillana Creek. In planning for the Activity, BHP considered options for both a new (additional) purpose-built crossing over the Marillana Creek, or alternatively, to seek to modify an existing crossing location over the Marillana Creek. Having regard to the recorded environmental and cultural values of the Marillana Creek, BHP has selected the option to modify an existing crossing location over the Marillana Creek for the Activity. The selected crossing over the Marillana Creek will require widening to enable dual-lane ore transport in support of the Activity. The disturbance for this widening has been included within the Ministers North Activity.

In addition to the above creek crossing, the Indicative Footprint includes two disturbance areas across Marillana Creek for the purposes of pipelines and powerlines to connect Ministers North to Yandi (see Figure 1-2). The pipeline will be buried and the powerline will be strung across Marillana Creek meaning there will be no impediment to flows. The access road shown across Marillana Creek on Figure 1-2 is an existing track which does not obstruct flows.

All works associated with creeks will be undertaken during the dry season in order to avoid impacting flow regimes. The duration of the works associated with creeks are short term. For example, the temporary pipeline works across Marillana Creek are scheduled to be completed within approximately 3-4 weeks, powerline works will be completed within approximately 4-5 weeks. Creek crossings require additional time but are still scheduled for construction to be completed within approximately 3-4 months.

2.2.4 Mobilisation of fleet

Initial mobilisation of fleet will occur from BHP's Mining Area C – Southern Flank (MAC/SF) operations and BHP's Yandi operations, utilising an existing rail access road. An access road from Ministers North, connecting to the existing rail access road has been incorporated into the Activity to facilitate this fleet movement.

2.2.5 Water supply

In relation to water supply for the Activity, as mining is above water table only, the water requirements for the Activity will be met by supply from other BHP (i.e. Yandi and MAC/SF) and/or third-party water suppliers. The following infrastructure to support water supply is included:

- provision of a temporary above ground, raw water pipeline to be constructed, connecting Ministers North into BHP Yandi existing water network alignment. The temporary raw water pipeline is needed to support supply of Yandi raw water to Ministers North for early construction and pre-strip activities. The lifespan for the temporary pipeline is approximately 12 to 18 months. The intent is that this temporary pipeline will be decommissioned once the CPHSW and MN to Yandi Permanent Pipeline is in place.
- the construction of a permanent raw water pipeline to tie-into the water supply pipeline that originates from BHP's MAC/SF operations (water supply pipeline from MAC/SF yet to be constructed). The permanent pipeline will tie to the Ministers North Non-Process Infrastructure (NPI) precinct and then follow the haul road to connect to Yandi. The water from MAC/SF will then feed both Ministers North mine and Yandi (via Ministers North). The water transfer to Yandi will initially be for the purposes of processing Ministers North ore but will then subsequently feed into the broader Yandi water network.

2.2.6 Mine pit progression

The current mine plan for the Ministers North Derived Proposal is described below in Table 2-2 defining each pushback, start and end of mining, base level elevations (operations) and backfill to 569mRL (closure) where applicable.

As the Activity is for above water table mining only, BHP has committed to monitoring mining during operations to maintain separation distance from base of pit and water level (5 m separation). BHP notes that groundwater levels across Ministers North have declined in recent years from broader regional influences (not attributable to the Activity). However, BHP has committed to backfill to 569 mAHD[2] to ensure a 5 m separation to the groundwater table, aligning with the historic groundwater table level (i.e. 2018 – 564 mAHD)

Table 2-2: Indicative mine pit progression

Pit	Pushback	Start of Mining^	End of Mining	Base of Pushback (mRL)	Backfilled to 569mRL
North Pit	NPN101	Q4FY27	Q2FY29	648	N/A
	NPN201	Q4FY27	Q2FY33	564	Q3FY33
	NPN301	Q2FY28	Q3FY33	588	N/A
	NPN302	Q2FY30	Q1FY35	564	Q4FY35
	NPN401	Q2FY31	Q2FY38	564	Q4FY38
South Pit	SPS101	Q3FY29	Q1FY32	648	N/A
	SPS201	Q4FY29	Q2FY36	600	N/A
	SPS301	Q3FY31	Q1FY36	624	N/A
	SPS402	Q2FY31	Q3FY41	564	Q2FY41
	SPS501	Q2FY34	Q4FY42	564	Q2FY43

^Note mine plans are subject to change and final mine pit progression may vary during operations

[2] mRL and mAHD are used interchangeably but are equivalent

2.2.7 Rehabilitation and closure

Closure and rehabilitation objectives and criteria are based on the land uses applicable to a particular area, in recognition of the fact that the land is altered fundamentally from its pre-existing condition. The completion criteria for Ministers North are based on an assumed outcome of a combination of "*natural environments for managed resource protection*" and "*relatively natural environment for pastoral grazing purposes*".

Rehabilitation, decommissioning and closure will be undertaken in accordance with the Ministers North Mine Closure Plan (MCP)[3] (Appendix 5). Current completion criteria relating to rehabilitation and fauna habitat include, but are not limited to:

- Fauna habitats constructed into rehabilitation areas
- Landforms substantially support target vegetation communities and the associated agreed post-closure land use
- Demonstrated capacity of flora to reproduce as evidenced by seedling recruitment and vegetative production

Rehabilitation will be undertaken progressively when disturbed areas are no longer required for operations. A specified seed mix will be used which includes 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.

The MCP also addresses how pits and constructed landforms (principally the Central OSA) will be designed, constructed and rehabilitated, to ensure they are safe, stable and non-polluting.

Development of Ministers North is being undertaken in collaboration with the Banjima People through BNTAC. BNTAC has developed mine closure objectives, principles and outcomes for closure of all mines across the Banjima Native Title Determination Area. The objectives, principles and outcomes inform ongoing collaboration between BHP and the Banjima People. Outcomes include but are not limited to restoration of environmental diversity and condition and return of animals (including mandu (bush meats)), medicine plants and bush tucker.

As the planning of mine closure progresses, the level of detail presented in a Ministers North MCP will increase to eventually evolve into a fully formed plan that facilitates execution of mine closure (consistent with ICMM 2019). BHP commits to updating this plan as mining progresses, including on closure fauna habitat outcomes.

2.3 Existing Environmental Approvals

2.3.1 State Strategic Environmental Approval

BHP referred the Pilbara Expansion Strategic Proposal (Strategic Proposal) to the EPA under Part IV of the *Environmental Protection Act 1986* (EP Act) on 6 July 2012. Having devised a long-term mine development plan, BHP's aim was to consider a more regional approach to environmental management across all its current and future operations. The Strategic Proposal included new mining operations and future expansions to existing mining operations, and associated infrastructure and activities in the Pilbara. The EPA assessed the Strategic Proposal at the level of Public Environmental Review and published its report on 9 July 2018 (EPA Report 1619, EPA 2018a).

The Minister for Environment issued MS1105 for the Strategic Proposal on 11 July 2019. The Statement states that in the event that the EPA declares a future proposal as identified in EPA Report 1619 and described in Schedule 1 of MS1105 under section 38E to be a derived proposal, the derived proposal may be implemented, subject to the

[3] Including any subsequent revisions.

Minister for Environment's identification of relevant conditions under section 45B(3) from the conditions set out in the Statement.

The Ministers North Project (Activity) is located within the State Strategic Proposal Boundary and is consistent with activities identified in Schedule 1 (Tables 2 and 3) of MS1105. BHP referred the *Ministers North Derived Proposal Request* (BHP 2025) to the EPA in October 2025. The Derived Proposal is currently under assessment with the EPA.

2.3.2 Yandi Mining Operations

The northern extent of the Activity overlaps the existing operations at Yandi. The Yandi mine and associated activities are excluded from the Program as described in Section 2.3 of the Program as they are existing operations and infrastructure approved prior to commencement of the Program via the following:

- Mining operations at Yandi were approved by the Western Australian Minister for Environment, under Part IV of the Environmental Protection Act 1986 (WA) under Ministerial Statement 29 dated 25 May 1988. Mining operations within a 13,158 ha Development Envelope (excluding the proposed Activity) are currently approved by the Western Australian Minister for Environment under Ministerial Statement 679 dated 6 July 2005, as amended by Ministerial Statement 1039 dated 4 October 2016. Approximately 66 ha of clearing remains under the current Ministerial Statement 679.

BHP proposes to expand the existing Yandi mine through mining of the E8 deposit. The *Marillana Creek (Yandi) Life of Mine Proposal Significant Amendment* is currently under assessment by the EPA and BHP published the *Draft Marillana Creek (Yandi) Validation Notice* for public comment on 17 March 2026. The final *Marillana Creek (Yandi) Validation Notice* was published on 29th May 2026 (effective date 29th June 2026).

The use of existing infrastructure and disturbed areas at Yandi will minimise the extent of new land disturbance required for the Activity (and thereby minimise the potential environmental impacts of the Activity).

2.3.3 Native Vegetation Clearing Permits

The Activity Area is located within the boundaries of Native Vegetation Clearing Permit (NVCP) 8033/2 (clearing expiry 30 November 2030, permit expiry 30 November 2035), NVCP 8953/3 (clearing expiry 31 December 2023; permit expiry 31 December 2028) and NVCP 7009/4 (clearing expiry 30 November 2030; permit expiry 30 November 2037) (approvals under Part V of the EP Act (WA)).

NVCP 7009/4 authorises clearing for the purposes of railway construction, maintenance and associated activities. The permit authorises clearing of no more than 2,928 ha of native vegetation. This permit includes a number of conditions and obligations including managing impacts to Northern Quoll (*Dasyurus hallucatus*) via the *Northern Quoll Management Plan (Document number: 0130513) Version 3.0* (BHP 2022).

NVCP 8033/2 authorises clearing for the of mineral exploration, hydrological investigations, geological investigations, communications towers, LiDAR systems, meteorological masts and associated activities. The permit allows for the clearing of no more than 300 ha of native vegetation. The permit includes a number of conditions and obligations including avoiding clearing of critical habitat (i.e. Gorge/Gully and Breakaway/Cliff) and minimising clearing to riparian vegetation associated with Yandicoogina Creek.

NVCP 8953/3 authorises clearing for the purposes of geotechnical investigations and baseline surveys. The permit authorises no more than 30 ha of clearing of native vegetation.

Historic clearing has been undertaken across the Activity Area under these NVCP authorisations[4] for the purposes described within the NVCPs. Clearing undertaken under these authorisations, where the purposes are for temporary purposes such as tracks and pads, will be rehabilitated in line with the conditions of the relevant approvals.

The native vegetation clearing (1,848 ha) associated with the Activity will not be authorised by the above NVCPs and instead would be authorised under this Validation Notice and State EPA approval of the Derived Proposal (MS1105).

[4] Additional clearing within the Activity Area will be authorised under the NVCPs for the purposes of the enabling communications works and 132kV Powerline Relocation works. These scope items do not form part of the Activity and are subject to the separate Decision Report assessments.

3 Stakeholder engagement

BHP's commitment to community engagement is articulated in BHP's *Communications, Community and External Engagement Our Requirements* (BHP 2022), 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 DCCEEW, and target stakeholders 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

BHP has made the draft Validation Notice publicly available on its website for a minimum period of 28 days. The public consultation period commenced on the 18 March 2026. Registered stakeholders were emailed notification that the public consultation period had commenced. These stakeholders included the Department of Water and Environmental Regulation (DWER), Banjima Native Title Aboriginal Corporation (BNTAC) and DCCEEW. A summary of the engagement undertaken for the Validation Notice, including the public consultation period is provided below and in Appendix 6.

Table 3-1: Stakeholder Engagement to date

Stakeholder	Date	Matters Discussed	BHP Response and Outcome
Banjima People **(via Banjima Native Title Aboriginal Corporation (BNTAC))**	Ongoing consultation. BHP first introduced plans to develop the Ministers North Operation, including the open cut mining of iron ore and associated infrastructure requirements, to BNTAC and representatives of the Banjima People at the Banjima Heritage Advisory Council (HAC) in July 2021. Consultation with the Banjima HAC continued throughout 2022 and 2023 and included an on-country ethnographic consultation over the Development Envelope in October 2022. BHP has consulted with Banjima Traditional Owners in relation to the Activity through on country Social Surroundings engagements in May 2024, September 2024 and April 2025. The purpose of the on-country engagements was for BHP to better understand the broader social, cultural and heritage values of their lands, to understand and respond to any concerns in relation to the potential impacts of the Activity, and to work together to identify priorities for avoidance and management. BHP has prepared a Project Management Plan (PMP) (confidential) in consultation with Banjima Traditional Owners through BNTAC. The Ministers North PMP identifies and sets out the agreed management of Aboriginal Cultural Heritage and Social Surroundings values affected by, or in proximity to, the Ministers North Operation. The Ministers North PMP documents the outcomes of consultation and was developed by BNTAC and BHP in April 2025, endorsed by the Banjima Heritage Advisory Council in May 2025, and finalised in June 2025. BNTAC were notified that the public consultation period on the draft Validation Notice had commenced. No comments were provided on the draft Validation Notice.		
Environmental Protection Authority (EPA) **(includes EPA Services division of DWER)**	May 2026	BHP presented the Ministers North Derived Proposal to the EPA Board at the May EPA Board Meeting (21st May). Key matters discussed included flora and vegetation, terrestrial fauna (focus on Ghost Bat mitigation), water, Traditional Owner engagement and rehabilitation / closure.	No BHP response required. EPA to finalise statement of reasons and identification of recommended conditions under section 45B(3) from the conditions set out in Ministerial Statement 1105.
	March - April 2026	EPA Services (DWER) were notified that the public consultation period on the draft Validation Notice had commenced. No comments were provided on the draft Validation Notice.	No BHP response required.
	August 2025	Pre-referral discussion providing the EPA Services an overview of the Derived Proposal (the Activity), including key infrastructure elements, use of existing infrastructure at BHP's Yandi as a 'Hub', key environmental factors, and how BHP has applied the mitigation hierarchy in response to the findings of studies/surveys undertaken for	BHP considered feedback provided during the engagement in relation to several factors, including short range endemic (SRE) fauna, consideration of overall "protection" of values (as opposed to minimisation) and conditional management plans. In response, BHP has assessed impacts to SRE fauna, committed to several mining

		the Derived Proposal. Traditional Owner engagement and how this has been considered in the design of the Derived Proposal was also a key topic of discussion.	exclusion zones for key environmental values, and provided several fit-for-purpose conditional management plans.
Department of Water and Environmental Regulation (DWER)	August 2025	Continued discussions on environmental licensing requirements for the Ministers North Project.	BHP to provide additional information at the next DWER-BHP licensing meeting.
	July 2025	BHP introducing the scope of the Ministers North Project requiring environmental licensing under Part V of the *Environmental Protection Act 1986* (WA).	BHP sought confirmation on the licensing process.
Department of Mines, Petroleum and Exploration (DMPE) (formerly DEMIRS)	August 2025	Pre-lodgement information session for the Ministers North MCP.	BHP sought confirmation of new closure guidance (*Mining Amendment Act 2022* commencing 9 September 2025).
	June 2025	BHP discussed two NVCP amendments at Ministers North under assessment with DMPE.	DEMIRS provided an update on the assessment.
	May 2025	BHP discussed one NVCP amendment for Ministers North under assessment.	DEMIRS provided an update on the assessment.
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	April 2026 (28 day comment period)	DCCEEW provided feedback on the Draft Ministers North Validation Notice during the 28 day comment period. See Appendix 6.	BHP considered DCCEEW comments with the BHP response to comments provided as an Appendix in this final Validation Notice. Appendix 6 provides BHP detailed responses to DCCEEW comments.
	March 2026	Pre-submission meeting for Draft Ministers North Validation Notice to discuss the Activity's potential impacts on relevant Program Matters.	BHP considered feedback during the engagement including on Program Matters which did not meet the Notifiable Action triggers.
Department of Energy and Economic Diversification (DEED) (formerly DJTSI)	October 2025	BHP provided DEED an update of the Ministers North Project and State Agreement strategy.	BHP to submit Proposals for DEED review in due course aligned with the standard engagement process.
	September 2024	BHP presented a high-level overview of Ministers North Project.	BHP to provide DEED with further information on the Project when available.

Rio Tinto	Ongoing	Multiple consultations (as required) to facilitate access across Rio Tinto tenure (mining and pastoral) for the purpose of biological surveys, heritage surveys, social surroundings engagements and mineral exploration activities. Consultation to coordinate the relocation of Rio Tinto powerlines currently over the Ministers North mining area, including the sharing of biological survey information to enable Rio Tinto to seek required Government approvals.	Rio Tinto has facilitated access by BHP across the Rio Tinto tenure. BHP and Rio Tinto continue to work cooperatively to facilitate the realignment of the Rio Tinto powerlines.

4 Validation process

4.1 Guidance

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

- DCCEEW (2023) Recovery Plan for the Greater Bilby (*Macrotis lagotis*)
- DotE (2013) Matters of National Environmental Significance Significant Impact Guidelines 1.1 EPBC Act
- DotE (2015) Threat abatement plan for predation by feral cats
- DotE (2016) EPBC Act referral guideline for the endangered Northern Quoll
- Department of the Environment, Water, Heritage and the Arts (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)
- 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 (2008) Conservation Advice *Lias barroni* Olive Python – Pilbara subspecies
- 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 Attracitons (DBCA) (2017) *Guidelines for surveys to detect the presence of bilbies and assess the importance of habitat in Western Australia*. DBCA

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 the 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.

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 Table 4-1 with survey boundaries illustrated on Figure 4-1. Appendix 2 provides these survey reports and Figure 4-2 shows additional historic survey coverage[5].

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

The Activity Area has been subject to a comprehensive and contemporary survey effort (Table 4-1 and Table 4-2). The biological surveys include 'desktop' literature reviews and field-based 'detailed' and 'targeted' survey methodologies. The biological surveys were undertaken by suitably qualified and experienced environmental professionals in the survey and identification of vertebrate and invertebrate terrestrial fauna for the bioregion. Each of the biological surveys conform to the relevant survey guidance requirements that were applicable to the type of survey completed.

For the most recent targeted significant vertebrate fauna survey, Astron (2025), reported only minor limitations for the factors of “completeness” and “remoteness and/or access”. The limitation was due to access to a portion of Gorge/Gully habitat through the south-west corner being relatively inaccessible, however, it should be noted that the area that was relatively inaccessible, falls outside of the Activity Area and as such does not represent a limitation for the Activity. Astron (2025) noted for all other factors (e.g. timing, disturbances, intensity, resources, and availability of contextual information), there were no limitations.

All habitats considered suitable for MNES species within the Activity Area have been adequately surveyed. Contemporary surveys have been undertaken across the Activity Area and 500 m buffer, aside from at Yandi where existing mining and existing disturbance has constrained coverage (see Figure 4-1). Nevertheless, combined with historic coverage as shown in Figure 4-2, the entire Activity Area and 500 m buffer has been appropriately surveyed.

The breadth of and results of the multiple biological surveys, as discussed in Table 4-1 and Table 4-2, provide a high level of confidence as to the understanding of the terrestrial fauna values present, and upon which the potential environmental impacts of the Activity can be appropriately assessed.

[5] It should be noted that the historic survey coverage includes a large number of surveys intersecting the Activity Area (as described in Table 4-2), however, given the age of a number of these surveys, the full suite of sampling site data including targeted searches was not fully available to be displayed in the subsequent fauna figures (i.e. Figure 5.4, Figure 5.9 and so on). As such, these figures display an underrepresentation of total sampling effort for these Program Matters.

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

Title	Date	Survey Type	Survey Summary
Vertebrate Fauna			
Spectrum (2026) Marillana Power 2030 Detailed Fauna Survey	16 - 28 October 2024	Single phase detailed fauna survey	A single-phase detailed terrestrial vertebrate fauna survey. Survey included habitat assessments, systematic trapping, avifauna census, motion camera trapping, bat surveys, acoustic call recorders, hand foraging and transects. A total of 106 vertebrate species were recorded during the survey: 16 mammals, 60 birds and 30 reptiles. This included one conservation significant species, the Western Pebble-mound mouse (*Pseudomys chapmani*) (P4). No Program Matters or other threatened fauna listed under the EPBC Act were recorded during this survey. The survey covered 352 ha of the Activity Area (842 ha when including the 500 m buffer).
Astron Environmental Services Pty Ltd (Astron) (2025) Consolidated Ministers North Targeted Significant Vertebrate Fauna Surveys	13 - 22 April 2023 and 7- 18 June 2024	Targeted significant fauna survey	One-hundred and forty-six habitat assessments were conducted within the fauna habitats. Motion sensitive cameras were set at 71 locations. Acoustic recording devices (Song Meter SM4) were positioned in a total of 18 locations. Autonomous Recording Units (ARUs) were used in the most prospective habitats (for night parrot) for 36 recording nights. Two 4 ha plots of 200 m x 200 m, and three 2 ha plots of 200 m x 100 m were traversed on foot with track logs recorded on a handheld GPS unit (for Greater Bilby). A total of 48 person hours of nocturnal spotlighting over five nights was undertaken in the Survey Area. Any potential roost caves identified within the Survey Area were assessed for the suitability to provide roosting for the ghost bat and Pilbara leaf-nosed bat. One-hundred and eleven vertebrate fauna were recorded within the Survey Area, comprising one amphibian, 25 reptile, 64 bird, and 21 mammal (including three introduced) species. Three Program Matters, Northern Quoll (*Dasyurus hallucatus*), Ghost Bat (*Macroderma gigas*), and Pilbara Olive Python (*Liasis olivaceus*), were recorded during the current surveys. Only the Ghost Bat records occur within the Activity Area. The survey covered 3,725 ha of the Activity Area (5,233 ha when including the 500 m buffer).
Biologic (2025a) MAC to Yandi Corridor & Runaway Valley North Targeted Vertebrate MNES Fauna Survey	21 – 30 May 2025	Single season targeted vertebrate fauna survey	A single season targeted vertebrate fauna survey of the Mining Area C to Yandi Corridor and Runaway Valley North area (approximately 5,277 hectares). Survey 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 Ghost Bat was recorded during this survey (one ghost bat scat and a single ghost bat call) was recorded via ultrasonic recorder but not within the Activity Area or 500 m buffer. The survey covered 0.25 ha of the Activity Area (39 ha when including the 500 m buffer).

Title	Date	Survey Type	Survey Summary
Astron (2023) Yandi 45C Targeted Significant Vertebrate Fauna Survey.	22 Sept – 2 Oct 2022	Targeted significant fauna survey	Eighty habitat assessments were conducted within the ten fauna habitats present in the survey area. Motion sensitive cameras were set at 40 locations for five nights, with a combined trapping effort of 200 camera trap nights. Acoustic recording devices (Song Meter (SM) 4) were set for three nights at seven locations, resulting in a total of 21 recording nights. ARUs (for Night Parrot) recorded 1-hour pre-sunset to 1-hour post-dawn, were set at two locations for six nights, resulting in a total of 12 recording nights. Six 2 ha plots (for Greater Bilby) of either 50 m x 400 m or 100 m x 200 m were traversed on foot with track logs recorded on a handheld GPS unit. There were 91 vertebrate fauna species recorded within the survey area, comprising of seven reptiles, 66 birds, and 18 mammals (including four introduced species). The fauna species assemblage recorded during the survey was considered typical for the Pilbara region. The survey covered 524 ha of the Activity Area (648 ha when including the 500 m buffer).
Biologic (2023a) Central Pilbara Hub: Targeted Matters of National Environmental Significance Vertebrate Fauna Survey	4 – 13 April 2022 (relevant dates to the Activity)	Targeted significant fauna survey	Due to the size of the Study Area (approximately 60,000 ha[6]), the field survey was undertaken over five separate field trips. Calls of Pilbara leaf-nosed bats were recorded at four locations during the survey (note these do not intersect the Activity Area). Ghost Bat calls were recorded on 33 nights at four locations (note these do not intersect the Activity Area). No evidence of other MNES were recorded. The survey covered 397 ha of the Activity Area (809 ha when including the 500 m buffer).
Biologic (2023b) Targeted Pilbara Olive Python Survey: South Flank and Mining Area C	7 – 14 March 2023	Targeted monitoring for the Pilbara Olive Python	The survey consisted of a single season targeted Pilbara Olive Python survey within and surrounding MAC/SF. Additional environmental DNA (eDNA) sampling undertaken at ten water features within the Study Area and Regional Study Area. Pilbara Olive Python were recorded on three occasions within Gorge / Gully habitat, from one visual observation and two eDNA detections. These records do not coincide with the Activity Area. The survey covered 24 ha of the Activity Area (38 ha when including the 500 m buffer).

[6] Only a small portion of this survey intersects with the project – Mining Area C to Yandi Rail Corridor assessment area

4.2.2 Other surveys

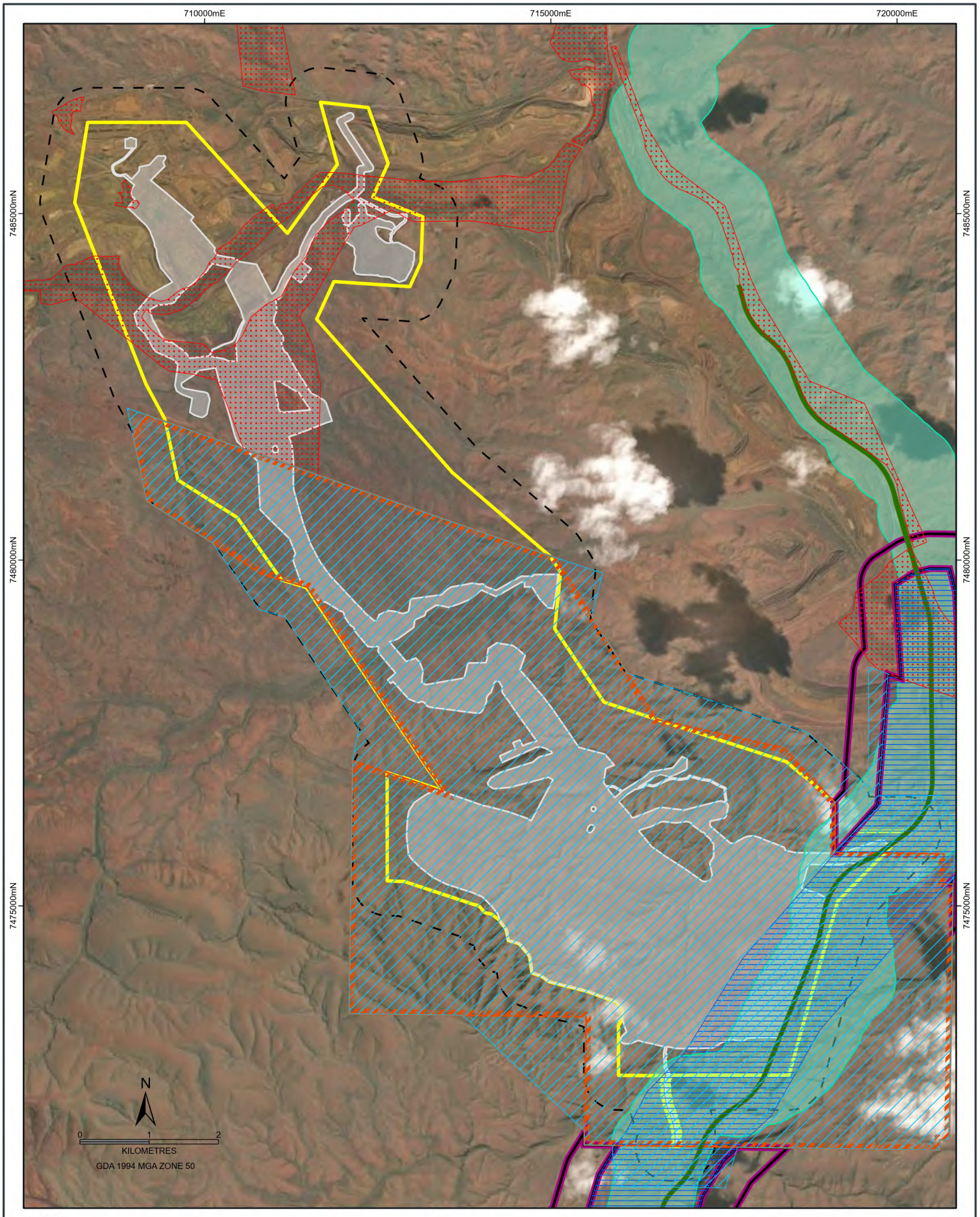
Table 4-2: Historical surveys[7]

Title	Date	Survey Type	Survey Summary
Vertebrate Fauna			
GHD (2021a) Ministers North Fauna Survey Level 1 Survey	9 Sept – 20 Sept 2019	Single season Level 1 fauna assessment	Opportunistic active searches were carried out throughout the survey area for the duration of the survey. Conservation significant species were targeted. Five locations were assessed with bird acoustic recorders and five locations were assessed with bat acoustic recorders. In addition, 10 remote cameras were deployed. The fauna survey identified 67 species of vertebrate fauna. This number comprises 40 birds, 19 mammals and eight reptiles. Two conservation significant fauna species were recorded during the field survey: Ghost Bat; Western Pebble-mound Mouse. The survey covered 1,965 ha of the Activity Area (2,278 ha when including the 500m buffer).
Biologic (2018) Ministers North to Yandi Corridor Two Phase Targeted Fauna Survey	Phase 1: 9 – 13 Oct 2017 Phase 2: 15 – 23 June 2018	Two phase targeted fauna survey	The surveys consisted of habitat assessments, targeted transect searches; motion cameras; ultrasonic bat recordings, acoustic bird recordings, Northern Quoll trapping sites and opportunistic recording of fauna species. Two species of conservation significance were recorded during the current survey: the Western Pebble Mound Mouse and the Peregrine Falcon (*Falco peregrinus*). The survey covered 1,769 ha of the Activity Area and (2,021 ha when including the 500m buffer).
Biologic (2017b) Ministers North Level 2 Vertebrate Fauna Survey	15 – 26 October 2016 and 3 – 13 April 2017	Two season Level 2 Fauna Survey	The survey recorded 116 vertebrate fauna species, comprising 17 mammal species, 54 bird species, 43 reptile species, and 2 amphibians. Two conservation significant species were recorded: the Western Pebble-mound Mouse (Priority) and Rainbow Bee-eater (no longer conservation significant). No species listed as Threatened were recorded. The survey covered 1,541 ha of the Activity Area (2,164 ha when including the 500m buffer).
Biota (2013) Area C West to Yandi Level 2 Vertebrate Fauna Survey	Three phases: May/June 2011, dry season September 2011, wet season in February 2012	Three phase level 2 fauna survey	Phases 1 and 2 employed systematic sampling at 23 trapping transects, consisting of pitfall transects, medium and large Elliott trapping transects and funnel transects. Avifauna surveys were also conducted at trapping sites, totalling 31.5 hours of bird censusing. In addition, over 13 hours was spent on opportunistic avifauna surveying. The Phase 3 survey specifically targeted nocturnal fauna. The survey covered 25 ha of the Activity Area (81 ha when including the 500m buffer).

[7] GHD Pty Ltd (GHD) (2021b) *Ministers North Fauna Survey Level 2 Survey* is shown on Figure 4-2 due to its proximity to the Activity, however, this sits outside the 500 m buffer (approx. 520 m from the Activity) and as such is not included in Table 4-2.

Title	Date	Survey Type	Survey Summary
Biologic (2011) Area C to Yandi Fauna Survey	September 2010	Fauna assessment including habitat mapping and opportunistic surveys	The survey consisted off opportunistic sampling (36 hours across 13 locations), bird surveys at each opportunistic site, bat surveys, motion sensitive cameras, habitat assessments and targeted searches. This survey recorded 13 native and three introduced mammals, 47 birds, 10 reptiles and one amphibian, totalling 74 species. Ghost Bat scats were recorded in cave ACY 1 (outside of the Activity Area). The survey covered 401 ha of the Activity Area (814 ha when including the 500m buffer).
Biologic (2011) Yandi Vertebrate Fauna Review	9 – 17 December 2010	Comprehensive fauna review and supplementary fauna survey	During the comprehensive review it was noted a total of 175 native vertebrate fauna species have been recorded from within the Study Area. This comprises 22 species of mammals (plus four introduced species), 96 species of birds, 50 species of reptiles and three species of amphibians. During the supplementary survey opportunistic surveys were conducted at 19 sites, encompassing all fauna habitats present within the Study Area. Targeted searches, bat surveys and motion sensitive cameras were also used during the supplementary survey. The supplementary field survey recorded a total of 75 fauna species, comprising eight mammals, 53 birds, 12 reptiles and two amphibians. The survey covered 1,832 ha of the Activity Area (2,891 ha when including the 500m buffer).
Biota (2010) Yandicoogina Junction South West Oxbow Fauna Survey	July 2008	Single phase fauna survey	The field survey consisted of systematic fauna sampling included pit-traps, funnel trap and Elliott traps. Nineteen avifauna censuses were conducted during the surveys at nine sites. The single-phase survey yielded a total of 72 vertebrate species, comprising 46 avifauna species, 12 mammals and 14 herpetofauna species. No Program Matters were recorded during the survey. The survey covered 46 ha of the Activity Area (113 ha when including the 500m buffer).
ENV Australia (2009) Munjina and Minsters North (Yandi Hub) Fauna Assessment	21 November - 2 December 2007	Level 2 fauna survey	The survey recorded 134 fauna species, consisting of 22 mammal species, 45 reptile species, one amphibian species and 66 bird species. No species listed as Threatened under either State or Commonwealth legislation were recorded. The survey covered 1,541 ha of the Activity Area (2,164 ha when including the 500m buffer).
ENV Australia (2009) Newman to Yandi Transmission Line Terrestrial Vertebrate Fauna Assessment	7 – 16 May 2009	Level 1 fauna survey	The survey consisted of a fauna habitat assessment, an ornithological census, general fauna searches, and bat echolocation detection. The survey recorded a total of 76 terrestrial vertebrate fauna species including nine reptile species, 59 bird and eight mammal species. No Program Matters were recorded. The survey covered 91 ha of the Activity Area (134 ha when including the 500m buffer).
Ecologia Environment (2008) Marillana Creek (Yandi) Iron Ore Mine Modification Level 2 Fauna Survey	19 – 30 March 2008	Level 2 (detailed) fauna survey	The survey was undertaken using a variety of sampling techniques including systematic and opportunistic sampling. The survey recorded 16 native mammals, three introduced mammals, 60 bird species, 37 reptile species and three amphibian species. No Program Matters were recorded. The survey covered 133 ha of the Activity Area (402 ha when including the 500m buffer).

Title	Date	Survey Type	Survey Summary
ENV Australia (2008) RGP5 Railway Project Biological Assessments	21 – 28 May 2008	Level 1 fauna survey	The survey included opportunistic searches and habitat assessments. Diurnal and nocturnal surveys were undertaken. One Program Matter was recorded, the Pilbara Olive Python (*Liasis olivaceus barroni*), observed dead in the mouth of a Perentie (*Varanus giganteus*). The survey covered 1,832 ha of the Activity Area (2,891 ha when including the 500m buffer).
Ecologia (2006) Ministers North Biological Survey	10th May - 14th May 2006	Baseline vertebrate fauna survey of drill pad locations	The survey recorded 71 species, including 18 reptiles, 42 birds, 10 mammals and one frog One fauna species of conservation significance was recorded; evidence of the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) was found in the form of potentially active burrows at numerous locations. The survey covered 1,540 ha of the Activity Area (2,164 ha when including the 500m buffer).
Ecologia (2004) Yandi Stockyard and Overland Conveyor Fauna and Flora Assessment	18 – 19 October 2004	Habitat assessment and fauna assessment	A habitat assessment was conducted in the field, with a fauna assessment undertaken using published and unpublished material. Four species of significance have been recorded in the study area, being the Pilbara Olive Python, Peregrine Falcon, Western Pebble-mound mouse and Australian Bustard. The survey covered 31 ha of the Activity Area (62 ha when including the 500m buffer).
Maunsell, Bamford Consulting (2003) Yandi Life of Mine Flora and Fauna	23 – 28 September 2003	Fauna survey	Field work involved traversing the survey areas, targeting significant species. Opportunistic searches, spotlighting, and bat surveys were undertaken. The survey covered 1,830 ha of the Activity Area (2,888 ha when including the 500m buffer).
Halpern Glick Maunsell, (1999) Marillana Creek Western Access Corridor – Biological Assessment	April 1999	Opportunistic	A total of 42 birds, 5 mammals, 1 reptile and 1 frog were recorded. One fauna species of conservation significance was recorded; Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4). However, no species listed as Threatened under either State or Commonwealth legislation were recorded. The survey covered 2,594 ha of the Activity Area (3,861 ha when including the 500m buffer).



Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer
- Indicative Footprint (2,360 ha)

Contemporary Vertebrate Fauna Biological Surveys

- (Spectrum 2026) Marillana Power Detailed Fauna Survey
- (Astron 2025) Consolidated Ministers North Targeted Significant Vertebrate Fauna Surveys
- (Biologic 2025) MAC to Yandi Corridor & Runaway Valley North Targeted Vertebrate MNES Fauna Survey
- (Astron 2023a) Ministers North Targeted Significant Vertebrate Fauna Survey
- (Astron 2023b) Yandi 45C Targeted Significant Vertebrate Fauna Survey
- (Biologic 2023a) Central Pilbara Hub Targeted Matters of National Environmental Significance Vertebrate Fauna Survey
- (Biologic 2023b) Targeted Vertebrate Fauna Survey; Pilbara olive python South Flank and Mining Area C

BHP

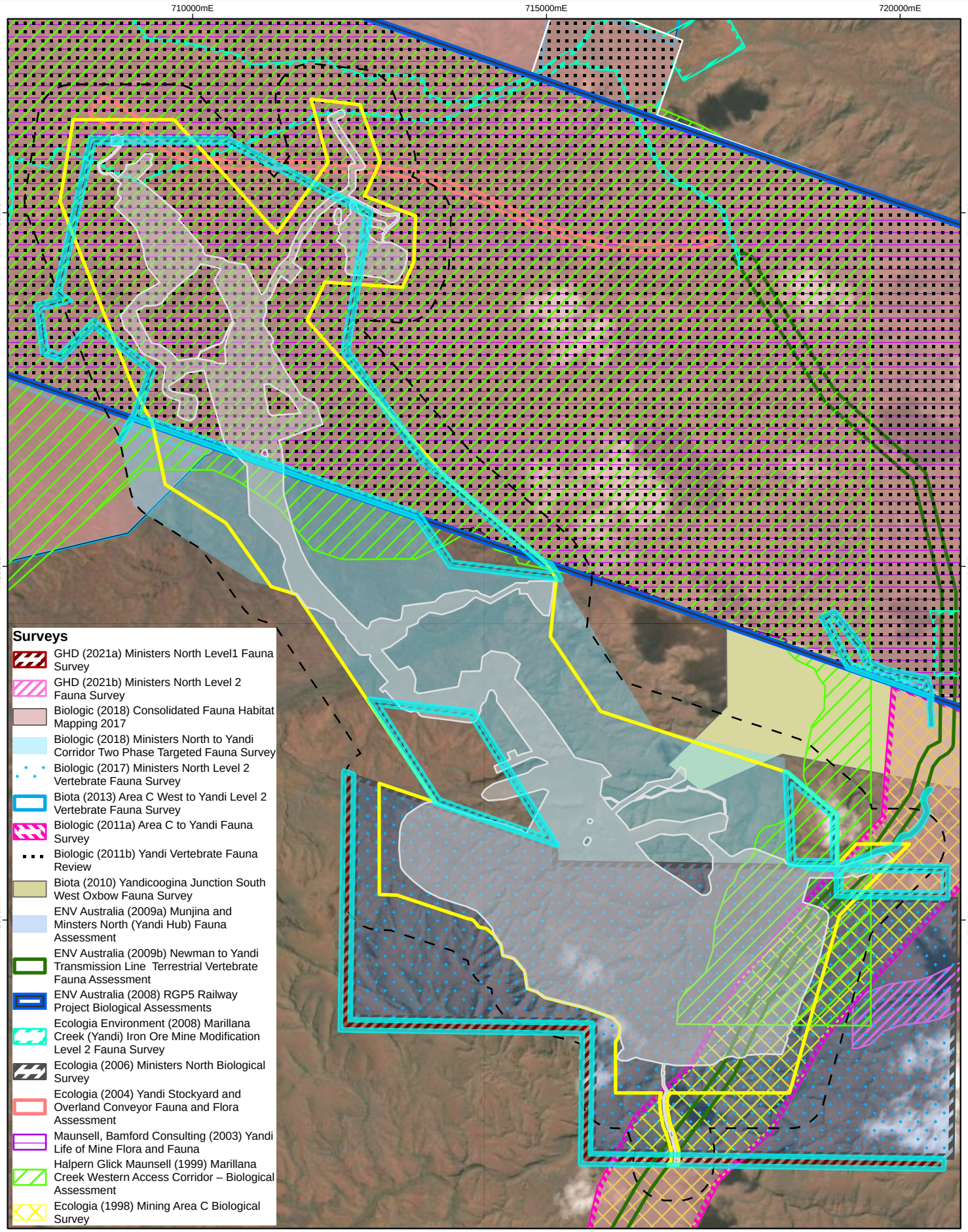
PUBLIC

MINISTERS NORTH
CONTEMPORARY VERTEBRATE FAUNA SURVEYS UNDERTAKEN IN THE ACTIVITY AREA

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:70,000	REQUESTOR:	PROJECTS	FIGURE:	4-1
DATE:	20/05/2026	PREPARED:	GEOMATICS	NO:	A1412-003 RevB
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_003_MNValidationNotice_FaunaSurveys.aprx



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer

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KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

MINISTERS NORTH

HISTORICAL FAUNA SURVEY COVERAGE RELEVANT TO THE ACTIVITY AREA

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:70,000	REQUESTOR:	PROJECTS	FIGURE:	4-2
DATE:	20/05/2026	PREPARED:	GEOMATICS	NO:	A1412-004 RevC
		REVIEWED:			

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5 Existing environmental values

5.1 Fauna habitats

Detailed fauna habitat mapping of the Activity Area has been completed as part of numerous surveys undertaken for the Activity. A total of 13 fauna habitat types have been mapped within the Activity Area (refer to Table 5-1 and Figure 5-1):

- Hillcrest / Hillslope
- Undulating Low Hills
- Gorge / Gully
- Breakaway / Cliff
- Boulders / Rockpiles[8].
- Drainage Area / Floodplain
- Minor Drainage Line
- Medium Drainage Line
- Major Drainage Line
- Mulga Woodland
- Sand Plain
- Sandy/Stony PlainWetland

In addition, there are 'Cleared / Disturbed' and 'Rehabilitated Area'; and these areas largely coincide with the existing operations at Yandi and generally representing limited fauna habitat value (Astron 2025, GHD 2021a, 2021b).

5.1.1 Local Hydrology

Watercourses in the Activity Area are ephemeral and flow in response to seasonal rainfall events, coinciding with the December to March wet season. There are four ephemeral watercourses within the Activity Area including Marillana Creek, Central Tributary, Mungadoo Tributary and Yandicoogina Creek. The creeks and river systems support riparian vegetation and water values which are of cultural importance to the Banjima Traditional Owners and may support Program Matters.

At the local scale within the Activity Area, the northern local catchments (Central Tributary catchment and Mungadoo Tributary catchment – as described in Stantec (2024) (Appendix 3) drain via minor drainage lines in a northerly direction towards Marillana Creek. These local tributary catchments have an area of approximately 50 km^2 (Central) and 24 km^2 (Mungadoo).

The southern local catchment (Yandicoogina Creek catchment) drains in a south-easterly direction to Yandicoogina Creek. Yandicoogina Creek (a tributary of Marillana Creek) is approximately 42 km in length and flows in a northeasterly direction east of the Development Envelope (partially intersecting). The upper reaches of Yandicoogina

[8] The fauna habitat type of "Boulders / Rockpiles" identified by Astron Environmental (2025) is named as "Basalt Outcrops" in GHD (2021a).

Creek comprise a relatively broad, un-defined channel, however, in the mid to lower reaches, the creek flows through a gorge system and becomes well defined. Yandicoogina Creek joins Marillana Creek approximately 10 km downstream of the Activity Area.

Surface Water Features

The hydrology of Pilbara pools is shaped by the region's arid climate and ephemeral, high-intensity rainfall events, often associated with tropical cyclones. These pools are typically located along watercourses and are sustained by surface water from rainfall, groundwater discharge or a combination of both. Pool persistence can range from permanent, semi-permanent or ephemeral. Their persistence is influenced by factors such as depth, shading, bedrock barriers, and groundwater, which help retain water during dry periods. This hydrological resilience makes them critical refuges during droughts and key components of the region's water-dependent ecosystems.

There are 21 surface water pools within the catchments described above. Of which, no pools are located within the Indicative Footprint and nine are located within the Activity Area as summarised in Table 5-2 (and shown in Figure 5-2). There are four pools located in the Mining Exclusion Zone (MEZ) proposed for Ghost Bats as discussed later in this document.

Table 5-1: Fauna habitats in the Activity Area

Habitat Type	Description	Extent within Activity Area (ha)	Extent within Indicative Footprint[9] (to be cleared, ha)
Hillcrest / Hillslope	Broad Habitat Description: Characterised by large open rocky areas with open grasslands, predominantly *Triodia* hummock grasslands with emergent *Eucalyptus* trees and mixed shrubs. Microhabitats: Overhangs, tree hollows, crevices, old *Triodia* and leaf litter. This habitat was widespread across the survey area. Hillcrest/ Hillslope habitat provides supporting habitat for Northern Quoll due to its foraging value.	3,495.8	1,518.0
Undulating Low Hills	Undulating low hills, footslope, hillslope, hillcrest/upper hillslope, ironstone outcrops, with Scattered eucalypts over open Acacia shrubland over Triodia hummock grassland over gravelly silty or sandy clay loam. This habitat is widespread and common throughout the Pilbara region and exhibits low vegetation complexity and low diversity of microhabitats. May provide supporting habitat for the Grey Falcon but is otherwise low value as it has low vegetation complexity and low diversity of microhabitats.	58.2	12.2
Gorge / Gully	Broad Habitat Description: Semi-enclosed rock formations in association with rocky hills, drainage lines and breakaways. *Eucalyptus*/*Corymbia* trees over mixed shrubs, *Triodia* spp. and tussock grassland. Microhabitats: Caves, overhangs, crevices, rock pile, leaf litter, thick undergrowth, old *Triodia*, pools, tree hollows and logs. A number of potential Ghost Bat roost caves were recorded in this habitat type, including two Category 3 roost caves. Seven small surface water features were recorded in this habitat type. This habitat type provides critical habitat for a number of species including Ghost Bat, Northern Quoll and Pilbara Olive Python.	152.1	86.0
Drainage Area / Floodplain	Broad Habitat Description: Flat plains in association with drainage lines, gorges and breakaways. Often mixed shrubland with emergent *Corymbia* sp. over *Triodia* spp. on stony soils with occasional sandy soils. Microhabitats: Logs, tree hollows, thick undergrowth, soft soil (burrows), old *Triodia*, leaf litter, rock pile and termite mounds. Drainage Area / Floodplain habitat consisted of two valleys running east-west through the central and northern part of the Activity Area, in which the northern valley is intersected by a tributary of	243.8	111.9

[9] The Indicative Footprint is located wholly within the Activity Area.

Habitat Type	Description	Extent within Activity Area (ha)	Extent within Indicative Footprint[9] (to be cleared, ha)
	Marillana Creek. This habitat type represents supporting habitat for the Northern Quoll, and critical habitat for the Ghost Bat (foraging habitat within 12km buffer of Category 2 roost cave).		
Minor Drainage Line	Broad Habitat Description: Minor drainage channel often with thick *Acacia* growth along banks. Microhabitats: Logs, tree hollows, thick undergrowth, soft soil (burrows), leaf litter, old *Triodia* and overhangs. Minor Drainage line habitat typically consisted of small drainage channels with low eucalypt woodland growing on the fringes. Minor Drainage Line habitat provides critical foraging habitat for Ghost Bat (within 12 km buffer of Category 2 roost cave), while supporting habitat is provided to Northern Quoll, Ghost Bat (outside of the 12 km buffer), and Pilbara Olive Python for foraging and dispersal values.	142.0	48.9
Medium Drainage Line	Typically consists of small drainage channels with eucalypt woodlands growing in the riparian zone. A moderate diversity of microhabitats occurs with some seasonal presence of pools, tree hollows and woody debris (logs and leaf litter). Buffel grass is often present in the ground story vegetation, reducing floral diversity. Provides critical foraging habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat. Otherwise, provides supporting habitat for Northern Quoll, Pilbara Olive Python, Ghost bat and Pilbara Leaf-nosed Bat.	1.4	<0.1
Major Drainage Line	Broad Habitat Description: Large drainage channel over 10 m in width in association with gorges, floodplains, rocky hills. Presence of tall *Melaleuca* and *Eucalyptus* trees over mixed shrubs and tussock and *Triodia* spp. grasses. Microhabitats: Logs, tree hollows, crevices, rock pile, thick undergrowth, old *Triodia*, soft soil (burrows), leaf litter and pools. Major Drainage line habitat within the Activity Area consisted of two major drainage channels in association with rocky habitats. During the recent survey (Astron 2025), three surface water features were identified within this habitat type	131.6	15.9
Breakaway / Cliff	Broad Habitat Description: Exposed rock formations often associated with Hillcrest/Hillslope, Gully/Gorges, Drainage lines or Floodplains. Microhabitats: Overhangs, crevices, caves and rock pile. This habitat type is generally unsuitable for a wide range of fauna species due to limited soft soil, leaf litter, and dense vegetation (Astron 2025). However, it provides potential denning, roosting,	82.6	13.6

Habitat Type	Description	Extent within Activity Area (ha)	Extent within Indicative Footprint[9] (to be cleared, ha)
	foraging and sheltering, and subsequently represents potential critical habitat for Northern Quoll and Pilbara Olive Python, and supporting habitat for Ghost Bat in the absence of critical roost caves.		
Boulders / Rockpiles	Broad Habitat Description: Basalt outcrops in association with Minor Drainage Lines and rocky hills with *Eucalyptus*/*Corymbia* trees over mixed shrubs, *Triodia* spp. and tussock grassland. Microhabitats: Rock pile, crevices, tree hollows and old *Triodia*. The boulder piles in the Activity Area were shallow and not extensive enough to provide significant (critical) denning habitat. Nevertheless, the habitat type provides supporting habitat for fauna species that utilise crevices in rocky substrates, such as the Northern Quoll and Pilbara Olive Python.	29.5	13.9
Mulga Woodland Habitat	Mulga Woodland habitat comprises stands of mulga (*Acacia aneura* and other *Acacia* spp.) over clay or stony substrates. Differs from other plains by having a monoculture of mulga compared to a diversity of other Acacia species. This habitat type may provide critical foraging habitat for Ghost Bat where it occurs within <12 km of Category 2 roost caves (and supporting habitat when outside of the 12 km buffer).	1.3	0.2
Sand Plain Habitat	Characterised by relatively deep sandy soils supporting dense spinifex grasslands and sparse shrubs. This habitat type does not provide critical or supporting habitat for significant fauna identified in proximity to the Activity Area.	<0.1	0
Sandy / Stony Plain	This habitat is characterised by large hummock *Triodia* grasses or stands of *Acacia* or other shrubs over clay or stony substrates. Common throughout the Pilbara region and provides habitat for a wide spectrum of fauna species. Contains logs, tree hollows, thick undergrowth, leaf litter, soft soil (burrows), and old Triodia. Provides critical foraging habitat for Ghost Bat where it occurs within 12 km of critical roosting habitat. Otherwise, provides supporting habitat for Northern Quoll, Ghost bat and Grey Falcon.	4.8	0
Wetland	Differs from surface water features as they are generally a larger water body that supports their own distinct ecosystem and aquatic fauna assemblages. Due to their rarity in the Pilbara region, these habitats generally have elevated significance. Provides critical foraging habitat for Pilbara Olive Python and supporting habitat for Northern Quoll. Critical foraging habitat for Ghost Bat (when within 12 km of critical roosting habitat).	4.1	0.6

Habitat Type	Description	Extent within Activity Area (ha)	Extent within Indicative Footprint[9] (to be cleared, ha)
No survey data[10]		12	0
Total Habitat		4,401.6	1,848
Cleared Areas[11]		1,197.3[12] 89 ha currently rehabilitated	539[13] 87.9 ha currently rehabilitated
Total		5,556.6	2,360.2
Total (rounded)		5,557	2,360

[10] Coincides with the boundary between tenements where survey boundaries did not completely align (thin long slither in mapping boundaries)

[11] Refer to Section 2.3. Area already cleared under other approvals mechanisms (i.e. NVCP (WA) approvals) and prior to EPBC Strategic Approval. Clearing includes data captured by BHPs clearing reporting, satellite reconciliation, and cleared/disturbed habitats as mapped by consultants outside of BHP "Cleared areas"

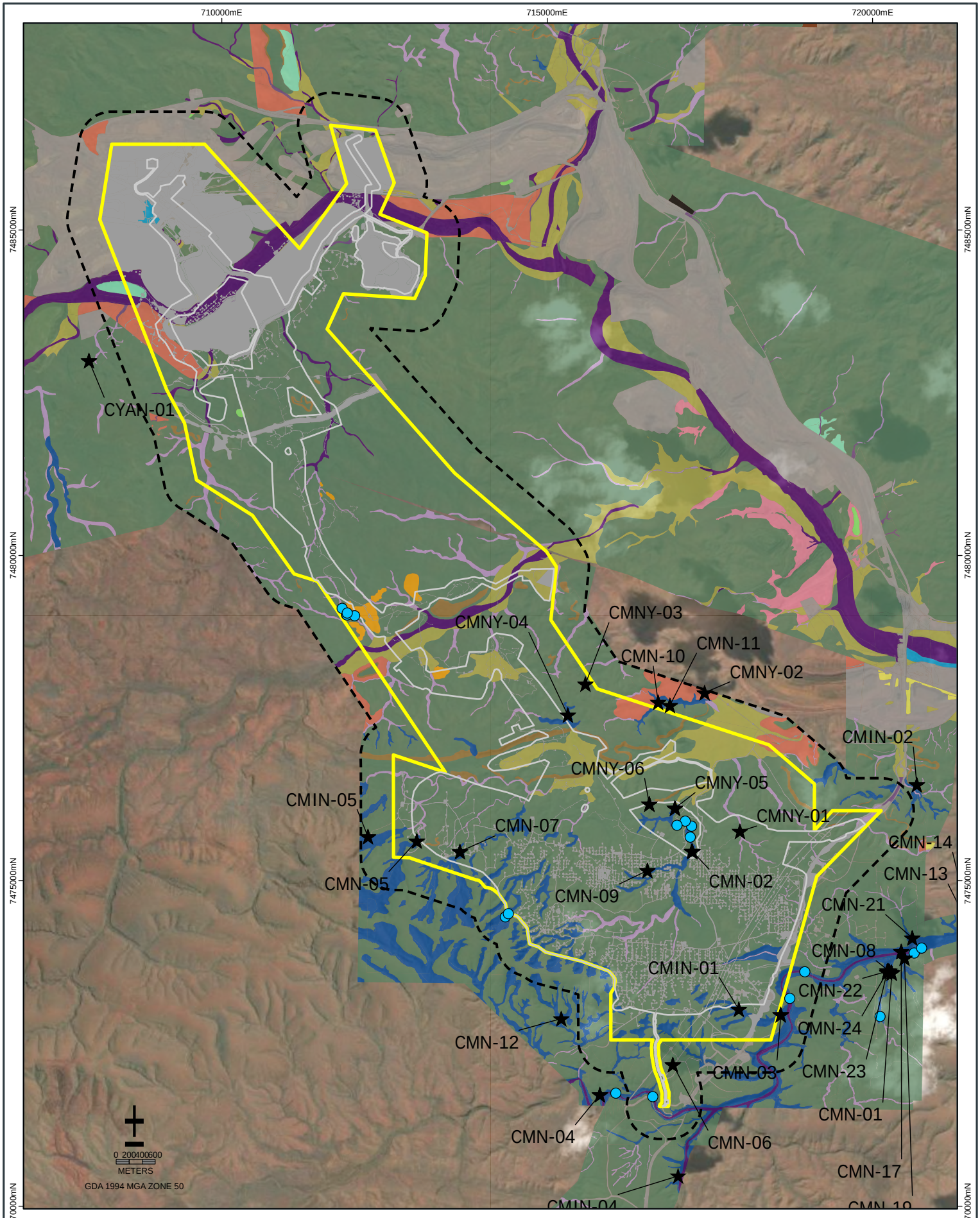
[12] Incorporates 1,155 ha as captured by BHP clearing reconciliation and an additional 42.3 ha as mapped as cleared/disturbed by consultants mapping outside of BHP cleared areas.

[13] Incorporates 512 ha as captured by BHP clearing reconciliation and an additional 26.8 ha as mapped as cleared/disturbed by consultants mapping outside of BHP cleared areas.

Table 5-2: Surface Water Features within and in proximity to the Activity Area

Water feature ID	Description	Location	Approximate Depth to Groundwater	Surface Water Hydrology
Inside Development Envelope				
WMN-1	Tiny seep	Within MEZ	22 m	Mungadoo Tributary
WMN-2	Ephemeral rock pool	Within MEZ	19 m	Mungadoo Tributary
WMN-3	Ephemeral rock pool	Within MEZ	17 m	Mungadoo Tributary
WMN-4	Ephemeral rock pool	Within MEZ	17m	Mungadoo Tributary
MNY-WB-09	Series of three semi permanent rock pools	Within Activity Area but outside Indicative Footprint	23 m	Central Tributary
MNY-WB-03	Series of three semi permanent rock pools	Within Activity Area but outside Indicative Footprint	20 m	Central Tributary
MNY-WB-08	Series of three semi permanent rock pools	Within Activity Area but outside Indicative Footprint	20 m	Central Tributary
MNY-WB-06	Semi-permanent pool	Within Activity Area but outside Indicative Footprint	28 m	Central Tributary
MNY-WB-07	Semi-permanent rock pool	Within Activity Area but outside Indicative Footprint	27 m	Central Tributary
Outside Activity Area				
WMIN-02	Semi-permanent pool	Yandicoogina Creek, west of Activity Area	7 m	Yandicoogina Creek
WMN-5 (WMIN-04)	Semi-permanent pool	Yandicoogina Creek, 150 m west of Activity Area	Near surface	Yandicoogina Creek
WMN-6 (WMIN-03)	Semi-permanent river pool	Yandicoogina Creek, 200 m south east of Activity Area	Less than 1m	Yandicoogina Creek

Water feature ID	Description	Location	Approximate Depth to Groundwater	Surface Water Hydrology
WMN-7 (WMIN-01)	Semi-permanent pool	Yandicoogina Creek 90m east of Activity Area	10 m	Yandicoogina Creek
WMN-8	Small rock pool	On boundary of north western edge of Activity Area	150 m	Mungadoo tributary (Upstream of Proposed mine pits)
WMN-9	1m deep rock pool	On boundary of north western edge of Activity Area	150 m	Mungadoo tributary (Upstream of Proposed mine pits)
WMN-10	5m x3.5m wide pool, approximately 0.5m deep, at base of Breakaway/Cliff	Yandicoogina Creek 1.5 km east of Activity Area	42 m	Yandicoogina Creek
Yandicoogina Gorge Pools (outside Activity Area)				
YC1	Small, shallow seep	Yandicoogina Creek, 1.8 km east of Activity Area	At surface	Yandicoogina Creek
YC2	Small, shallow seep	Yandicoogina Creek, 1.8 km east of Activity Area	At surface	Yandicoogina Creek
YC3	Small, shallow seep	Yandicoogina Creek, 3.1 km east of Activity Area	At surface	Yandicoogina Creek
YC4	Permanent, spring-fed creek pool	Yandicoogina Creek, 3.1 km east of Activity Area	At surface	Yandicoogina Creek



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer
- Surface Water Features
- Bat Cave Sites

HabitatMapping2

Habitat Type

- Basalt Outcrops
- Boulders/ Rockpiles
- Breakaway/ Cliff
- Cleared/ Disturbed
- Drainage Area/ Floodplain
- Gorge/ Gully
- Hardpan Plain
- Hillcrest/ Hillslope
- Ironstone Outcrops
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Sand Plain
- Sandy/ Stony Plain
- Stony Plain
- Undulating Low Hills
- Wetland

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FAUNA HABITAT WITHIN THE ACTIVITY AREA

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:74,563	REQUESTOR:	PROJECTS	FIGURE:	5-1
DATE:	22/05/2026	PREPARED:	GEOMATICS	NO:	A1412-004 RevB
		REVIEWED:			

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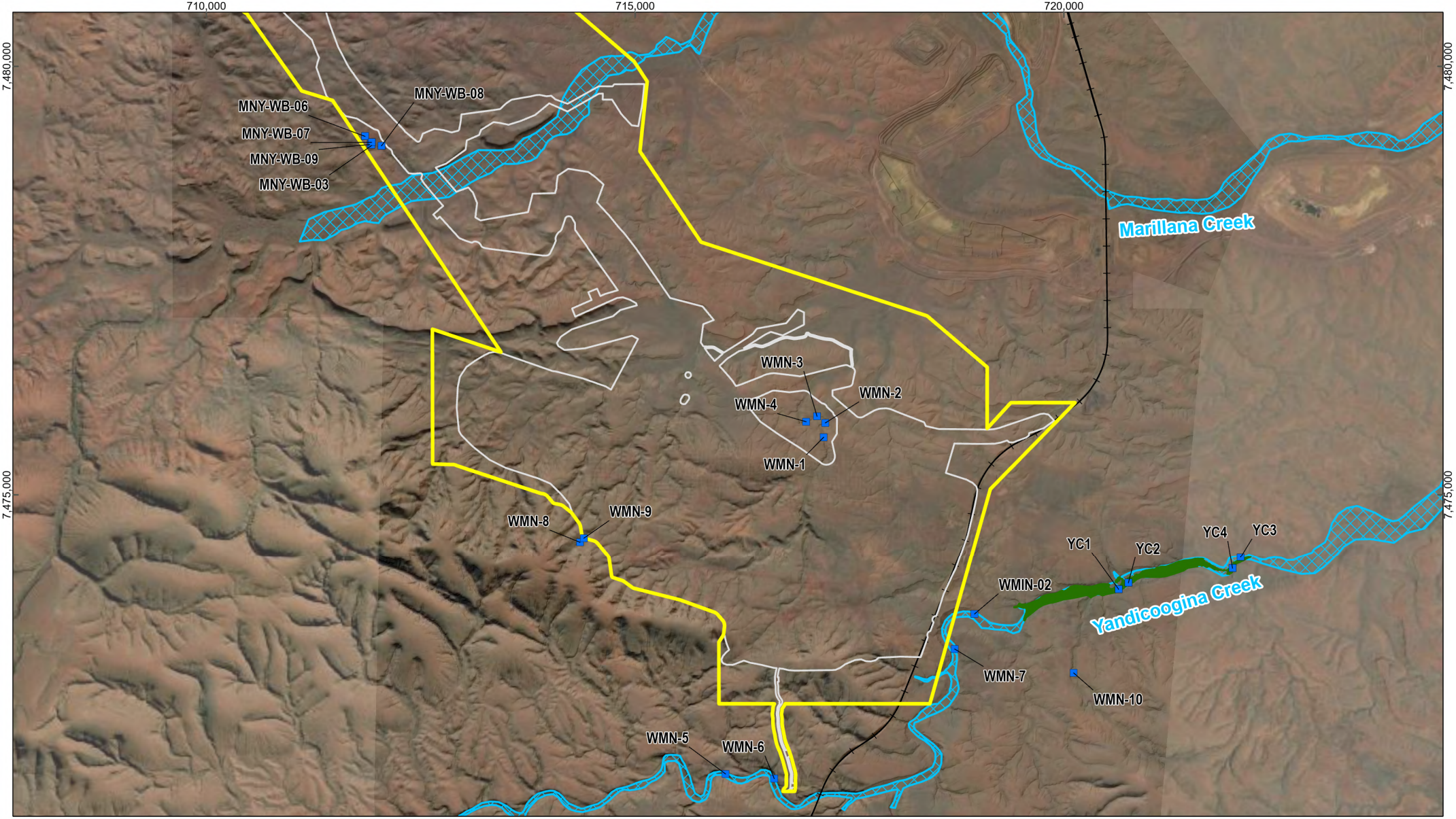

Legend

- Development Envelope (5,557 ha)
- Indicative Footprint (2,360 ha)
- Groundwater Dependent Ecosystem
- BHP Rail
- Surface Water Features

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Kilometers

GDA 1994 MGA ZONE 50

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SURFACE WATER FEATURES

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:60,000	REQUESTED:	PROJECTS	FIGURE:	5-2
DATE:	10/09/2025	PREPARED:	GEOMATICS		

A1317-052 RevD

Document Path: Y:\Jobs\A1001_A1500\A1317\3Project\A1317_052_E_MNERD_InlandWater_SurfaceWater_RevA.aprx

5.2 Ghost Bat

The following sections provide background information to demonstrate that Notifiable Action Triggers for Ghost Bat are met. Potential impacts on the Ghost Bat are assessed to demonstrate that the Program Matter Objective for this species (described below) 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 the Department of Parks and Wildlife (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 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 Drainage Area/Floodplain, Gorge/Gully, 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).

5.2.2 Regional habitat

The Ghost Bat was listed as a 'Vulnerable' species under the EPBC Act on 5 May 2016 and was included as a Program Matter for the Impact Assessment Report. As this species was a late inclusion in the Impact Assessment Report, a regional model was not developed; however, BHP conducted an impact assessment based on species records in order to determine cumulative impacts of the Program on the Ghost Bat (Figure 5-3).

5.2.3 Local habitat

The Activity Area falls within the current distribution of Ghost Bat whereby the species or species habitat is likely to occur (Figure 5-3). Ghost Bat habitat and records are shown in Figure 5-5 and survey areas are shown in Figure 5-4.

Astron (2025) undertook targeted searches for this species, including assessing caves for potential roosting. Any potential roost caves identified within the Activity Area were assessed for the suitability to provide roosting for the Ghost Bat using the following information:

- cave characteristics, including position of the cave in the landscape, angle of cave floor, orientation of cave opening, exposure of cave, and type of cave entrance
- cave dimensions, including overhang depth, cave entrance height and width, cave depth, number of chambers and their dimension (height and width)
- humidity and temperature inside the cave
- bat species present within the cave, including the presence of scats and feeding debris.

Ghost Bat Caves

Ghost Bat caves are classified into four categories as described below (as per Bat Call WA (2021)). Where a cave does not meet these categories, BHP has classified these as “Unsuitable” (i.e. typically dimensions not suitable for Ghost Bat roosting, including caves more similar to simple overhangs etc. - labelled as “Category 5 on figures).

- Category 1 - maternity/diurnal roost sites with permanent ghost bat occupancy
    - Usually, these caves are deep and dark, with one or more elevated roosting chambers that provide a stable microhabitat. Caves with proven permanent presence must all be assumed to be maternity caves, a source population for the surrounding district. They are therefore critical habitat for the ongoing presence of ghost bats in the area.
- Category 2 - maternity/diurnal roost caves with regular occupancy
    - These caves have similar features as Category 1 caves but are often less complex with only a single inner chamber and are often in less productive areas that the bats only utilise periodically.
- Category 3 - diurnal roost caves with occasional occupancy
    - Normally less well-developed structures, such places are often used as feeding sites (as evidenced by middens with food scraps) or temporary refuges. These caves may enable the long-distance movement of individuals across a landscape and therefore contribute to genetic exchange between neighbouring colonies.
- Category 4 - nocturnal roost caves with opportunistic usage
    - Typically, shallow caves, shelters and deep overhangs in the Pilbara which may be used in at least an opportunistic manner by itinerant ghost bats. This may be anything from a single foraging visit to a longer visit, with a resting period or possibly a feeding session.

Of the ten caves within the Activity Area, two caves met the criteria for a Category 3 Ghost Bat roost, six caves met the criteria for a Category 4 Ghost Bat roost (categories as per Bat Call WA (2021)), with the remaining two caves assessed as being unsuitable for use by Ghost Bat (see Table 5-3; Figure 5-5). No caves assessed for the Activity meet the criteria for a Category 1 or Category 2 roost. One cave (CMN-02) displayed geological characteristics potentially suitable to support a non-permanent maternal roost (Category 2); however, the lack of occupancy evident over the breeding and pupping seasons indicates that CMN-02 is a diurnal roost with occasional occupancy (Category 3).

Biologic assessed the area in 2017 and recorded cave CMN-02 (Biologic 2017). While it was described as having the desired features for a potential maternal roost, no Ghost Bats or scats were observed. A heritage team observed six individual Ghost Bats roosting in the cave in late March/early April 2023 (pers. comm. cited in Astron 2025). During the most recent fauna survey (Astron 2025), the cave was investigated on two separate occasions, and no Ghost Bats were observed, however, approximately 50 to 100 Ghost Bat scats were recorded. A bat detector was deployed at the entrance of the cave for three nights and did not detect Ghost Bat presence and scats from the cave were considered not to be recent. An additional long-term bat detector and scat sheet were placed within the cave between

September 2023 and June 2024, and no evidence of Ghost Bat was detected over this time via either sampling method. Moreover, no additional scat was identified during revisitation of the cave (Astron 2025).

A separate cave CMNY-05 (previously recorded potential feeding roost) was inspected 700 m north and approximately 50 to 100 Ghost Bat scats were recorded. The structure provided roosting opportunities for Ghost Bat with one chamber at a height of 1.9 m which provided moderate humidity, although some light exposure was evident. It was conservatively classified as a Category 3 roost during the survey due to suitability and evidence of usage.

Outside of the Activity Area, there are Category 2 Ghost Bat caves within 12 km of the Activity Area which influence the status of critical and supporting habitat (Bat Call WA 2021). These include CMIN-03 (approximately 2 km south of the Activity alongside existing rail between Ministers North and MAC), and two Category 2 roosts at MAC/SF (AC5 and AC9) (see Table 5-4).

Cave CMIN-03 (formerly called ACY 1) was noted as a potentially suitable roost for Ghost Bat on the basis of scats being present in the cave during a historic survey (Biologic 2011). This finding was prior to Category ratings being applied to Ghost Bat caves, with the Category 2 rating later applied in subsequent reports by consultants without any further documented evidence.

BHP notes Astron (2025) stated "*more recent cave assessments and broader ghost bat surveys have identified a potential overstatement in the initial Category 2 (for ghost bat) rating of CMIN-03, with the status of this cave to potentially be downgraded to Category 3 (T. Betts pers. comm., November 2024). If this cave is downgraded, then all reported critical ghost bat foraging habitat is to be recategorised as supporting habitat, with only Gorge/ Gully habitats to remain as critical habitat for ghost bat within the Survey Area*."

The corridor in proximity to CMIN-03 has been surveyed multiple times since the initial scat recording, with no further evidence of Ghost Bats utilising the area. Ongoing monitoring of the cave itself by BHP has found no further evidence of usage at this cave (Biologic 2024, Biologic 2025b) and light exposure is evident within the cave (BHP pers. comms). In light of the recent monitoring findings, BHP considers this cave does not represent a true Category 2 cave (as there is no regular occupancy and light exposure is evident).

Critical habitat

Ghost Bat critical habitat is typically represented by Category 1, Category 2 and Category 3 (in associated with Category 1 or 2 – i.e. apartment block) caves (none to be impacted by the Activity), as well as rocky outcrops (such as Gorge/Gully, Breakaway Cliff habitats). In addition, foraging habitat (e.g. Sand Plain, Stony Plain, Mulga Woodland, Drainage Area/Floodplain) within 12 km of the above caves are considered critical habitat.

As described above, there are no Category 1, Category 2, or Category 3 (in association with Category 1 or 2 – i.e. apartment block) caves within the Activity Area. However, critical habitat of Breakaway/Cliff and Gorge/Gully habitats occur, with 234.7 ha within the Activity Area and 99.6 ha within the Indicative Footprint (see Table 5-5).

In addition, foraging habitat (e.g. Sand Plain, Stony Plain, Mulga Woodland, Drainage Area/Floodplain) within 12 km of CMIN-03 is considered critical foraging habitat, of which 387.8 ha occurs within the Activity Area and 157.2 ha is to be impacted by the Indicative Footprint (see Table 5-5). As such a combined total of 256.8 ha of critical habitat and critical foraging habitat may be impacted by the Activity (being critical habitat within the Indicative Footprint that will be impacted due to clearing for the Activity).

BHP notes that Astron (2025) indicated Hillcrest/Hillslope may provide critical foraging habitat for Ghost Bat (within 12 km of Category 2 roosts). However, for BHP's impact assessment, BHP did not consider Hillcrest/Hillslope at Ministers North to be critical foraging habitat on the basis that historic records at Ministers North are limited (only recent records in two caves), ANABAT surveys (historic and contemporary) have not recorded any foraging calls from Ghost Bats, and the lack of nearby Category 2 caves (see discussion above on CMIN-03 – not likely a Category

2). As such, the conclusion was that these habitat types at Ministers North were unlikely to represent critical foraging habitats. This approach is also consistent with the habitats listed for Ghost Bat in Table 5.13 of the APOP (i.e. Hillcrest/Hillslope not considered foraging habitat) (BHP 2023) and consistent with other recent approved Validation Notices (i.e. Jimblebar Significant Amendment Validation Notice, Orebody 25 West Validation Notice).

Supporting habitat

There is approximately 135.6 ha of supporting habitat within the Activity Area consisting of Sand plain, Stony Plain, Mulga Woodland, Drainage Area/Floodplain, Major Drainage Line, Minor Drainage Line habitat types. Of which approximately 19.7 ha of this will be impacted (see Table 5-5). Note, this calculation does not include the same habitat areas within 12 km of CMIN-03 which instead is captured as “critical foraging” habitat for the reasons discussed above.

Table 5-3: Caves with potential and recorded Ghost Bat use in the Activity Area

Cave ID	Roost Classification	Cave Characteristics	Distance from existing disturbance	Distance from Indicative Footprint	Evidence of use by Ghost Bat
CMIN-01	Category 4	Dimensions not available	Approximately 120 m	Approximately 70 m from Indicative Footprint (potential for impact)	No
CMN-02 (MNA)	Category 3	Wide open entrance. Four internal chambers (Main chamber 2.5 m high x 7 m wide x 25 m deep, first right chamber 1.8 m high x 2 m wide x 18 m deep, second right chamber 2 m high x 2 m wide x 6+ m deep, End chamber 5+ m high x 6 m wide x 6 m deep with a continued cavity 5+ m deep x 0.3 m high)	Approximately 50 m (historic track and pad)	Approximately 100 m (protected within Mining Exclusion Zone (MEZ))	Yes - Ghost Bats previously recorded, Ghost Bat scat recorded (50 -100), bat smell, raised humidity, microbats present
CMN-05	Category 4	Wide open entrance. One internal chamber; 0.5 m high x 6 m wide x 8 m deep	Approximately 80 m	Approximately 45 m from Indicative Footprint (potential for impact)	No
CMN-07	Category 4	Wide open entrance. One internal chamber; 4 m high x 3 m wide x 8 m deep	Approximately 35 m	Within Indicative Footprint (to be impacted)	No
CMN-09	Category 4	Wide open entrance. Three internal chambers. Raised humidity.	Approximately 50 m	Within Indicative Footprint (to be impacted)	No
CMNY-01	Category 4	Wide entrance (4 m x 2 m), one internal chamber; 2 m high x 4 m deep	Approximately 50 m	Within Indicative Footprint (to be impacted)	No

Cave ID	Roost Classification	Cave Characteristics	Distance from existing disturbance	Distance from Indicative Footprint	Evidence of use by Ghost Bat
CMNY-03	Unsuitable	5m wide entrance. One internal chamber; 1.5 m high x 2 m deep.	Approximately 750 m	>500 m from Indicative Footprint	No
CMNY-04	Unsuitable	Wide overhang (12 m wide entrance), one internal chamber; 4 m high x 3 m deep.	Approximately 220 m	Approximately 70 m from Indicative Footprint (potential for impact)	No
CMNY-05	Category 3	Narrow entrance. One internal chamber; 1.9 m high x 5 m wide x 12 m deep. Raised humidity.	Approximately 120 m	Approximately 100 m (protected within MEZ)	Yes - Ghost Bat scats present (50-100), bat smell, microbats present.
CMNY-06	Category 4	Wide open entrance. One internal chamber; 1.5 m high x 7 m wide x 10 m deep.	Approximately 500 m	Approximately 20 m from Indicative Footprint (potential for impact)	No

Table 5-4: Caves with potential and recorded Ghost Bat use outside of the Activity Area

Cave ID	Roost Classification	Distance from Activity Area	Evidence of use by Ghost Bat
Caves within 500 m of the Activity Area			
CMIN-05 (CAV-01)	Unsuitable	Approximately 380 m	This cave had potential foraging evidence within the cave (i.e. feathers) and was deemed potentially suitable for foraging but did not have appropriate structure to support Ghost Bat roosting (GHD 2021a).
CMN-03	Category 4	Approximately 40 m	No

Cave ID	Roost Classification	Distance from Activity Area	Evidence of use by Ghost Bat
CMN-06	Category 4	Approximately 190 m	No
CMN-10	Unsuitable	Approximately 100 m	No
CMN-11	Unsuitable	Approximately 100 m	No
CMNY-02	Category 4	Approximately 470 m	No
Caves further than 500 m from the Activity Area[14]			
CMN-04	Category 4	Approximately 900 m	No
CMN-12	Unsuitable	Approximately 700 m	No
CMIN-02	Category 4	Approximately 700 m	No
CMIN-03 / ACY 1	Category 2[15]	Approximately 2.8 km	Yes - Scats (2011), no recent evidence (Biologic 2024, Biologic 2025b)
CMIN-04 / ACY 2	Category 4	Approximately 1 km	No
AC5	Category 2	Approximately 11.5 km	Yes – Scats present. Hormone analysis of scats with progesterone levels indicating pregnancy (2017)
AC9	Category 2	Approximately 10.7 km	Yes – Hormone analysis of scats with progesterone levels indicating pregnancy (2014 and 2017)
CYAN-01 (CAV-02)	Category 4[16]	Approximately 900 m	No

[14] Caves within 1 km of the Activity Area have been described here. The exception are Category 2 caves in which any Category 2 caves within 12 km have been considered as they influence critical foraging habitat.

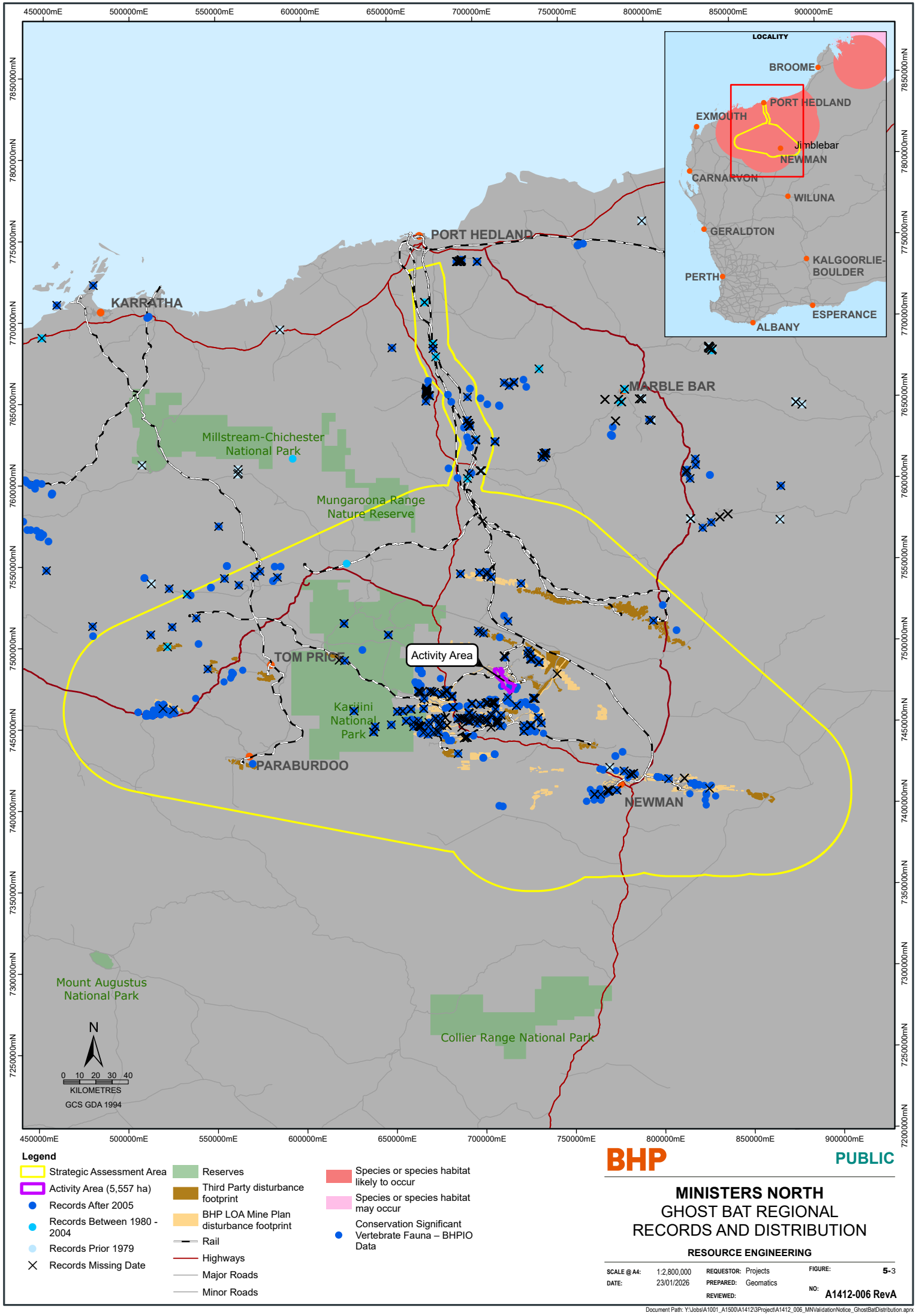
[15]BHP considers this cave does not represent a true Category 2 given no further records or ongoing usage has been documented at this cave since initial scats were recorded in 2011.

[16] Cave could not be closely assessed due to the entrance size however deemed to be a potential day roost (GHD 2021a).

Table 5-5: Ghost Bat Habitat

Habitat Type	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical habitat		
Gorge/Gully	152.1	86.0
Breakaway/Cliff	82.6	13.6
Total critical habitat	**234.7**	**99.6**
Supporting habitat (outside of 12km of Category 2 roost CMIN-03)		
Sand plain	<0.1	0
Stony Plain[17]	4.8	0
Mulga Woodland	1.3	0.2
Drainage Area/Flood plain	8.9	5.1
Major Drainage Line	97.1	12.4
Minor Drainage Line	23.5	2.0
Total supporting habitat	**135.6**	**19.7**
Critical foraging habitat within 12 km of a Category 2 roost (CMIN-03)		
Drainage Area/Flood plain	234.8	106.8
Major Drainage Line	34.5	3.5
Minor Drainage Line	118.5	46.9
Total Critical foraging habitat	**387.8**	**157.2**

[17] Mapped as Sandy/Stony Plain



Legend

- Strategic Assessment Area
- Activity Area (5,557 ha)
- Records After 2005
- Records Between 1980 - 2004
- Records Prior 1979
- Records Missing Date
- Reserves
- Third Party disturbance footprint
- BHP LOA Mine Plan disturbance footprint
- Rail
- Highways
- Major Roads
- Minor Roads
- Species or species habitat likely to occur
- Species or species habitat may occur
- Conservation Significant Vertebrate Fauna – BHPIO Data

BHP

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GHOST BAT REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-3
DATE:	23/01/2026	PREPARED:	Geomatics	NO:	A1412-006 RevA
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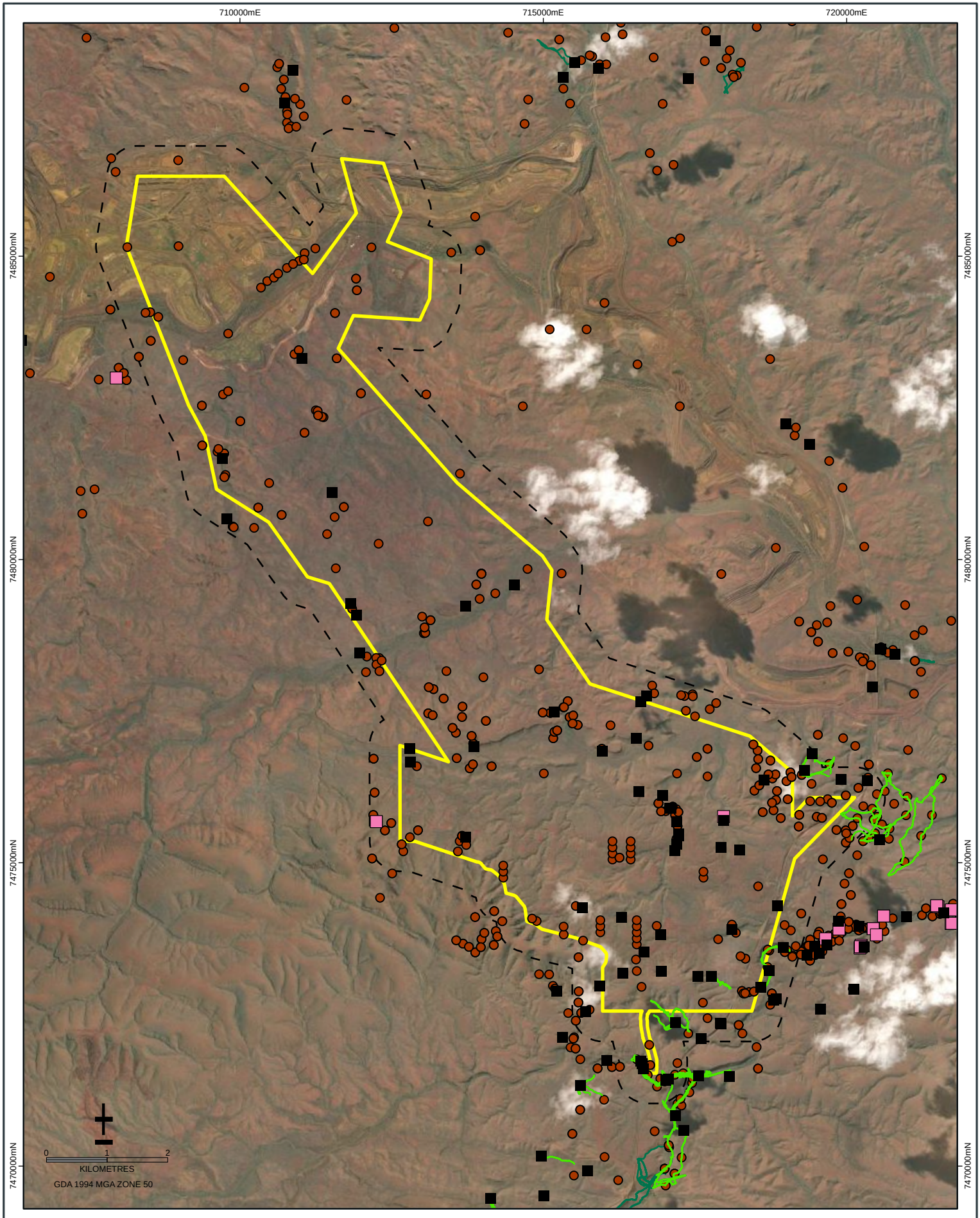

Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Ghost Bat Survey Sampling Type

- Bat Detector
- Cave Assessment
- Transect

All other Vertebrate Sampling Effort

- All Other Vertebrate Sampling Sites
- All other Vertebrate Transects

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GHOST BAT SURVEY AREAS AND METHODS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-4
DATE:	22/05/2026	PREPARED:	GEOMATICS	NO:	A1412-007 RevC
		REVIEWED:			

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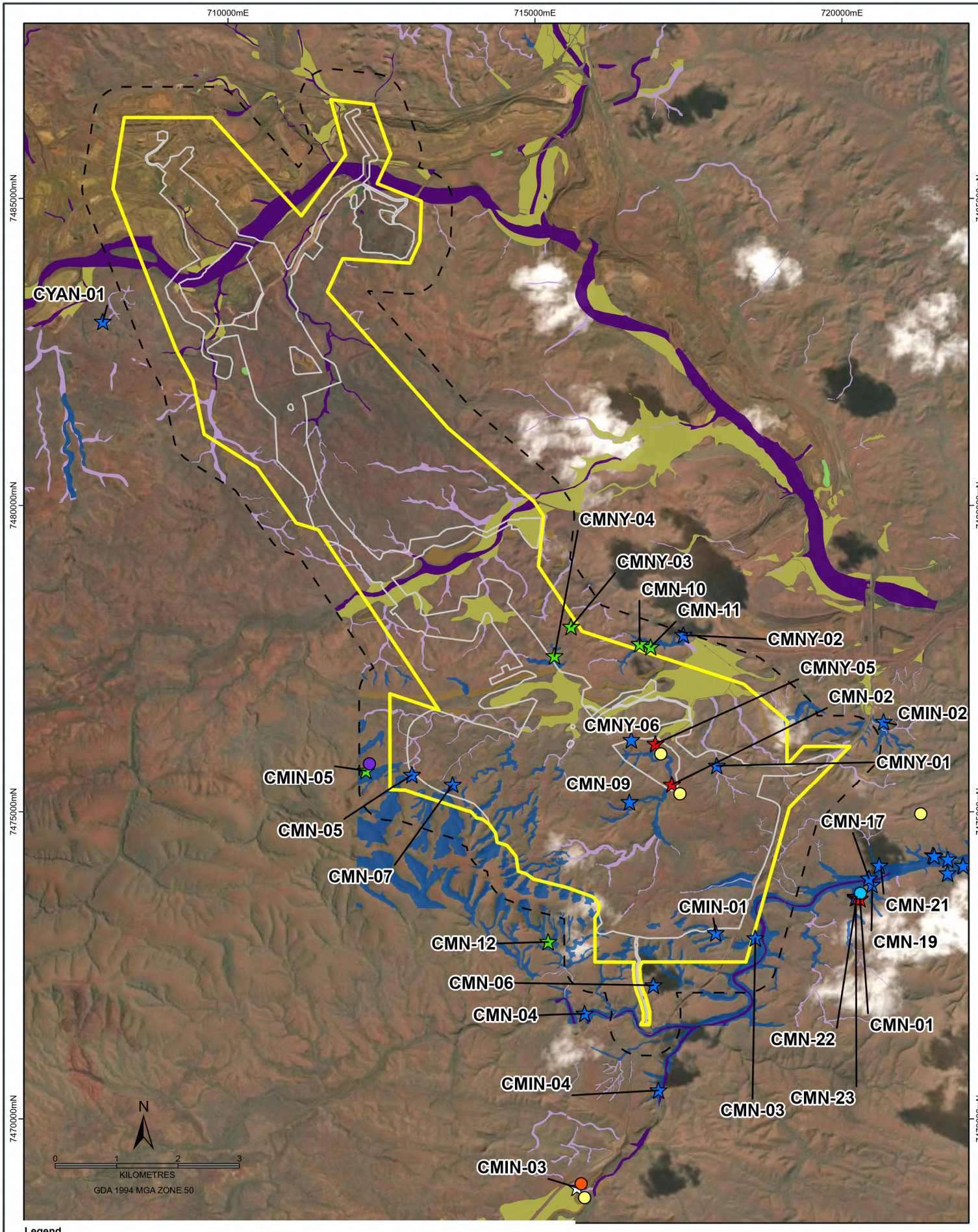

Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer

Ghost Bat Record Type

- <Null>
- Foraging evidence
- Other
- Scat

Ghost Bat Roost Type

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

Critical Habitat (Inside 12km Foraging Range) - Critical

- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Major Drainage Line
- Minor Drainage Line

Supporting Habitat (Outside 12km Foraging Range)

- Drainage Area/ Floodplain
- Major Drainage Line
- Mulga Woodland
- Minor Drainage Line

BHP

PUBLIC

MINISTERS NORTH
GHOST BAT MAPPED HABITATS AND RECORDS

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-5
DATE:	18/05/2026	PREPARED:	GEOMATICS	NO:	A1412_007 RevD
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5.2.4 Ghost Bat records

Evidence of Ghost Bats within the Activity Area includes both direct (observations) and indirect evidence (scats), from two Category 3 caves (see Table 5-6). Despite records of Ghost Bat occurring within the Activity Area, evidence does not suggest these to be a Ghost Bat colony or residing individuals, given lack of records (i.e. no observations, no acoustic detections, and no additional scats) during long term monitoring.

Table 5-6: Ghost Bat records in the Activity Area and buffer

Cave ID	Year	Description
Activity Area		
CMN-02 (MNA)	2017, 2023, 2024	2017: Biologic assessed the area in 2017 and recorded cave CMN-02 (Biologic 2017c). While it was described as having the desired features for a potential maternal roost, no Ghost Bats or scats were observed. 2023: A heritage team observed six individual Ghost Bats roosting in the cave in late March/early April 2023 (pers. comm. cited in Astron 2025). 2024: During the most recent fauna survey (Astron 2025), the cave was investigated on two separate occasions. No Ghost Bats were observed, however, approximately 50 to 100 Ghost Bat scats were recorded. A bat detector was deployed at the entrance of the cave for three nights and did not detect Ghost Bat presence and scats from the cave were considered not to be recent. An additional long-term bat detector and scat sheet were placed within the cave between September 2023 and June 2024, and no evidence of Ghost Bat was detected over this time via either sampling method. Moreover, no additional scat was identified during revisitation of the cave (Astron 2025).
CMNY-05	2024	2024: Approximately 50 to 100 Ghost Bat scats were recently recorded in cave CMNY-05 (previously recorded as a potential feeding roost). The structure provided roosting opportunities for Ghost Bats with one chamber at a height of 1.9 m which provided moderate humidity, although some light exposure was evident. It was conservatively classified as a Category 3 roost during the survey due to suitability and evidence of usage but may change (i.e. reduce) following additional monitoring.
500m Buffer		
CMIN-05 (CAV-01)	2020	2020: This record was noted as potential evidence of foraging for Ghost Bats. The only evidence was in the form of feathers on the cave floor indicating predation of a bird had occurred. No calls, scats, or direct observations of Ghost Bat were recorded. It was also noted that this cave did not have appropriate structure to support Ghost Bat roosting (GHD 2021a).

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 clearing of up to 1,848 ha of fauna habitat for the Activity will result in the direct loss of terrestrial fauna values. The various habitats provide critical and supporting habitat for a range of significant fauna, including the Ghost Bat.

There are no Category 1, Category 2, or Category 3 (in association with Category 1 or 2 – i.e. apartment block) caves within the Activity Area. However, critical habitat of Breakaway/Cliff and Gorge/Gully habitats occur, with 99.6 ha to be impacted within the Indicative Footprint. In addition, foraging habitat (e.g. Sand Plain, Stony Plain, Mulga Woodland, Drainage Area/Floodplain) within 12 km of CMIN-03 is considered critical foraging habitat, of which 157.2 ha is to be impacted by the Indicative Footprint. As such a combined total of 256.8 ha of critical habitat and critical foraging habitat may be impacted by the Activity.

There is also supporting habitat within the Activity Area consisting of Sand plain, Stony Plain, Mulga Woodland, Drainage Area/Floodplain, Major Drainage Line, Minor Drainage Line habitat types. Of which approximately 19.7 ha of this will be impacted. Note, this does not include the same habitat areas within 12 km of CMIN-03 which instead are captured as “critical foraging” habitat discussed above.

A total of three caves (CMN-07, CMN-09, CMNY-01) occur within the Indicative Footprint and as such, will be impacted by the Activity. These three caves are consistent with Category 4 roosts for the Ghost Bat. In addition, a further four caves (three Category 4: CMIN-01, CMN-05, CMNY-06, and one Unsuitable: CMNY-04) occur in close proximity (<100 m) to the Indicative Footprint. BHP is intending to avoid direct impacts to the Category 4 caves (CMIN-01, CMN-05, CMNY-06), however, given the nature of the footprint being indicative, there remains a potential that these caves are also impacted by the Activity. As such the Activity has the potential to impact on six Category 4 roosts and one Unsuitable cave. Two caves categorised as Category 3 have been excluded from the Indicative Footprint and protected via a MEZ.

Noise and vibration

The Activity may have a potential to affect fauna habitats adjacent to the mining operations through vibration and noise from activities such as blasting, excavation, loading and haulage.

For the Activity, it can be expected that impacts will be greatest in closest proximity to the mining operations, with the impact potential decreasing with an increasing distance from the mining operations. Accordingly, the potential impacts to fauna are anticipated to be localised (i.e. within a few hundred metres), with any impacted fauna moving into adjoining areas of fauna habitat away from vibration and noise.

As discussed in Section 5.2.6, BHP has proposed a 500 m blast management area around roost CMN-02, with vibration limits as per the Terrestrial Fauna Environmental Management Plan (EMP) to ensure risks associated with blasting are minimised and will not significantly impact the Category 3 cave. Note, BHP has not proposed blast management measures around CMNY-05 as it is located greater than 500 m from the proposed mine pits.

Habitat degradation from alteration of groundwater and surface water

Groundwater

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat (native vegetation) that is reliant on groundwater will not occur.

BHP assessed Ministers North as having a moderate Acid and Metalliferous Drainage (AMD) potential for the Strategic Proposal FCDS (BHP 2016a – Figure 41), which considered the potential for both above and below water table ore. Changes to groundwater quality may occur where alterations to landforms and construction of infrastructure (including OSA) expose acidic and/or metalliferous material. The AMD risk assessment undertaken specifically for the Activity (above water table mining only) identified that the Ministers North waste rock and ore generally contain very low sulfur (MWM 2024).

The proposed AWT pit shells for Ministers North contains minimal sulfur with approximately 97% of all samples with <0.1 wt%S and approximately 98% with total sulfur <0.2 wt%S (MWM 2024). A total of 1,023 samples have sulfur greater than 0.5 wt%S and 704 samples exceeding 1 wt%S, with the majority of high sulfur samples associated with the Mt McRae Shale and Whaleback Shales units. The total exposed area of the pit shells was assessed, with virtually the entire surface expected to be AMD Class 0 (>99.9%). Assessment of the mining model also identified more than 99% of the total waste rock volume is classified as AMD Class 0 (NAF) (MWM 2024).

The risk of generating adverse neutral metalliferous drainage (NMD) or saline drainage associated with neutralisation of oxidation products is unlikely (MWM 2024). Generally, the deposit contains very little sulfur and therefore the opportunity for NMD or saline drainage to form as a result of sulfide oxidation is negligible.

Therefore, there is a low risk of groundwater contamination from these sources, and it is not considered further.

Surface water

Watercourses in the Activity Area are ephemeral and flow in response to seasonal rainfall events, coinciding with the December to March wet season. There are four ephemeral watercourses within the Activity including Marillana Creek, Central Tributary, Mungadoo Tributary and Yandicoogina Creek. The creeks and river systems support riparian vegetation and water values which are of cultural importance to the Banjima Traditional Owners.

A number of operating mines are located within the Marillana Creek Catchment and are in close proximity to Marillana Creek. BHP Yandi has altered the natural pathway of Marillana Creek via creek diversions to enable access to orebodies. The Activity does not require any diversion of Marillana Creek. The impact to the Marillana Creek subcatchment as a result of the Activity equates to a catchment reduction of 0.64%. Peak flows in Marillana Creek have no impact (0% reductions) as a result of the Activity (Stantec 2024 – Appendix 3).

The Mungadoo Tributary will be impacted as a result of the Activity (loss of catchment due to the mine pits). The Mungadoo is a small tributary to the Marillana Creek (catchment area of 24 km^2 compared to the Marillana Creek catchment area of 2,228 km^2). BHP notes, this tributary has historically been altered by Rio Tinto Yandicoogina operations with a mine pit intercepting the natural pathway of the tributary and its confluence with Marillana Creek and diverting it around the mine pit towards an undefined channel on BHP tenure.

A small portion of the local Yandicoogina Gorge sub catchment will be impacted by the Activity, with a catchment reduction of approximately 1%. During 1% AEP[18] event during mining and closure, this translates to a 0.1% reduction in peak flows (up to 2% reduction during a 50% AEP event during mining). Whilst the Activity Area crosses into the Yandicoogina Creek floodplain the primary flow path is not impacted by the Indicative Footprint.

[18] Annual exceedance probability (AEP) is the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year (i.e. 1% AEP represents a 1 in 100-year event)

The Activity may have a potential to affect terrestrial and/or aquatic fauna habitats from altered surface water regimes through:

- Installation of mine infrastructure including mine pits, the haul road (including creek crossings), OSA and stockpiles which have the potential to alter the condition of terrestrial and/or aquatic fauna habitat (i.e. native vegetation or surface water pool levels or quality) from:
    - a reduction of downstream surface water volumes
    - increased erosion or sedimentation contaminating waterways.
- Development of operational water storage dams (e.g. turkey's nests) that both native fauna and introduced fauna may seek to access.

A reduction in surface water flows also has the potential to impact surface water features. Nine surface water features (ephemeral pools) are recorded within the Activity Area, with four ephemeral pools (named WMN1-WMN4) recorded in proximity to the Ghost Bat caves. These will not be directly impacted by clearing, however, the reduction in catchment from mining will impact on flow volumes that intersect these pools. Whilst these pools may provide important habitat for significant fauna including the Ghost Bat, the pools are all relatively shallow with depths of 0.5 m or less (Astron 2025). It is predicted that the waterway supporting these pools will be reduced during operations and closure, resulting in a small reduction in water levels in these pools. However, the reduced flow depth is expected to continue to be able to fill the pools during rainfall events and maintain the ephemeral nature of the pools in these locations.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). As turkey's nests are a water source, there is the potential for both native and introduced fauna to seek to access. All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

BHP also notes reduced flows downstream of infrastructure can result in negative impacts to terrestrial vertebrate fauna habitat by altering vegetation health and change in composition from reduced water availability. However, there are no vegetation types (or associated fauna habitats) that are surface water dependant or sensitive to surface water changes, and no Mulga or sheet flow dependant vegetation present within the Activity Area.

'Mulga' is the common name for the native flora taxon *Acacia aneura*, however, this common name can also be applied to closely related Acacia taxa that may co-occur such as *Acacia ayersiana*, *Acacia minyura* and *Acacia paraneura*. Mulga occurs across the Chichester, Fortescue and Hamersley subregions of the Pilbara IBRA Bioregion, and is acknowledged to be dependent on water sheet-flow. Of the two regional Vegetation Associations in the Activity Area, it is noted that Vegetation Association 18 is described as "low woodland; mulga (*Acacia aneura*)".

Vegetation surveys across Ministers North have not identified any vegetation associations within the Activity Area as containing Mulga and do not suggest any mapped local Vegetation Associations as being sheet-flow dependent. More broadly, only scattered historic records of *A. aneura* coincide with the Activity Area, at the Yandi mine (two historic records intersect the proposed Indicative Footprint). The vegetation at the location of these records, Triodia Hummock Grassland (HC Tw AiAb InrSeao), is not considered to be sheet-flow dependent vegetation and is widespread across the Activity Area.

The riparian vegetation immediately north-east of the proposed pits where the Mungadoo Tributary catchment will be affected is potentially at risk from reduced surface water flows due to its location. However, the vegetation type present (ME TtEuaEte ApypAtpPl EvCh) is not considered to be surface water dependent or sensitive to surface water changes as it does not contain shallow rooting species that represent plant taxa susceptible to changes to

surface water flow (i.e. Mulga and/or *Acacia citrinoviridis*). Therefore, impacts to this vegetation association from altered water regimes are considered unlikely.

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Fire has the potential to degrade Ghost Bat critical and/or supporting habitat within the Activity Area and within 500 m of the Activity Area (DCCEEW 2024a).

Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described further below in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

Although weeds have the potential to be introduced as a result of the Activity, the Activity is not expected to significantly alter the existing introduced flora diversity or abundance when managed in accordance with standard BHP hygiene management measures.

BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. This procedure defines the process to manage the risk of environmental weeds and incorporates management measures including, but not limited to:

- Weed mapping conducted annually
- All vehicles or equipment shall be inspected, cleaned as required and weed hygiene certified, prior to entering or leaving site
- All vehicles or equipment shall be inspected, cleaned as required and weed hygiene certified, prior to leaving a weed infested area
- Where practicable, keep to sealed roads
- Ensure clothing, particularly footwear is free from mud and vegetation before stepping into vehicles
- Maintain roads, tracks and buffer zones (firebreaks) to ensure they are free of weeds
- The site HSE team will determine the scope of the weed management program for the year, taking into account potential constraints (e.g. budgetary, weather, or other).

Dust

Fauna are typically not considered as a dust receptor given their ability to move away from emission sources. Whilst noting this, Bat Call WA (2021) identifies particulate air emissions may be relevant to the Ghost Bat, as high dust levels may have a potential to irritate eyes and reduce visual acuity. ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is expected that dust emissions from the Activity will not represent a significant indirect risk to fauna.

BHP has prepared a draft Air Quality Environmental Management Plan (submitted to the EPA as an Appendix to the *Ministers North Derived Proposal Request* (BHP 2025)). The Air Quality EMP includes a range of controls to minimise particulate air emissions, including:

- minimising the extent of exposed land areas through limiting native vegetation clearing (i.e. progressive clearing as areas are required for mining development).
- dampening of exposed land areas with water to minimise dust lift, including the haul road and mine access roads
- where appropriate, dust suppression chemicals may be added to the water used
- limiting of vehicle speeds on unsealed roads

In relation to the limiting of vehicles speeds, speed limits will be applied across both the haul road and unsealed access roads (i.e. 60km/h). The Small Mining Equipment (SME) haul road design is based on the WAIO Non-Autonomous Mine Road Design Standard. Within this standard, the speed is 60km/h for surface haul roads. In-pit haul roads will have a lower speed. LV roads (all unsealed) on the project (on and off haul road) speed limit will be 60km/h. Site Vehicles and plant will have IVMS which will report any speed breach incidents in a specific area.

The above actions are considered reasonable and practicable measures by which to minimise particulate air emissions and are generally consistent with the actions implemented across BHP's existing Pilbara mining operations outlined with the BHP (2024b) WAIO Dust Monitoring and Management Plan. The implementation of both BHP's normal business practices and the targeted management measures can be expected to ensure that particulate air emissions from the Activity do not result in a significant impact to fauna individuals, fauna habitat or native vegetation.

Light

Artificial light has the potential to indirectly impact Ghost Bats by altering nocturnal foraging behaviours and/or potentially restricting the use of roosts. Lighting may also attract some fauna (e.g. flying invertebrates like moths, which in turn, may also attract feeding nocturnal fauna).

During mine design and planning phases, opportunities to minimise potential light-related impacts on fauna, will be considered. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

Feral predators

Surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). Areas of poorer vegetation condition (and subsequently fauna habitat) were recorded in the areas of the Marillana Creek and the Yandicoogina Creek related in part to cattle grazing. It should be noted cattle are managed under pastoral leases.

Habitat clearing can enhance the ability of feral predators to move through the landscape and prey on native fauna. Construction and operation of mining activities can also introduce and attract feral predators. Introduced fauna species may affect native fauna through direct predation, competition for food and shelter, habitat destruction and the spread of diseases. BHP has committed to no new landfills at Ministers North, with existing landfill(s) at Yandi to be utilised for the management of waste associated with the Activity and/or waste will be transferred to other third-party sites. This assists in minimising the attraction of feral predators as a result of the Activity.

As discussed in Section 5.2.6 and in Section 8.3, BHP proposes to implement a targeted feral cat control program (via a Terrestrial Fauna EMP – Appendix 4[19]) to reduce predation impacts on Program Matters. Feral cat management will be undertaken in accordance with the WAIO Animal and Pest Management Plan (including subsequent revisions). Management is applied using a risk-based and site-specific approach, with an emphasis on monitoring, humane control where approved, and compliance with animal welfare and regulatory requirements.

Under the plan:

- Environmental inductions are to be provided to site personal
- All sightings and opportunistic observations of feral cats and other pest species are required to be reported in the WAIO Event Management System (EMS)[20]
- Monitoring information is captured through fauna surveys, pre-clearance assessments, routine site activities, and pest control records
- Any trapping or baiting programs are only undertaken where approved, coordinated with site Environment teams, and reported in EMS, including details of trap locations, methods, and outcomes.

BHP applies an adaptive management framework (Section 8), under which management and mitigation measures are progressively improved and refined, or alternative solutions adopted. Feral cat management practices will be considered as part of this adaptive management approach as required.

Given no resident colony or breeding roosts are recorded within the Activity Area, risks to Ghost Bat individuals from feral cats, attributable to the Activity, are considered appropriately mitigated.

Vehicle and infrastructure interactions

Injury or mortality of fauna can result from collisions with vehicles and machinery during construction and operation of the Activity, especially with species that are attracted to cleared areas for basking or foraging activities, or at night when nocturnal fauna actively forage.

BHP will be committing to limiting vehicle speeds (i.e. 60km/h) on unsealed roads to minimise the risk of collision with Program Matters including Ghost Bat. This is detailed further below in Section 5.2.6 and Section 8.

The use of barbed wire fencing may result injury or mortality from fauna becoming entangled, particularly for Ghost Bats which are low flying. Ghost Bats often fly at about fence height and substantial numbers are known to be killed when colliding with fencing wire (TSSC, 2016a). As discussed below in Section 5.2.6, BHP has committed to avoiding the use of barbed wire fencing within the Activity Area as far as practicable, except where required by legislation. BHP will install bat reflectors where barbed wire fencing is required.

Overall, impacts associated with interactions with vehicles, machinery or mining infrastructure are likely to be minor, limited to individuals, and unlikely to impact any species at regional or species level, particularly given that most significant species (if present) occur at low densities within the Activity Area.

Human disturbance

The Ghost Bat is understood to be easily disturbed. Entering caves or minor disturbances on the perimeter of caves, including approaching vehicles or people, can cause the flushing or abandonment of caves by Ghost Bats and in

[19] EMP provided as Appendix 4 is draft currently under assessment by the State EPA, BHP will implement subsequent revisions to this plan as approved by the State Regulator.

[20] BHP have also rolled out a Microsoft Forms QR code to capture additional input from front line teams or external contractors who don't have access to EMS. This enables sightings of feral cats to be reported. BHP are in the process of increasing poster distribution (containing the QR code) at existing sites and expanding to new sites for greater awareness and reporting opportunities.

extreme cases the loss of pups (Woinarski et al., 2014 and TSSC 2016a). Monitoring of caves to identify the potential presence of Ghost Bats may require access by humans to lay scat sheets or retrieve monitoring equipment which has the potential to flush Ghost Bats from caves.

As part of the proposed Terrestrial Fauna EMP (Appendix 4), an annual assessment period for the retained Category 3 caves has been selected to minimise the risk of disturbance to Ghost Bats. It is acknowledged that frequent visitation may cause Ghost Bats to flee a roost, either temporarily or permanently. Accordingly, an annual assessment period provides an appropriate balance between the collection of information/data and the risk that the visitation for the information collection may affect Ghost Bat roost occupancy.

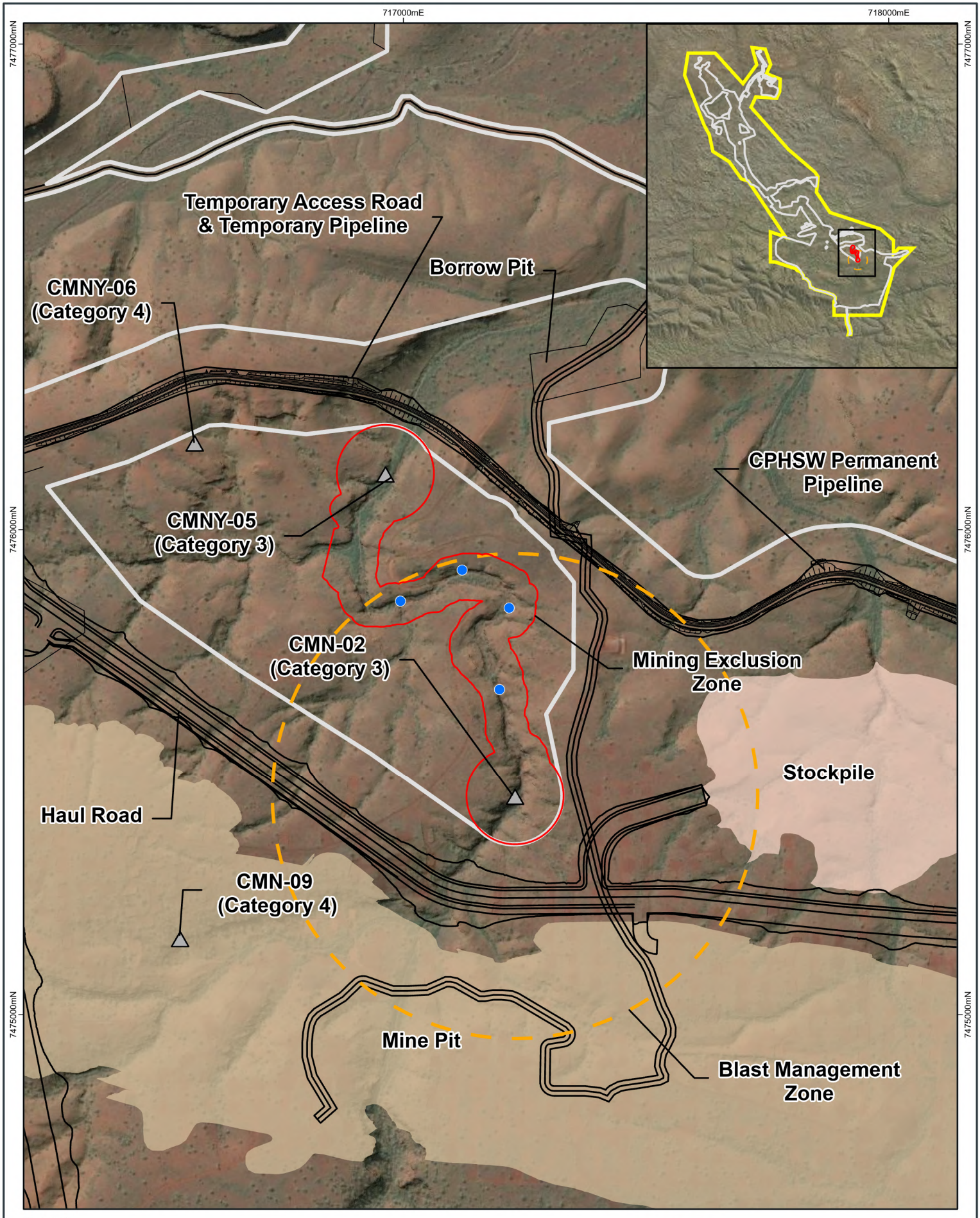
5.2.6 Mitigation hierarchy

Avoid

Two identified Category 3 Ghost Bat roosts, occur in close proximity to the north pit. As part of the avoidance step in the mitigation hierarchy, BHP has applied a MEZ (see Figure 5-6 and Table 5-7) to protect both roosts and connecting habitat (including protecting 7 ha of Gorge/Gully habitat) to ensure direct impacts to these caves are avoided.

Four ephemeral waterholes (as discussed in Section 5.2.5) were recorded in Gorge/Gully habitat in proximity to the two Category 3 Ghost Bat caves. These waterholes have been encompassed within the proposed Ghost Bat MEZ. As such, these water features will be avoided. More broadly, BHP commits to not clearing any of the currently known/recorded waterholes whether temporary or permanent within the Activity Area.

In addition to the Category 3 Ghost Bat roosts, BHP is intending to avoid direct impacts to the Category 4 caves (CMIN-01, CMN-05, CMNY-06), in close proximity to the Indicative Footprint, however, given the nature of the footprint being indicative, there remains a potential that these caves may be impacted (whether direct or indirect) by the Activity. Effort will be made during mine planning and execution to avoid these caves, where practicable.



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Roost (cave) for Ghost Bat *Macroderma gigas* (EPBC-V, BC-V)
- Mining Exclusion Zone - 100m Radius and Gorge/Gully Fauna Habitat
- Blast Management Zone - 500m Radius
- Conceptual Infrastructure Layout
- Mine Pit
- Stockpile
- Surface Water Feature (temporary, non-permanent)

N

0 0.1 0.2 0.3

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

MINISTERS NORTH
MANAGEMENT OF CATEGORY 3
GHOST BAT CAVES

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:10,000	REQUESTOR:	PROJECTS	FIGURE:	5-6
DATE:	19/05/2026	PREPARED:	GEOMATICS	NO:	A1412-009 RevB
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Table 5-7: Ghost Bat roost management

Cave ID	Ghost Bat Roost Category	Mining Exclusion Zone (MEZ) (Yes / No)	Blast Management Measures (Yes / No)
CMN-02	Category 3	**Yes** 100 m exclusion around roost for any new disturbance. MEZ extended to include Gorge/Gully (7 ha) fauna habitat connecting to roost CMNY-05.	**Yes** 500 m blast management area around roost. Mine pit blasting vibration limits as per Terrestrial Fauna EMP (Appendix 4).
CMNY-05	Category 3	**Yes** 100 m exclusion around roost for any new disturbance. MEZ extended to include Gorge/Gully fauna habitat connecting to roost CMN-02.	**No** **Not applicable** - roost is located > 500 m from mine pits.

Mitigate

Initial mine planning included a mine road (for ore haulage) to the north of the mine pits which passed between the two Category 3 roosts for the Ghost Bat. Whilst this mine road would not remove the Category 3 roosts, the mine road traversing between the roosts would fragment the landscape between the two roosts, and impact habitat the species may be reliant on (e.g. through the removal of the surface water features and habitat). This was considered to be an unacceptable outcome due to the risk of indirect disturbance to Ghost Bat individuals.

In order to minimise the potential for impact to Ghost Bat, BHP has amended both its mine layout and mine scheduling in regard to this mine road so that it does not travel between the two caves (see additional detail in the *Ministers North Derived Proposal Request* (BHP 2025)). This change substantially minimises the risk of disturbing Ghost Bats occupying the Category 3 roosts. Additionally, the realignment avoids surface water features potentially utilised by Ghost Bats.

Three Category 4 Ghost Bat roosts (CMN-07, CMN-09, CMNY-01) will be cleared, with an additional four (CMN-05, CMNY-06, CMIN-01, CMNY-04 (unsuitable)) with the potential to be impacted. While it is considered unlikely that Ghost Bat individuals will be present in the caves at the time of impact (as these caves are potentially used as nocturnal or feeding roosts only), the caves will be inspected prior to disturbance to avoid impacting individual bats. If present, bats will be displaced from the cave and the cave entrance sheeted (if required) to ensure bats cannot re-enter the cave. If the cave entrance cannot be sheeted, deterrents (e.g. light, noise) will be used.

The MEZ, mine blasting and pre-disturbance protocols will be managed in accordance with the Terrestrial Fauna EMP[21] (–see Appendix 4). This plan also includes additional mitigation measures (to those measures described above) to manage terrestrial fauna more broadly. These measures include:

- site personnel to complete a site induction which includes information on the Program Matters
- limiting vehicle speeds (i.e. 60km/h) on unsealed roads to minimise the risk of collision with Program Matters

[21] Including any subsequent revisions

- fencing turkey's nests to restrict fauna access and maintaining fauna egress points, where necessary (i.e. long-term turkey's nests), to minimise fauna entrapment risks
- targeted feral cat control program[22] to be implemented to reduce predation impacts on Program Matters
- minimising risk of injury or mortality to Ghost Bats from entanglement in barbed wire fencing by avoiding the use of barbed wire fencing within the Activity Area as far as practicable, except where required by legislation. In addition, BHP will install bat reflectors where barbed wire fencing is required.

Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains. The purpose of the engineering design and infrastructure will be to allow for surface water flows to not be impeded (where practicable) to ensure an environmental outcome of local surface water flows being maintained, as well as a mining outcome for infrastructure to remain operational (e.g. not inundated by water). Critical infrastructure (such as culverts) shall be reviewed annually to ensure the infrastructure is operating effectively. Sediment basins are also proposed in proximity to the north pit and the Ghost Bat MEZ, which in turn minimise indirect risk to the four water features protected within the MEZ.

During mine design and planning phases, opportunities to minimise potential light-related impacts on fauna, will be considered. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

In relation to fire risk, hot works are to be undertaken in line with the relevant procedure, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure. These procedures describe mitigation measures to ensure risks are minimised and appropriate fire controls are in place, including but not limited to:

- Prior to commencing any hot work activity, a SWMS/JHA must be completed
- Prior to commencing hot work activities, the fire control measures (fire extinguisher, fire hose, plant water, water pumps etc.) must be assessed, available and adequate for any initial fire risk
- The work area must be free of flammable or combustible material, with at least 5 metres clearance or as so far as reasonably practicable, including any nearby vegetation
- A fire watch must be in place for all hot work activities conducted in a hazardous area and otherwise as identified via risk assessment
- All work groups performing hot work activities must review the DFES Hot work prescribed activity and conditions and complete the DFES total ban activity checklist – hot work and attach it to the Hot Work Permit.

[22] Feral cat management within BHP WAIO is undertaken in accordance with the WAIO Animal and Pest Management Plan (currently under revision). Consistent with the current Standard, feral cats are recognised as a declared pest and a potential threatening process to native fauna. Management is applied using a risk-based and site-specific approach, with an emphasis on monitoring, humane control where approved, and compliance with animal welfare, biosecurity, and regulatory requirements.

5.2.7 Residual impact

Following the application of avoidance and mitigation measures, residual impacts include the loss of 256.8 ha of critical habitat and critical foraging habitat and 19.7 ha of supporting habitat. BHP considers these impacts warrant provision of offsets to ensure the Activity achieves the PMO (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 5-8 identifies which PMOs are relevant for the Activity and considers further management.

Table 5-8: Review of Program Matter Outcomes (Ghost Bat)

Program Matter Outcomes (PMO)	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 AND 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: Presence of Ghost Bat critical habitat and or supporting habitat AND Presence or sign/s of Ghost Bat colony or residing individuals	PMO not triggered as there is no evidence of residing individuals or Ghost Bat colony within the Activity Area.

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: Presence of Ghost Bat critical habitat and or supporting habitat
	
	AND
	
	Presence or sign of Ghost Bat transient, infrequent or dispersing individual/s
		Substantial mitigation has been applied to avoid and minimise impacts to the Ghost Bat including critical and supporting habitats. This includes but is not limited to:
		
		- Implementation of the Mining Exclusion Zone (MEZ) around the two Category 3 caves and connecting critical habitat (e.g. Gorge/gully)
		- Re-designing haul road to avoid intersecting the two Category 3 caves
		- Implementation of Terrestrial Fauna EMP (Appendix 4) which includes:
		  o Blast management
		  o Pre-disturbance protocols
		  o Site inductions
		  o Fencing turkey's nests to restrict fauna access and maintain fauna egress points
		  o Feral cat control program

Program Matter Outcomes (PMO)	Applicable Notifiable Action Trigger	Assessment
		○ Restricting use of barbed wire fencing except where required by legislation - Provision of offsets

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 habitat, critical foraging habitat and supporting habitats (Section 7). As a result, the PMO will be achieved.

5.3 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 for this species will be met.

5.3.1 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). 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 Greater Bilby 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 (Strahan 1995). The species may also persist in areas of low productivity (Southgate and Carthew 2006, Southgate *et al*. 2007 and Southgate *et al*. 2018).

The presence of the Greater Bilby is strongly associated with substrate type as it is generally restricted to areas that contain suitable burrowing habitat, such as sandy loam plains, alluvial creeks, dunes and sand ridges (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. 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).

5.3.2 Regional habitat

The Activity Area falls within the current distribution of the Greater Bilby, whereby the species or species habitat may occur (Figure 5-7). The land systems of the Pilbara region documented by van Vreeswyk *et al* (2004), that are found within 25 km of the Activity Area, are detailed in Figure 5-8 and Table 5-9.

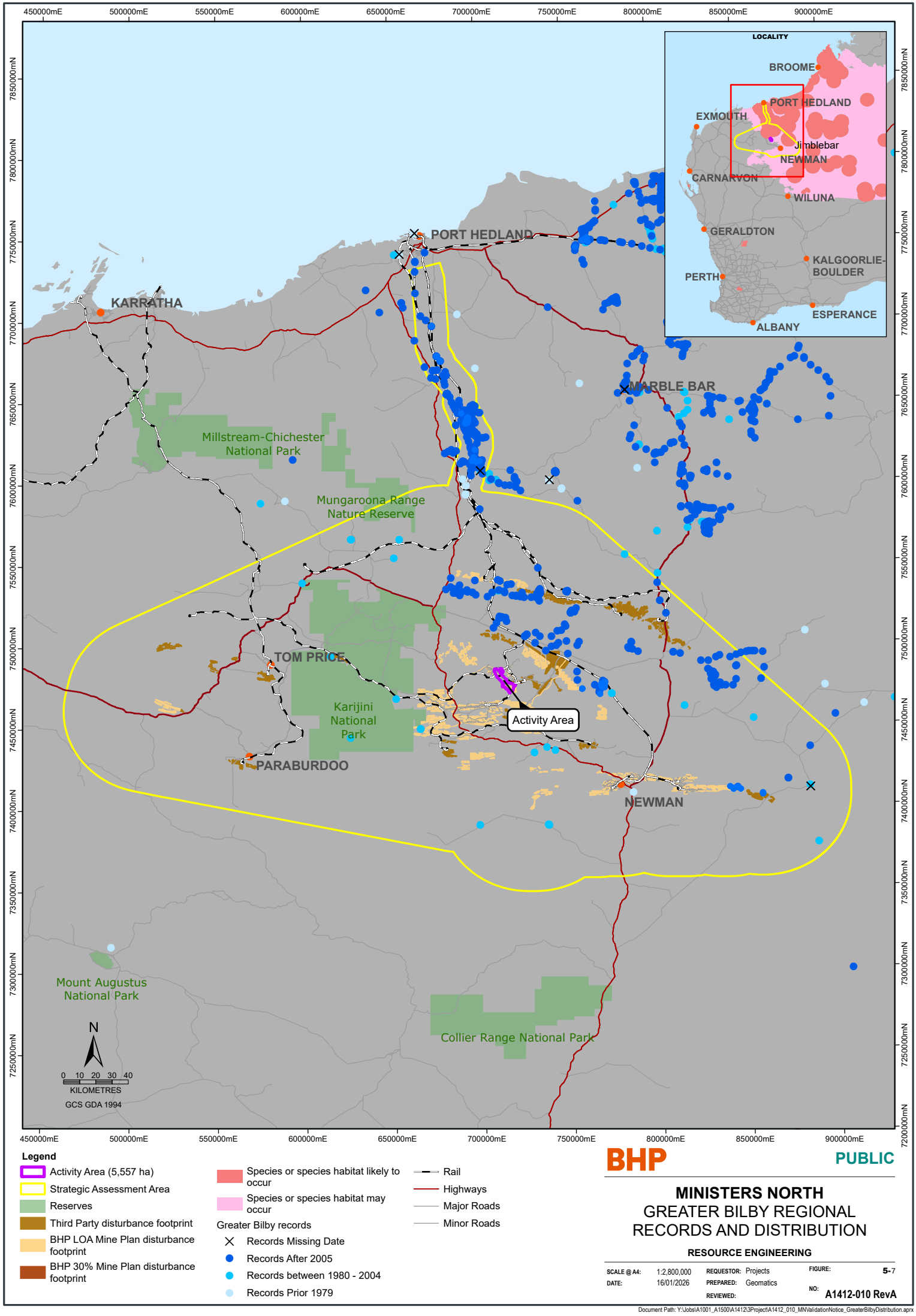
Dziminski *et al.* (2020) collated records of the Greater Bilby in the Pilbara to provide an accurate range for the species. The key findings were:

- the western boundary of their range stretches south-east from approximately 50 km west of Port Hedland to about 350 km beyond Newman
- the range extends east and south-east into the Great Sandy, Little Sandy and Gibson Deserts, as well as northwards into the Kimberley
- areas to the west and south-west of the confirmed range have unreliable or older records of the Greater Bilby and require further targeted surveys to confirm their absence in these areas. This study provides an accurate range for impact assessment and management decisions within the SEA by confirming the geographic range of the Greater Bilby (BHP 2022).

Table 5-9: WA Rangeland systems within 25 km of the Activity Area

Land System	Description	Habitats	Area (ha)
Boolgeeda	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	Breakaway/ Cliff, Cleared/ Disturbed, Drainage Area/ Floodplain, Hillcrest/ Hillslope, Major Drainage Line, Medium Drainage Line, minor Drainage Line, Sand Plain, Stony Plain, Undulating Low Hills	47460.73
Brockman	Gilgai alluvial plains with cracking clay soils supporting tussock grasslands.	Cleared/ Disturbed, Major Drainage Line	172.5975
Calcrete	Low calcrete platforms and plains supporting shrubby hard spinifex grasslands.		4741.624
Cowra	Plains fringing the Marsh land system and supporting snakewood and mulga shrublands with some halophytic undershrubs.		140.544
Disturbed Land	THIS IS NOT A LAND SYSTEM - Disturbed area, mining activity etc	Cleared/ Disturbed, Hillcrest/ Hillslope, Major Drainage Line	157.0668
Divide	Sandplains and occasional dunes supporting shrubby hard spinifex grasslands.		2817.124
Egerton	Highly dissected hardpan plains supporting mulga shrublands and hard spinifex hummock grasslands.		1491.95
Fan	Washplains and gilgai plains supporting groved mulga shrublands and minor tussock grasslands.		136.8141
Fortescue	Alluvial plains and flood plains supporting patchy grassy woodlands and shrublands and tussock grasslands.		2367.365
Jamindie	Stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey.		0.159207
McKay	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands.	Basalt Outcrops, Boulders/ Rockpiles, Breakaway/ Cliff, Calcrete Plain, Cleared/ Disturbed, Drainage Area/ Floodplain, Gorge/ Gully, Hardpan Plain, Hillcrest/ Hillslope, Ironstone Outcrops, Major Drainage Line, Medium Drainage Line, Minor Drainage Line, Mulga Woodland, Sand Plain, Sandy/ Stony Plain, Stony Plain, Undulating Low Hills, Waterhole Wetland,	32502.18

Land System	Description	Habitats	Area (ha)
Newman	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	Basalt Outcrops, Boulders/ Rockpiles, Breakaway/ Cliff, Cleared/ Disturbed, Drainage Area/ Floodplain, Gorge/ Gully, Hillcrest/ Hillslope, Ironstone Outcrops, Major Drainage Line, Medium Drainage Line, Minor Drainage Line, Mulga Woodland, Sand Plain, Sandy/ Stony Plain, Stony Plain, Undulating Low Hills	149271.5
Oakover	Breakaways, mesas, plateaux and stony plains of calcrete supporting hard spinifex grasslands.	Calcrete Plain, Cleared/ Disturbed, Drainage Area/ Floodplain, Hillcrest/ Hillslope, Major Drainage Line, Minor Drainage Line, Stony Plain, Undulating Low Hills, Waterhole	4312.342
Pindering	Gravelly hardpan plains supporting groved mulga shrublands with hard and soft spinifex.	Major Drainage Line	7298.076
Platform	Dissected slopes and raised plains supporting hard spinifex grasslands.	Breakaway/ Cliff, Calcrete Plain, Cleared/ DisturbedDrainage Area/ Floodplain, Gorge/ Gully, Hillcrest/ Hillslope, Ironstone Outcrops, Major Drainage Line, Minor Drainage Line, Stony Plain, Undulating Low Hills	33090.56
River	Active flood plains, major rivers and banks supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands.	Cleared/ Disturbed, Drainage Area/ Floodplain, Hillcrest/ Hillslope, Major Drainage Line, Minor Drainage Line, Sand Plain, Stony Plain, Undulating Low Hills, Wetland	6206.859
Robe	Low plateaux, mesas and buttes of limonites supporting soft spinifex (and occasionally hard spinifex) grasslands.	Breakaway/ Cliff, Calcrete Plain, Cleared/ Disturbed, Drainage Area/ Floodplain, Gorge/ Gully, Hillcrest/ Hillslope, Ironstone Outcrops, Major Drainage Line, Medium Drainage Line, Minor Drainage Line, Mulga Woodland, Sand Plain, Sandy/ Stony Plain, Stony Plain, Undulating Low Hills, Wetland	5034.592
Rocklea	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands.	Basalt Outcrops, Breakaway/ Cliff, Cleared/ Disturbed, Hillcrest/ Hillslope, Ironstone Outcrops, Major Drainage Line, Minor Drainage Line, Stony Plain	2504.334
Urandy	Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands.	Drainage Area/ Floodplain, Hillcrest/ Hillslope, Major Drainage Line	965.1505
Wannamunna	Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands).	Cleared/ Disturbed, Drainage Area/ Floodplain, Hillcrest/ Hillslope, Minor Drainage Line	5464.352



Legend

- Activity Area (5,557 ha)
- Strategic Assessment Area
- Reserves
- Third Party disturbance footprint
- BHP LOA Mine Plan disturbance footprint
- BHP 30% Mine Plan disturbance footprint
- Species or species habitat likely to occur
- Species or species habitat may occur

Greater Bilby records

- Records Missing Date
- Records After 2005
- Records between 1980 - 2004
- Records Prior 1979

- Rail
- Highways
- Major Roads
- Minor Roads

BHP

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MINISTERS NORTH
GREATER BILBY REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-7
DATE:	16/01/2026	PREPARED:	Geomatics	NO:	A1412-010 RevA
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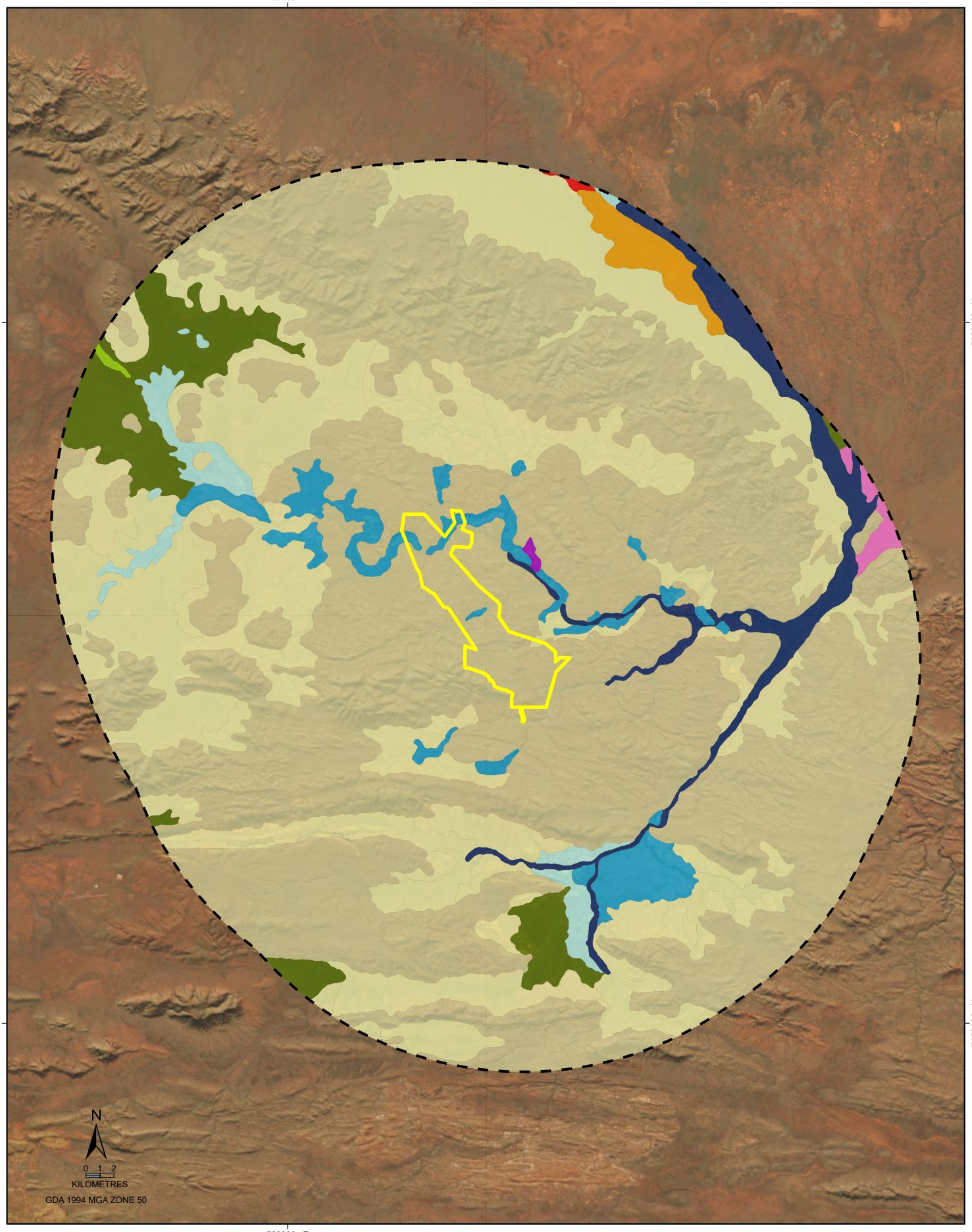

Legend

- Activity Area (5,557 ha)
- Activity Area 25km Buffer

Rangeland Land Systems

- Alluvial and sandy plains with soft spinifex grasslands
- Alluvial plains with acacia shrublands
- Alluvial plains with tussock grasslands
- Area of mining disturbance
- Calcrete plains with spinifex grasslands
- Hills and ranges with spinifex grasslands
- Mesas, breakaways and stony plains with spinifex grasslands
- River plains with grassy woodlands and tussock grasslands
- Sandplains and occasional dunes with spinifex grasslands
- Stony plains with spinifex grasslands
- Wash plains on hardpan with mulga shrublands

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MINISTERS NORTH
REGIONAL LAND SYSTEMS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:355,090	REQUESTOR:	PROJECTS	FIGURE:	5-8
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		REVIEWED:			

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5.3.3 Local habitat

The areas surveyed for Greater Bilby are shown in Figure 5-9, with local habitat and nearest record presented in Figure 5-10.

Astron (2025) noted that the preferred habitat of Sand Plain is limited within the area and is unlikely to occur. Although habitats such as Stony Plain and Drainage Area/Floodplain habitat occurs within the Indicative Footprint, this was not identified as critical habitat for the Greater Bilby during on-ground surveys and instead represents supporting habitat. Astron (2025) reported that although the Drainage Area/Floodplain habitat provides potential habitat for bilby foraging and burrowing, it is limited and outside the current distribution of the species. No critical habitat occurs within the Activity Area.

Table 5-10: Greater Bilby habitat

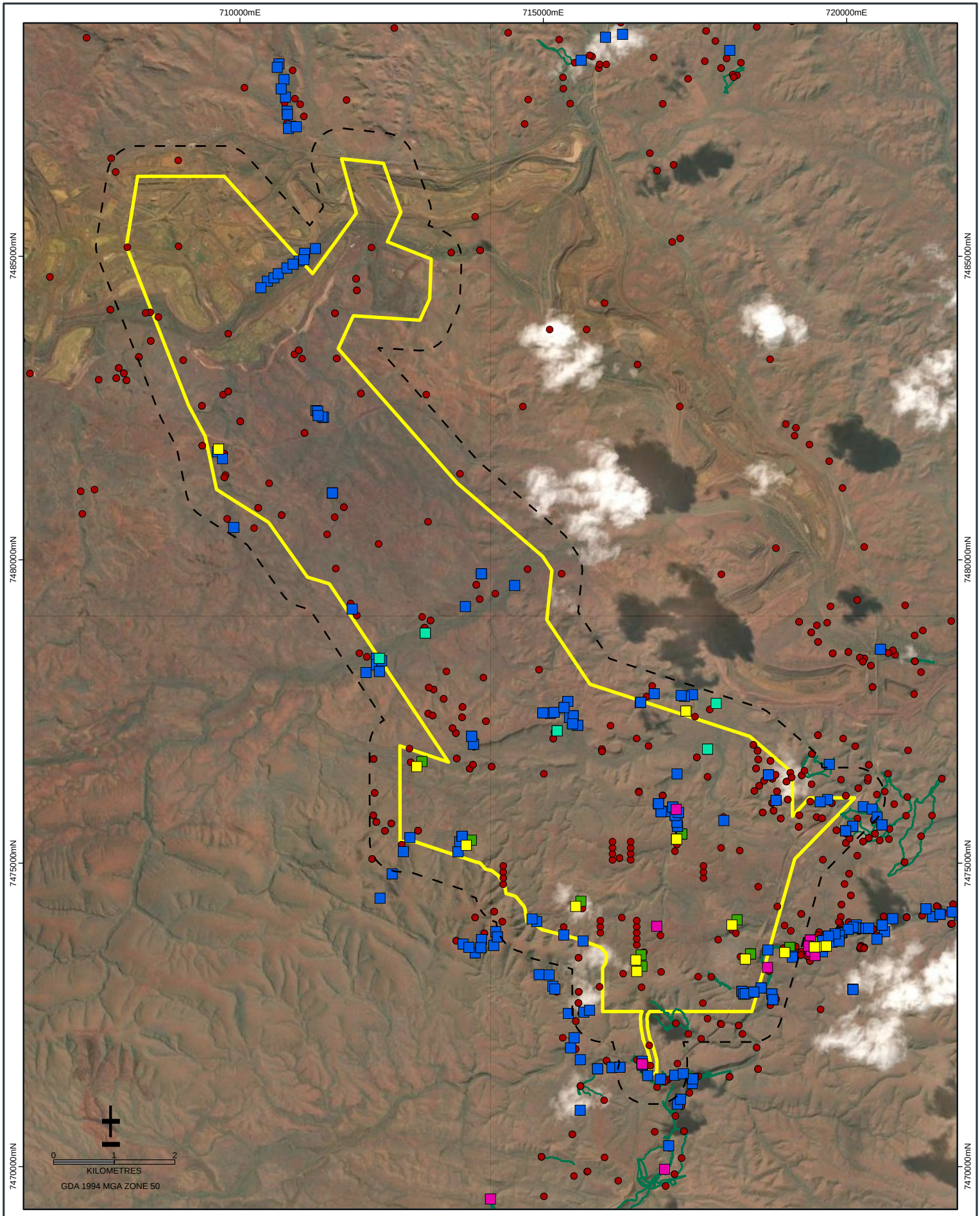
Habitat Description	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical Habitat		
N/A	N/A	N/A
Supporting Habitat		
Mulga Woodland	1.3	0.2
Sand Plain	<0.1	0
Stony Plain	4.8	0
Drainage Area / Floodplain	243.8	111.9
Total	**249.9**	**112.1**

5.3.4 Greater Bilby records

Contemporary surveys have included targeted searching for Greater Bilby. Astron (2025) targeted searches were conducted using a combination of the 2 ha plot protocol and linear survey methods outlined in the DBCA's *Guidelines for surveys to detect the presence of bilbies and assess the importance of habitat in Western Australia* (DBCA 2017). Two 4 ha plots of 200 m x 200 m, and three 2 ha plots of 200 m x 100 m were traversed on foot with track logs recorded on a handheld GPS unit. Any evidence of bilby, including burrows, tracks, foraging signs, and scats were recorded, photographed, and GPS located.

Astron (2025) also undertook a desktop assessment for historic records. These included records detailed on the Protected Matters Search Tool (PMST) and NatureMap as well as DBCA Threatened and Priority Fauna Database search. The nearest record to the Survey Area was identified over 38 km east of the Activity Area. No records occur within the Activity Area or 500 m buffer.

Given the lack of evidence of residing individuals and lack of evidence of transient, infrequent or dispersing individuals, the Activity Area is not considered to support the species.



Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Greater Bilby Survey Sampling Type

- Bilby Plots
- Camera Nights
- Elliot Traps
- Nocturnal Searches
- Cage Traps

All other Vertebrate Sampling Effort

- all other Vertebrate sampling sites
- All other Vertebrate Transects

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GREATER BILBY SURVEY AREAS AND METHODS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

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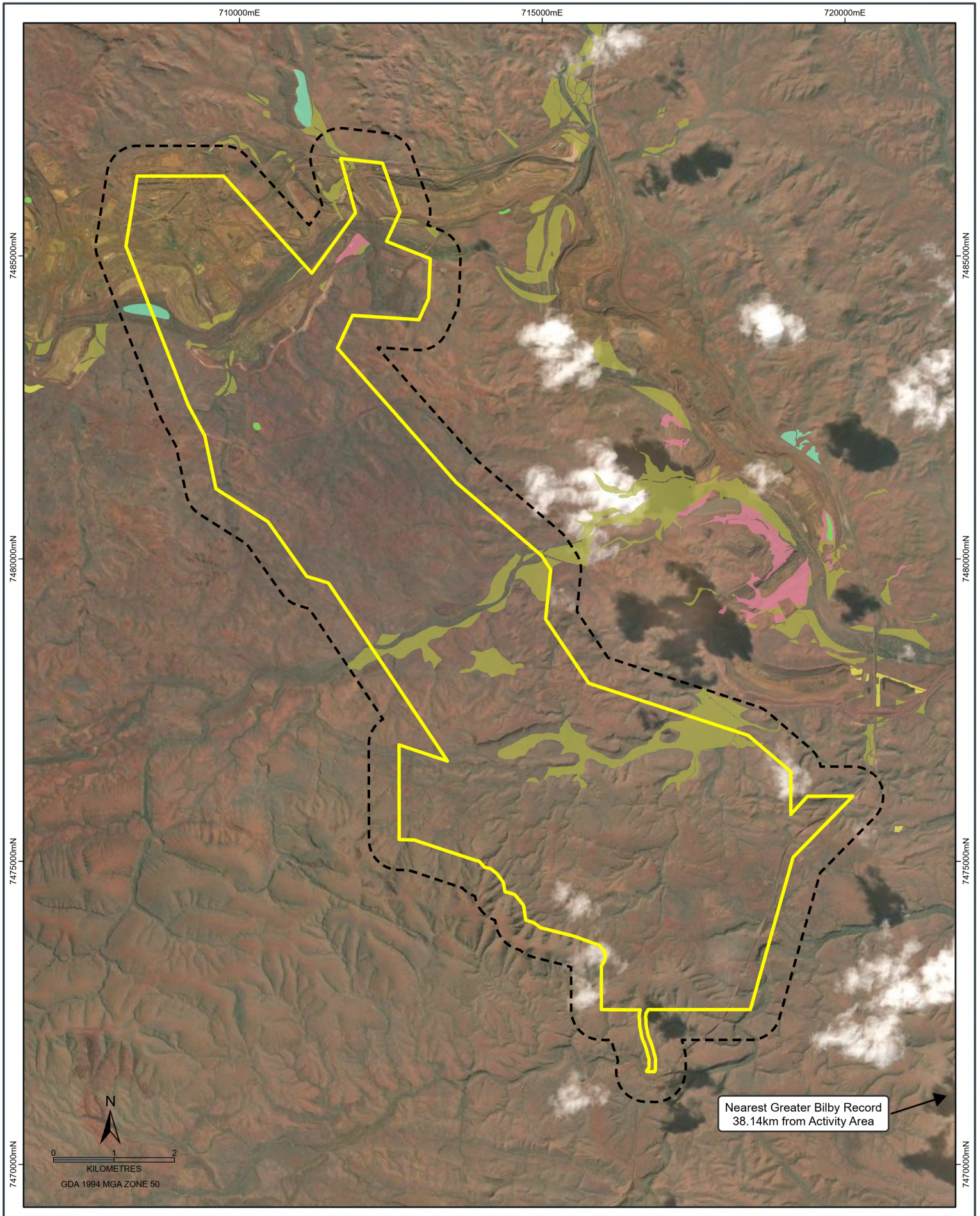

Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Habitat Type

- Drainage Area/ Floodplain
- Mulga Woodland
- Sand Plain
- Sandy/ Stony Plain
- Stony Plain

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MINISTERS NORTH
GREATER BILBY MAPPED HABITAT AND RECORDS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

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5.3.5 Impact assessment

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

Habitat loss

The key direct impact to Greater Bilby from the Activity would be habitat loss to 112.1 ha of supporting habitat (Mulga Woodland and Drainage Area/Floodplain).

Given the lack of Greater Bilby records in the Activity Area and noting these habitats are contiguous with the surrounding areas, habitat loss will not represent a significant impact to the Greater Bilby.

Furthermore, as the distance between the Activity and the nearest record of the Greater Bilby record is 38 km, habitat loss associated with this Activity does not fulfil the Notifiable Action Triggers for this Program Matter and is considered to present a low risk of impact for the species.

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, as discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia Procedure, within the Activity Area and as applicable. This procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is expected that dust emissions from the Activity will not represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures (including the proposed, draft Air Quality EMP).

Light

Artificial light has the potential to indirectly impact Greater Bilby by altering nocturnal foraging behaviours. Lighting may also attract some fauna (e.g. flying invertebrates like moths, which in turn, may also attract feeding nocturnal fauna).

As discussed in Section 5.2.5, opportunities to minimise potential light-related impacts on fauna, will be considered during mine design and planning phases. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

Feral predators

As discussed in Section 5.2.5, surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). Habitat clearing can enhance the ability of feral predators to move through the landscape and prey on native fauna. Construction and operation of mining activities can also introduce and attract feral predators. Introduced fauna species may affect native fauna through direct predation, competition for food and shelter, habitat destruction and the spread of diseases.

Like all small mammals in Australia, a key threat to the Greater Bilby's survival is predation by feral cats and foxes (DCCEEW, 2024b). BHP has proposed a targeted feral cat control program to reduce predation impacts on Program Matters (as discussed in Section 8.3). Nevertheless, any potential impacts from feral predators attributable to the Activity, are likely to be limited to individuals, and unlikely to impact any species at regional or species level, particularly given that the Greater Bilby has not been recorded in proximity to the Activity Area.

Vehicle and infrastructure interactions

Injury or mortality of fauna can result from collisions with vehicles and machinery during construction and operation of the Activity, especially with species that are attracted to cleared areas for basking or foraging activities, or at night when nocturnal fauna actively forage.

BHP has proposed limiting vehicle speeds to minimise the risk of collision with Program Matters as part of its Terrestrial Fauna EMP (Appendix 4).

Overall, impacts associated with interactions with vehicles, machinery or mining infrastructure are likely to be minor, limited to individuals, and unlikely to impact any species at regional or species level, particularly given that the Greater Bilby has not been recorded in proximity to the Activity Area.

5.3.6 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.

5.4 Northern Quoll

The following sections provide background information to demonstrate that Notifiable Action Triggers for Northern Quoll are not met. Potential impacts on the Northern Quoll are assessed to demonstrate that the Program Matter Objective for this species (described below) 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 2024c). 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 2024c). 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). Regional records and the distribution of Northern Quoll are shown in Figure 5-11.

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).

5.4.2 Local habitat

The Activity Area falls within the current distribution of the Northern Quoll, whereby the species or species habitat may occur (Figure 5-11). 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 5-12, with local habitat and nearest record presented in Figure 5-13.

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 366.3 ha of critical habitat (Gorge/Gully, Breakaway/Cliff, Major Drainage Line) occurs within the Activity Area. Of which, 115.5 ha occurs within the Indicative Footprint and is proposed to be cleared.

Supporting habitat

Supporting habitat is typically represented by Hillcrest/Hillslope, Stony Plain and Sand Plain habitat types, which make up approximately 3,500.6 ha of habitat within the Activity Area. Of this, 1,518 ha falls within the Indicative Footprint and is proposed to be cleared.

Table 5-11: Northern Quoll habitat

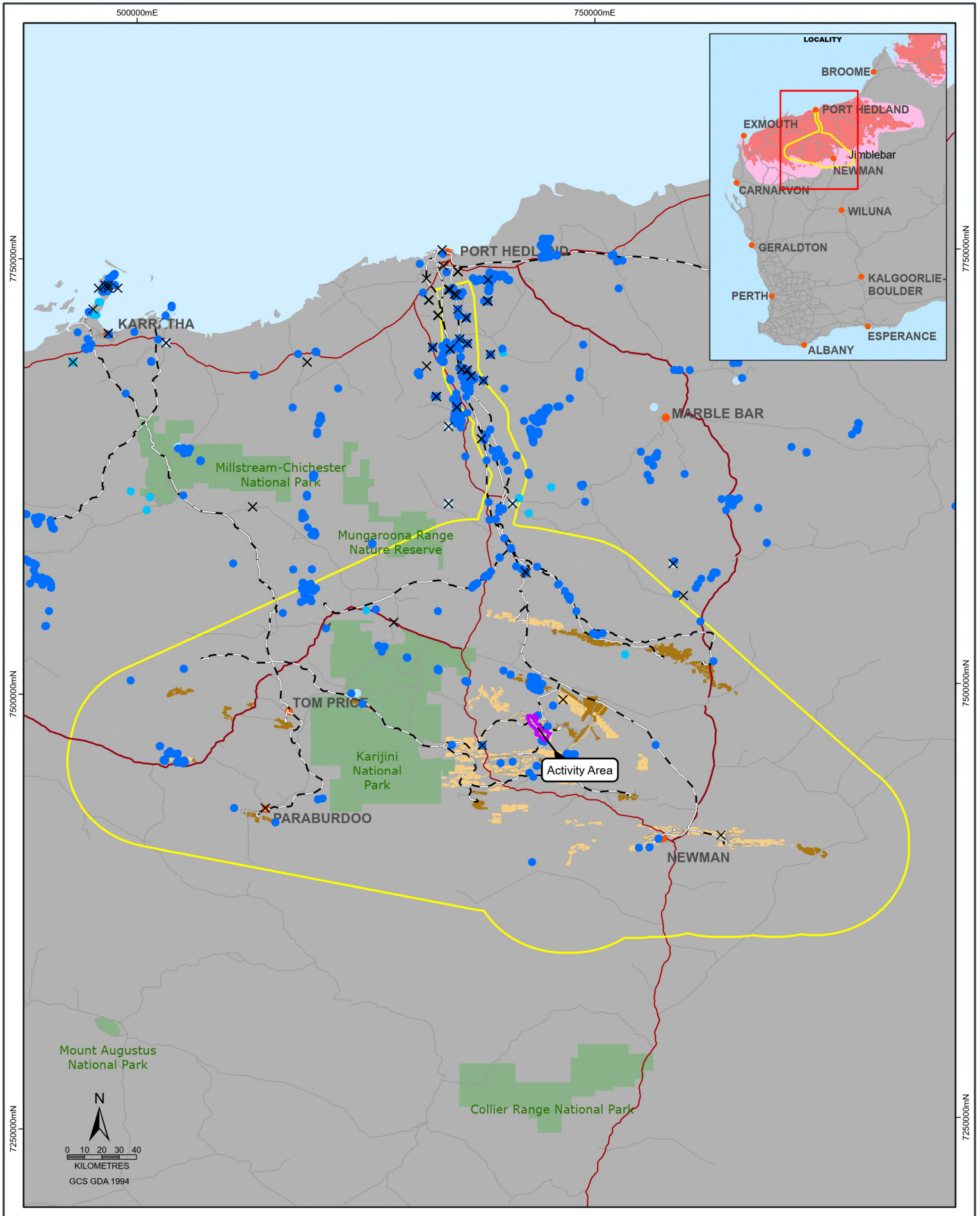
Habitat Description	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical habitat		
Gorge/Gully	152.1	86.0
Breakaway/Cliff	82.6	13.6
Major Drainage Line	131.6	15.9
Total	**366.3**	**115.5**
Supporting habitat		
Hillcrest / Hillslope	3,495.8	1,518
Stony Plain	4.8	0
Sand Plain	<0.1	0
Total	**3,500.6**	**1518**

5.4.3 Northern Quoll records

Survey history for Ministers North has been ongoing for several decades (since the 1990's) with many of these encompassing targeted searches for Northern Quoll, cage trapping, Elliot trapping, camera traps and nocturnal searches. No evidence of Northern Quoll has been recorded within the Activity Area, despite historic and contemporary sampling and the presence of potentially suitable fauna habitat types.

Recent biological surveys (see Figure 5-12) identified nine records of Northern Quoll at four locations approximately 30 m to 800 m outside of the Activity Area, comprising multiple records at camera traps positioned at three locations, and an additional location where a scat was recorded (Astron 2025) (see Figure 5-13). The records occur within an approximately 1,500 m linear distance (east to west) and were associated with Yandicoogina Creek (and or its tributaries). As reported by Astron (2025), photographic review of the spot patterning of the recorded Northern Quoll from the camera traps indicates that all records are likely to be of the same individual Northern Quoll and it was transitory in behaviour.

This suggests that a sustained population is not present within the Activity Area or 500 m buffer; however, suitable habitats within the area may still be utilised for the dispersal of the Northern Quoll.



Legend

Northern Quoll records
- Records After 2005
- Records between 1980 - 2004
- Records Prior 1979
- Records Missing Date

- Activity Area (5,557 ha)
- Strategic Assessment Area
- BHP LOA Mine Plan disturbance footprint
- Third Party disturbance footprint
- Reserves

- Species or species habitat likely to occur
- Species or species habitat may occur
- Rail
- Highways
- Major Roads
- Minor Roads

BHP

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MINISTERS NORTH
NORTHERN QUOLL REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

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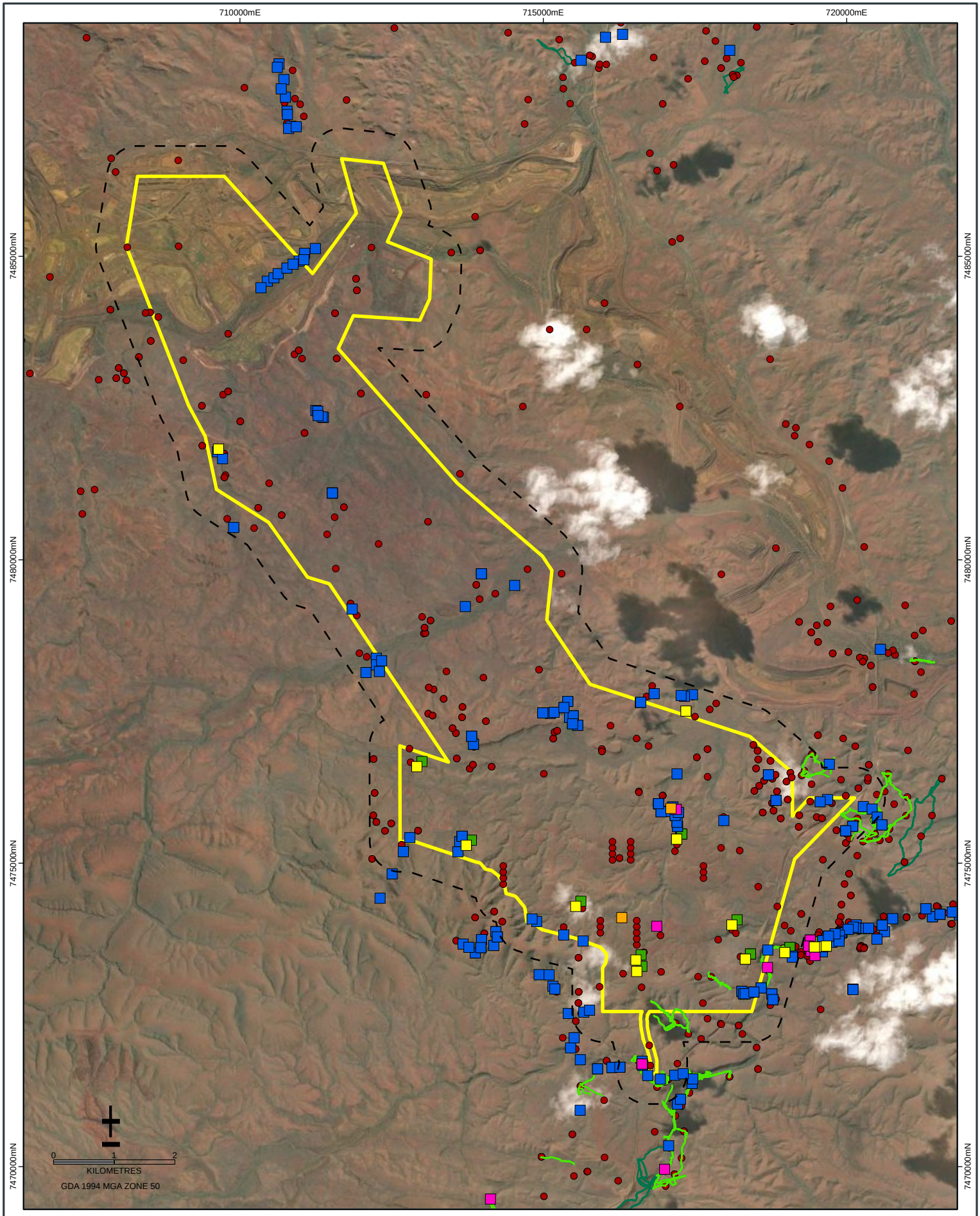


Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Northern Quoll Survey Sampling Type

- Camera Nights
- Cage Traps
- Elliot Traps
- Nocturnal Searches
- Spotlighting
- Transects

All other Vertebrate Sampling Effort

- All other Vertebrate sampling sites
- All other Vertebrate Transects

BHP

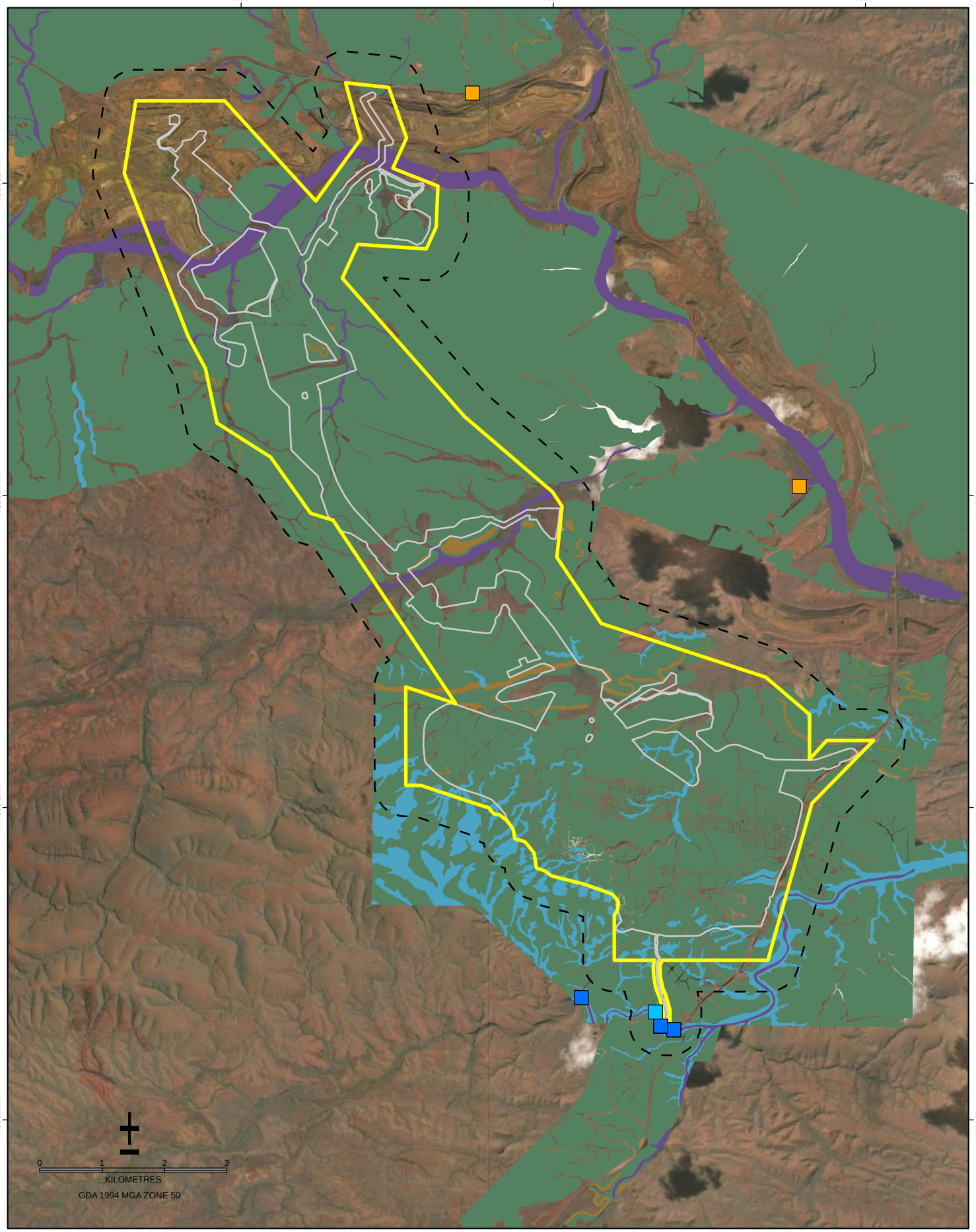
PUBLIC

MINISTERS NORTH
NORTHERN QUOLL SURVEY AREAS AND METHODS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-12
DATE:	21/05/2026	PREPARED:	GEOMATICS	NO:	A1412-015 RevD
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_015_MNValidationNotice_NortherQuollSurvey.aprx



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer

Northern Quoll Records

Sample method

- Camera
- Nocturnal Search
- Opportunistic

Critical Habitat

- Gorge/ Gully
- Breakaway/ Cliff
- Major Drainage Line

Supporting Habitat

- Hillcrest/ Hillslope

BHP

PUBLIC

MINISTERS NORTH

NORTHERN QUOLL MAPPED HABITATS AND RECORDS

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-13
DATE:	26/02/2026	PREPARED:	GEOMATICS	NO:	A412-016 RevC
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_016_MNValisationNotice_NorhternQuollHabitat.aprx

5.4.4 Impact assessment

The potential direct and indirect impacts to the Northern Quoll from the Activity (see Section 2) are considered below. In short, whilst the Activity will impact critical and supporting habitat for the Northern Quoll, this is not predicted to result in residual impacts to Northern Quoll given the lack of records in the Activity Area. The Northern Quoll Notifiable Action Triggers are not applicable as there are no records of Northern Quoll within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area.

BHP has proposed offsets for the Northern Quoll under the *Environmental Protection Act 1986* (WA) in the *Ministers North Derived Proposal Request* (BHP 2025) for impacts to Gorge/Gully, Breakaway/Cliff, Major Drainage Line, and Hillcrest/Hillslope habitat types. However, additional offsets are not proposed for the Northern Quoll within the Validation Notice as this species does not meet the Notifiable Action triggers and as such does not warrant additional consideration of offsets under the APOP.

Habitat loss

The clearing of up to 1,848 ha of fauna habitat for the Activity will result in the direct loss of terrestrial fauna values. The various habitats provide critical and supporting habitat for a range of significant fauna, including the Northern Quoll. The Activity requires clearing of up to 115.5 ha of critical habitat (Gorge/Gully, Breakaway/Cliff, Major Drainage Line) for Northern Quoll and 1,518 ha of supporting habitat (Hillcrest/Hillslope).

Given the lack of records of the Northern Quoll within the Activity Area or lack of populations/residing individuals within the 500 m buffer of the Activity Area boundary (only records of a transient individual within the buffer), the activity is not predicted to result in a residual impact to the species.

Habitat degradation from alteration of groundwater and surface water

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat and native vegetation that is reliant on groundwater will not occur.

As discussed in Section 5.2.5, the excavation of pits, construction of infrastructure, and creek crossings all have the potential to alter surface water regimes from changes to water quality, quantity, flow rates, and/or physical or biological attributes. This can subsequently result in degraded or modified fauna habitats including habitats for terrestrial vertebrate fauna. Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

Habitat modification, fire, weeds and dust

Fire

Actions that may be considered to have a significant impact on the Northern Quoll include introduction of inappropriate fire regimes. It is suggested that Northern Quolls may be vulnerable to extensive frequent fires now characteristic of much of northern Australia (DCCEEW, 2024c). Invasive weeds (see additional discussion below) have exacerbated this risk.

Hot work activities on site and vehicle movements could increase the risk of fire. Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, the invasion of northern Australia by Gamba Grass (*Andropogon gayanus*) and other introduced grasses is a key threatening process listed under the EPBC Act (DCCEEW 2024c). Gamba Grass is a high biomass pasture grass that out-competes native grasses and increases fuel loads which promote intense, late, dry season fires. These fires can be detrimental to the Northern Quoll by causing direct mortality either from fire or predation after fire and reducing the availability of shelter and habitat heterogeneity (DCCEEW 2024c). It should be noted that Gamba Grass has not been recorded in proximity to the Activity.

Despite the potential risk, it is also noted that none of the introduced flora recorded in areas surrounding the Activity, are listed as a 'Declared Pest' under the State *Biosecurity and Agriculture Management Act 2007* (WA) or listed as a 'Weed of National Significance'.

As discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. This procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is therefore not expected that dust emissions from the Activity will represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures (including the proposed draft Air Quality EMP).

Light

Artificial light has the potential to indirectly impact Northern Quoll by altering foraging behaviours, noting lighting may also attract some fauna (e.g. flying invertebrates like moths, which in turn, may also attract feeding nocturnal fauna).

During mine design and planning phases, opportunities to minimise potential light-related impacts on fauna, will be considered. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

Feral predators

As discussed in Section 5.2.5, surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). Habitat clearing can enhance the ability of feral predators to move through the landscape and prey on native fauna. Construction and operation of mining activities can also introduce and attract feral predators.

Feral predators, in particular feral cats, may be having an impact on Northern Quoll populations either through competition for food or direct predation, with predation by feral cats identified as a major threat to Northern Quolls

(DCCEEW, 2024c). The impacts of cats are exacerbated by extensive hot fires (see additional discussion above) and grazing, which reduce ground cover and hence shelter for small mammals.

BHP has proposed a targeted feral cat control program to reduce predation impacts on Program Matters (as discussed in Section 8.3). Nevertheless, any potential impacts from feral predators attributable to the Activity, are likely to be limited to individuals. Feral predators are unlikely to impact any species at regional or species level, given that the Northern Quoll has not been recorded within the Activity Area and is only known from transient individuals in proximity to the Activity.

Vehicle and infrastructure interactions

Injury or mortality of fauna can result from collisions with vehicles and machinery during construction and operation of the Activity, especially with species that are attracted to cleared areas for basking or foraging activities, or at night when nocturnal fauna actively forage.

BHP has proposed limiting vehicle speeds to minimise the risk of collision with Program Matters as part of its Terrestrial Fauna EMP (Appendix 4). These are further detailed in Section 8.

BHP recognises the recent records in the 500 m buffer as evidence of transient individuals within that region. As such BHP has proposed to utilise a fauna spotter for the works in proximity to the Northern Quoll records (i.e. for the southern access road widening). A fauna spotter will be present during these works, and should a Northern Quoll be identified during these works, work will stop until the Northern Quoll has moved from the area.

Overall, impacts associated with interactions with vehicles, machinery or mining infrastructure are likely to be minor, limited to individuals, and unlikely to impact any species at regional or species level, particularly given that most significant species (if present) occur at low densities within the Activity Area.

5.4.5 Summary

The Northern Quoll Notifiable Action Triggers are not applicable as there are no records of Northern Quoll within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area. The Activity is not predicted to result in residual impacts to Northern Quoll that would warrant further consideration.

5.5 Pilbara Olive Python

The following sections provide background information to demonstrate that Notifiable Action Triggers for Pilbara Olive Python are not met. Potential impacts on the Pilbara Olive Python are assessed to demonstrate that the Program Matter Objective for this species (described below) will be met:

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

5.5.1 General species information

The Pilbara Olive Python is listed as 'Vulnerable' under the EPBC Act (DCCEEW 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).

5.5.2 Local habitat

The Activity Area falls within the current distribution of the Pilbara Olive Python (Figure 5-14) whereby the species or species habitat may occur. The Pilbara Olive Python is restricted to ranges within the Pilbara and occurs in rocky outcrops, escarpments, and gorges, often in close proximity to permanent or seasonal water sources (including man-made). Survey coverage for the Pilbara Olive Python is shown in Figure 5-15, with local habitat and nearest record presented in Figure 5-16.

Critical habitat

For the Pilbara Olive Python critical habitat is represented by rocky outcrops in proximity to deep gorges, gullies, and water holes. Within the Activity Area approximately 234.7 ha of Gorge/Gully and Breakaway/Cliff habitat types occur, of which 99.6 ha will be impacted by the Indicative Footprint (see Table 5-12).

Within the Activity Area nine ephemeral waterholes were recorded. Whilst these pools may provide important habitat for significant fauna including the Pilbara Olive Python, the pools are all relatively shallow with depths of 0.5 m or less (Astron 2025). Four ephemeral waterholes were recorded in Gorge/Gully habitat in proximity to two Category 3 Ghost Bat caves and have been encompassed within the proposed Ghost Bat MEZ. As such, these water features will be avoided. More broadly, BHP commits to not clearing any of the currently known/recorded waterholes whether temporary or permanent within the Activity Area.

Supporting habitat

Supporting habitat for the Pilbara Olive Python consists of Major Drainage line habitat, Minor Drainage line habitat type and Boulders/Rockpiles. Within the Activity Area approximately 303.1 ha of these habitat types occur, of which 78.7 ha will be impacted within the Indicative Footprint (see Table 5-12).

Table 5-12: Pilbara Olive Python habitat

Habitat Description	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical habitat		
Gorge/Gully	152.1	86.0
Breakaway/Cliff	82.6	13.6
Total	**234.7**	**99.6**
Supporting habitat		
Major Drainage Line	131.6	15.9
Minor Drainage Line	142.0	48.9
Boulders/Rockpiles	29.5	13.9
Total	**303.1**	**78.7**

5.5.3 Pilbara Olive Python records

No Pilbara Olive Python records coincide with the boundary of the Activity Area despite historic and contemporary survey effort.

The nearest record consists of a single scat of Pilbara Olive Python within Gorge/Gully habitat associated with the Yandicoogina Creek approximately 130 m outside of the Activity Area (within the same Gorge/Gully habitat as the Northern Quoll records discussed above) (Astron 2025) (see Figure 5-16). The scat was assessed as being approximately 6 months to 1 year old. No other evidence of Pilbara Olive Python was recorded during the current survey despite targeted searches, nocturnal searches, eDNA sampling and motion cameras deployed in suitable habitats.

A further historic record at the existing Yandi mining operations from 2014, occurs approximately 500 m from the boundary of the Activity Area.

The absence of Pilbara Olive Python from within the Activity Area is supported by the results of complementary eDNA (environmental DNA) sampling of surface water pools (Astron, 2025). Water samples from surface water pools were collected from three locations in areas of potentially suitable habitat from across the area of the Activity, with the extracted water samples analysed for DNA fragments of Pilbara Olive Python to determine any occurrence of this taxon at the sampled locations. The analysis of the collected samples yielded no records of DNA fragments for Pilbara Olive Python, indicating no recent occurrence[23] of this taxon at the sampled locations. However, the scat record indicates that Yandicoogina Creek may be an important feature for foraging and dispersal opportunities for this species within the area.

[23] BHP acknowledge eDNA relies on longevity of the DNA within the water column which is influenced by water temperature, sunlight, turbidity and other environmental factors. Tests indicate eDNA for Pilbara Olive Python may only be present for a short number of days and as such, does not exclude the potential presence of the species outside of this period

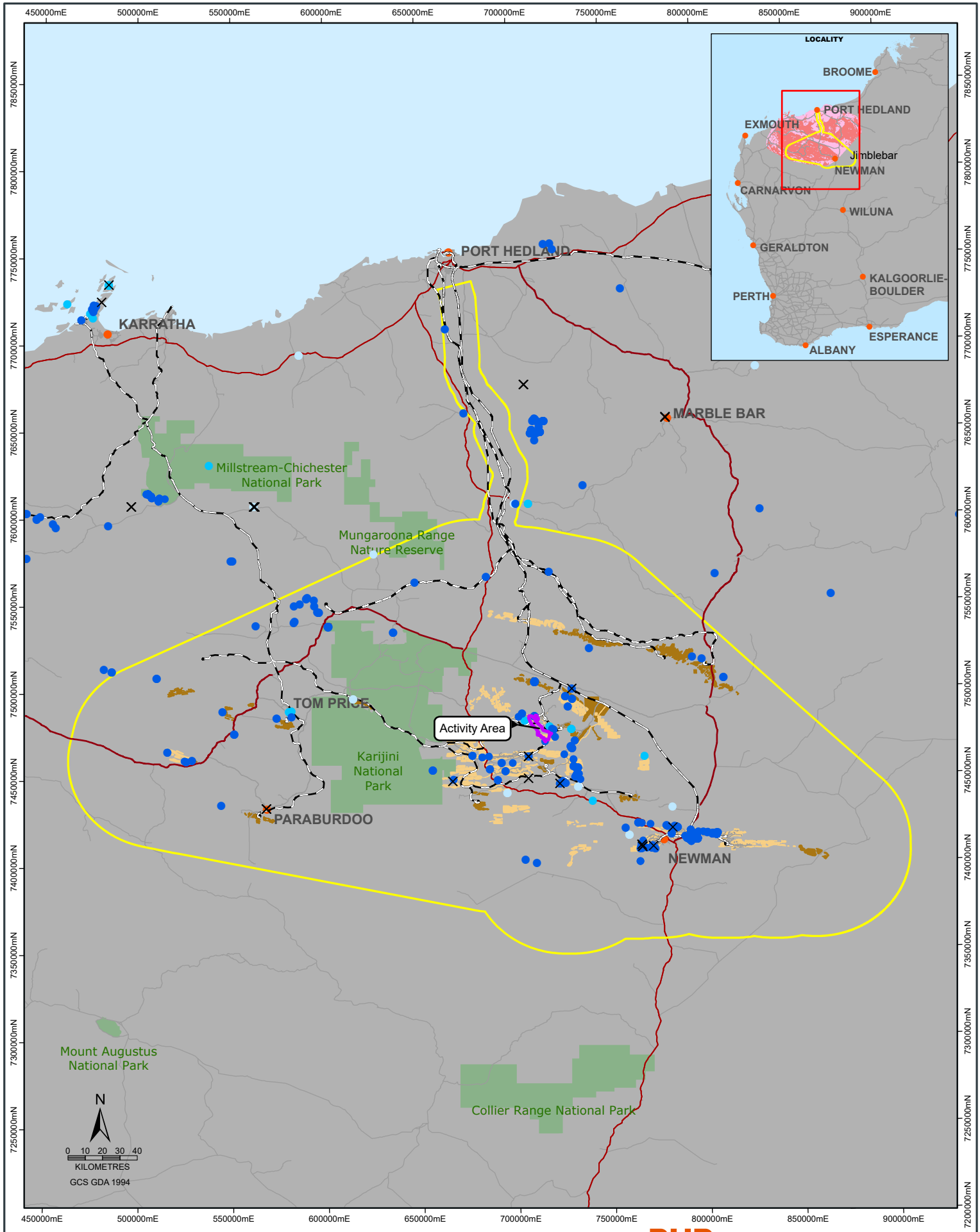
BHP WAIO have commissioned Biota to undertake Pilbara Olive Python monitoring at the Central Hub operations. Monitoring constitutes an initial targeted search for direct observation of live individuals or secondary indicators such as scats, sheds, and remains. If a suitably sized individual is captured it is implanted with a VHF tracker for future detections.

BHP have commenced this program (three monitoring periods undertaken to date), with one of the monitoring sites including the Ministers North Yandicoogina Creek site (in proximity to the previous scat record) to understand how this species is utilising the area.

The first on ground monitoring survey was undertaken in October 2025, consisting of afternoon and nocturnal searches. The site was targeted with a total effort of 1216 mins of searches during the October field survey. No live individuals or secondary signs were found during this survey (Biota 2026a, unpublished).

The second monitoring period was undertaken in January 2026. The same sites were surveyed, with the effort at Ministers North being 852 mins of survey. No live individuals or secondary signs were recorded at Ministers North during this survey (Biota 2026b, unpublished).

The third monitoring period was undertaken this month (April 2026). As above, no live individuals or secondary signs were recorded at Ministers North during this survey (Biota, pers. comms., formal debrief pending).



Legend

- Activity Area (5,557 ha)
- Strategic Assessment Area

Pilbara Olive Python records

- Records After 2005
- Records Between 1980 - 2004
- Records Prior 1979
- Records Missing Date
- BHP LOA Mine Plan disturbance footprint
- Third Party disturbance footprint
- Reserves
- Species or species habitat likely to occur
- Species or species habitat may occur
- Rail
- Highways
- Major Roads
- Minor Roads

BHP

PUBLIC

MINISTERS NORTH
PILBARA OLIVE PYTHON REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-14
DATE:	23/01/2026	PREPARED:	Geomatics	NO:	A1412-017 RevA
		REVIEWED:			

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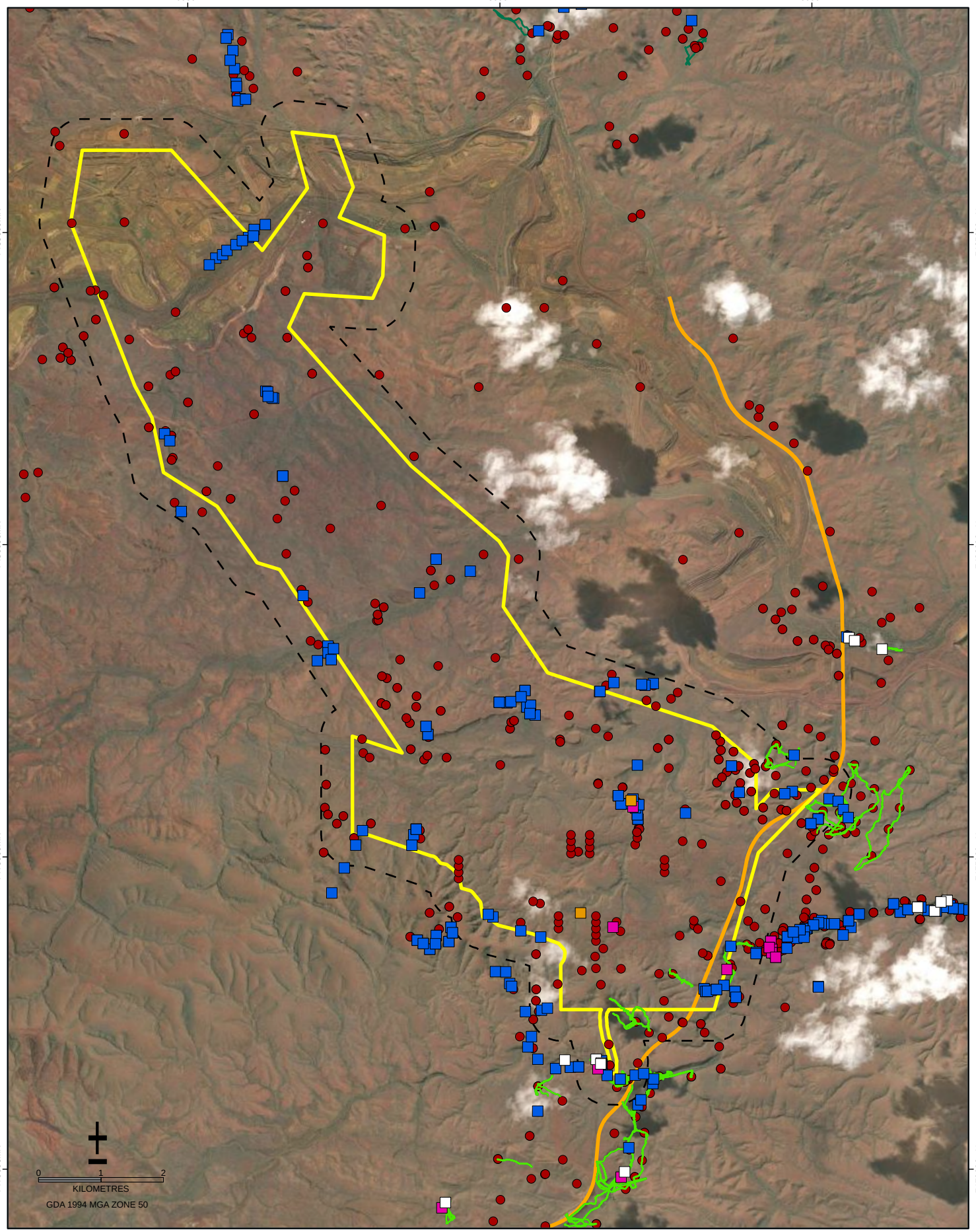


Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer
- Pilbara Olive Python targeted survey boundary

Pilbara Olive Python Survey Sampling Type

- Camera Nights
- eDNA
- Nocturnal Searches
- Spotlighting
- Transect

All other Vertebrate Sampling Effort

- all other Vertebrate sampling sites
- All other Vertebrate Transects

BHP

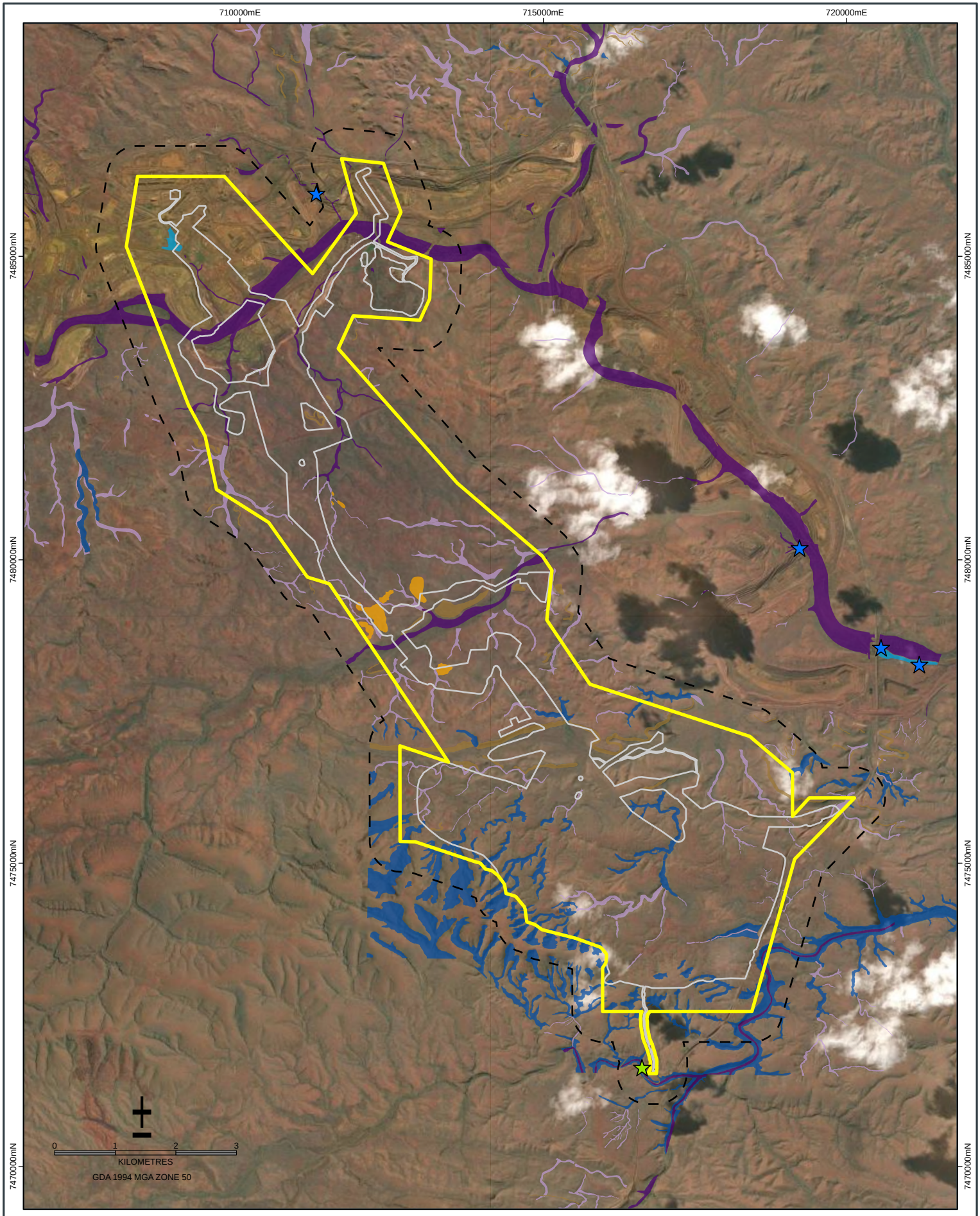
PUBLIC

MINISTERS NORTH
PILBARA OLIVE PYTHON SURVEY COVERAGE

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-15
DATE:	22/05/2026	PREPARED:	GEOMATICS	NO:	A1412-018 RevC
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_018_MNValidationNotice_PilbaraOlivePythonSurvey.aprx



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer

RecordType

- Scat
- Other

Habitat Type

- Breakaway/ Cliff
- Gorge/ Gully

Supporting Habitat

- Boulders/ Rockpiles
- Major Drainage Line
- Minor Drainage Line
- Wetland

BHP

PUBLIC

MINISTERS NORTH

PILBARA OLIVE PYTHON MAPPED HABITAT AND RECORDS

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-16
DATE:	22/05/2026	PREPARED:	GEOMATICS	NO:	A1412-019 RevD
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_019_MN\ValidationNotice_PilbaraOlivePythonHabitat.aprx

5.5.4 Impact assessment

The potential direct and indirect impacts to the Pilbara Olive Python from the Activity (Section 2) are considered below. In short, whilst the Activity will impact critical and supporting habitat for the Pilbara Olive Python, this is not predicted to result in residual impacts to Pilbara Olive Python given the lack of records in the Activity Area. The Notifiable Action Triggers are not applicable as there are no records of Pilbara Olive Python within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area.

BHP has proposed offsets for the Pilbara Olive Python under the *Environmental Protection Act 1986* (WA) in the *Ministers North Derived Proposal Request* (BHP 2025) for impacts to Gorge/Gully, Breakaway/Cliff, Boulders/Rockpiles, Major Drainage Line, and Minor Drainage Line habitat types. However, additional offsets are not proposed within the Validation Notice as this species does not meet the Notifiable Action triggers and as such does not warrant additional consideration of offsets under the APOP.

Habitat loss and fragmentation

The Activity will result in the loss of 99.6 ha of critical habitat (Gorge/Gully and Breakaway/Cliff) and 78.7 ha of supporting habitat (Major Drainage Line, Minor Drainage Line, Boulders/Rockpiles).

Given the lack of records of the Pilbara Olive Python within the Activity Area or lack of populations/residing individuals within the 500 m buffer (where surveyed) of the Activity Area boundary (a single scat record occurs within the buffer), the activity is not predicted to result in a residual impact to the species.

Habitat degradation from alteration of groundwater and surface water

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat or native vegetation that is reliant on groundwater will not occur.

As discussed in Section 5.2.5, the excavation of pits, construction of infrastructure, and creek crossings all have the potential to alter surface water regimes from changes to water quality, quantity, flow rates, and/or physical or biological attributes. This can subsequently result in degraded or modified fauna habitats including habitats for terrestrial vertebrate fauna. Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Major fire events have been identified as a threat to the habitat of Pilbara Olive Python (DCCEEW, 2024d).

Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, as discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. The procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is therefore not expected that dust emissions from the Activity will represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures.

Light

Artificial light has the potential to indirectly impact Pilbara Olive Python by altering nocturnal foraging behaviours. Lighting may also attract some fauna, which in turn, may also attract feeding nocturnal fauna.

As discussed in Section 5.2.5, opportunities to minimise potential light-related impacts on fauna, will be considered during mine design and planning phases. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

Feral predators

As discussed in Section 5.2.5, surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). Habitat clearing can enhance the ability of feral predators to move through the landscape and prey on native fauna. Construction and operation of mining activities can also introduce and attract feral predators. Introduced fauna species may affect native fauna through direct predation, competition for food and shelter, habitat destruction and the spread of diseases.

Predation of juveniles by foxes and cats is suspected to be a problem for populations in the coastal Pilbara region. Foxes and cats also prey on the food sources of the Pilbara Olive Python (Pearson (2003) cited in DCCEEW (2024d)).

BHP has proposed a targeted feral cat control program to reduce predation impacts on Program Matters (as discussed in Section 8.3). Nevertheless, any potential impacts from feral predators attributable to the Activity, are likely to be limited to individuals. Feral predators are unlikely to impact any species at regional or species level, particularly given that the Pilbara Olive Python has not been recorded within the Activity Area and is only known from transient individuals in proximity to the Activity.

Vehicle and infrastructure interactions

Injury or mortality of fauna can result from collisions with vehicles and machinery during construction and operation of the Activity, especially with species that are attracted to cleared areas for basking or foraging activities, or at night when nocturnal fauna actively forage.

BHP recognises the recent record in the 500 m buffer as evidence that the Yandicoogina Creek may be an important feature for dispersal for transient individuals within that region. As such BHP has proposed to utilise a fauna spotter for the works in proximity to the record (i.e. for the southern access road widening). A fauna spotter will be present

during these works, and should a Pilbara Olive Python be identified during these works, work will cease until the it is confirmed that the Pilbara Olive Python has moved from the area.

In addition, BHP recognises the potential importance of Marillana Creek to the Pilbara Olive Python as a potential feature for dispersal. A fauna spotter will also be present for the works in proximity to the Marillana Creek (i.e. widening of existing creek crossing, 33kV powerline and temporary pipeline). In the event that significant fauna species are observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on.

Overall, impacts associated with interactions with vehicles, machinery or mining infrastructure are likely to be minor, limited to individuals, and unlikely to impact any species at regional or species level, particularly given that most significant species (if present) occur at low densities within the Activity Area.

5.5.5 Summary

The Pilbara Olive Python Notifiable Action Triggers are not applicable as there are no records of the Pilbara Olive Python in the Activity Area or populations/residing individuals within 500 m of the Activity Area boundary. The nearest record is a single scat record located approximately 0.13 km to the south. The Activity is not expected to result in residual impacts to critical or supporting habitat for the Pilbara Olive Python that warrants further consideration.

5.6 Pilbara Leaf-nosed Bat

The following sections provide information to demonstrate that Notifiable Action Triggers for Pilbara Leaf-nosed Bat are not met. Potential impacts on the Pilbara Leaf-nosed Bat are assessed to demonstrate that the Program Matter Objective for this species (described below) will be met:

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

5.6.1 General species information

The Pilbara Leaf-nosed Bat is listed as 'Vulnerable' under the EPBC Act. The species occurs over an estimated area of 120 million hectares (Eco Logical 2014) and is restricted to the Pilbara bioregion of Western Australia (DCCEEW 2024e). The Pilbara population is considered to represent a single interbreeding population comprising multiple colonies (TSSC 2016c). Individual colonies vary significantly, ranging in size from 10 individuals to as many as 20,000 individuals, although the latter is exceptional (Armstrong 2001, Ecologia Environment 2005). 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 5-17 illustrates the regional records and distribution of Pilbara Leaf-nosed Bat. The species area of occupancy in the Pilbara has been calculated by Woinarski *et al.* (2014) as under 110,000 km^2.

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).

5.6.2 Local habitat

The Activity Area falls within the current distribution of the Pilbara Leaf-nosed Bat whereby the species or species habitat may occur (Figure 5-17). Survey coverage for the Pilbara Leaf-nosed Bat is shown in Figure 5-18, with local habitat and nearest record presented in Figure 5-19.

The Pilbara Leaf-nosed Bat roosts in deep, warm, humid caves or rock cracks, especially in proximity to water pools (Bat Call WA 2021 as cited in Astron 2025) and forages while flying low along watercourses and gorges and over *Triodia* grassland.

Astron (2025) undertook targeted searches for this species, including assessing caves for potential roosting. Any potential roost caves identified within the Activity Area were assessed for the suitability to provide roosting for the Pilbara Leaf-nosed Bat using the following information:

- cave characteristics, including position of the cave in the landscape, angle of cave floor, orientation of cave opening, exposure of cave, and type of cave entrance
- cave dimensions, including overhang depth, cave entrance height and width, cave depth, number of chambers and their dimension (height and width)

- humidity and temperature inside the cave
- bat species present within the cave, including the presence of scats and feeding debris.

Critical habitat

No known roosts occur in proximity to the Activity, with all caves assessed by Astron (2025) being categorised as Category 4 for Pilbara leaf-nosed bat. Furthermore, there are no known roosts within 10 km which would influence critical foraging habitat. As such, there is no habitat within the Activity consistent with critical habitat for this species.

Supporting habitat

The majority of the Activity Area represents supporting habitat for this species (see Figure 5-19), consisting of Mulga Woodland, Major Drainage Line, Minor Drainage Line, Gorge/Gully, Breakaway/Cliff, Hillcrest/Hillslope, Sand Plain, Drainage Area/Floodplain and Wetland habitat types (see Table 5-13). Of the 4,253.3 ha of mapped supporting habitat, 1,795.1 ha is within the Indicative Footprint and will be impacted.

Table 5-13: Pilbara Leaf-nosed Bat habitat

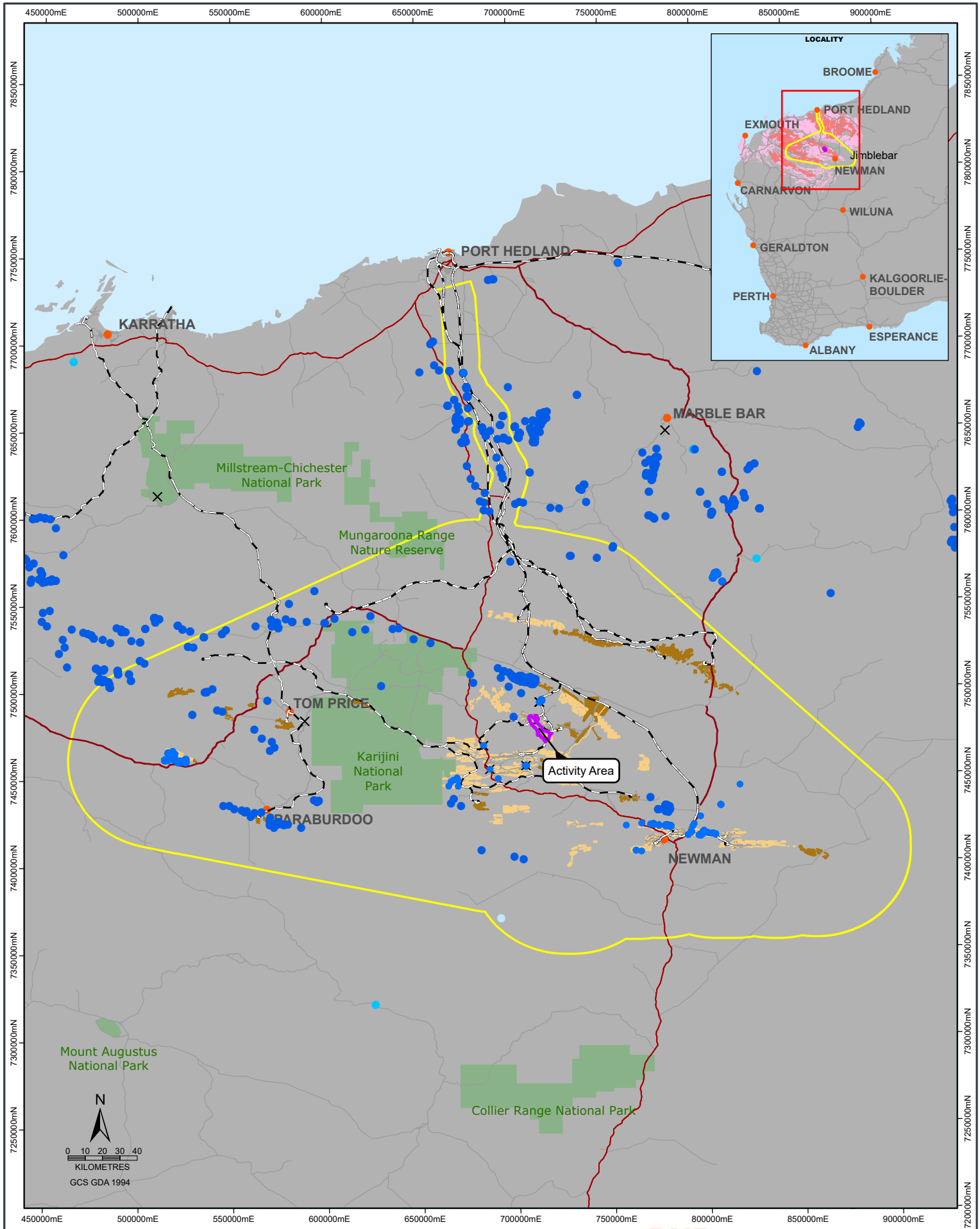
Habitat Description	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical habitat		
N/A	N/A	N/A
Supporting habitat		
Mulga Woodland	1.3	0.2
Major Drainage Line	131.6	15.9
Minor Drainage Line	142.0	48.9
Gorge/Gully	152.1	86.0
Breakaway Cliff	82.6	13.6
Hillcrest/Hillslope	3,495.8	1,518
Sand Plain	<0.1	0
Drainage Area/Flood plain	243.8	111.9
Wetland	4.1	0.6
Total	**4,253.3**	**1,795.1**

5.6.3 Pilbara Leaf-nosed Bat records

In the most recent targeted survey, Astron (2025) deployed recording devices (Song Meter SM4) at 18 locations to target the most likely foraging and roosting habitat (e.g. drainage lines and cave entrances) across the Activity for significant bat species (including Pilbara Leaf-nosed Bat). The ultrasonic recorders were set for three nights, resulting in a total of 54 recording nights. The bat echolocation data was analysed by external specialist Robert Bullen (Bat Call WA) for presence of all bat species.

Pilbara Leaf-nosed Bats were not detected in the Activity Area during the current or historic surveys. No known Pilbara Leaf-nosed Bat roosts are present in the area. The closest known record for this species is approximately 8 km north- of the Activity and the nearest known significant roosts are at Gudai-Darri adit (approximately 26 km north) and Kalgan Creek (approximately 80 km southeast).

Given the lack of evidence of residing individuals and lack of evidence of transient, infrequent or dispersing individuals, the Activity Area is not considered to support the species.



Legend

- Activity Area (5,557 ha)
- Strategic Assessment Area

Pilbara Leaf-nosed Bat records

- Records After 2005
- Records between 1980 - 2004
- Records Prior 1979
- Records Missing Date

- BHP 30% Mine Plan disturbance footprint
- BHP LOA Mine Plan disturbance footprint
- Third Party disturbance footprint

- Reserves
- Species or species habitat likely to occur
- Species or species habitat may occur

BHP

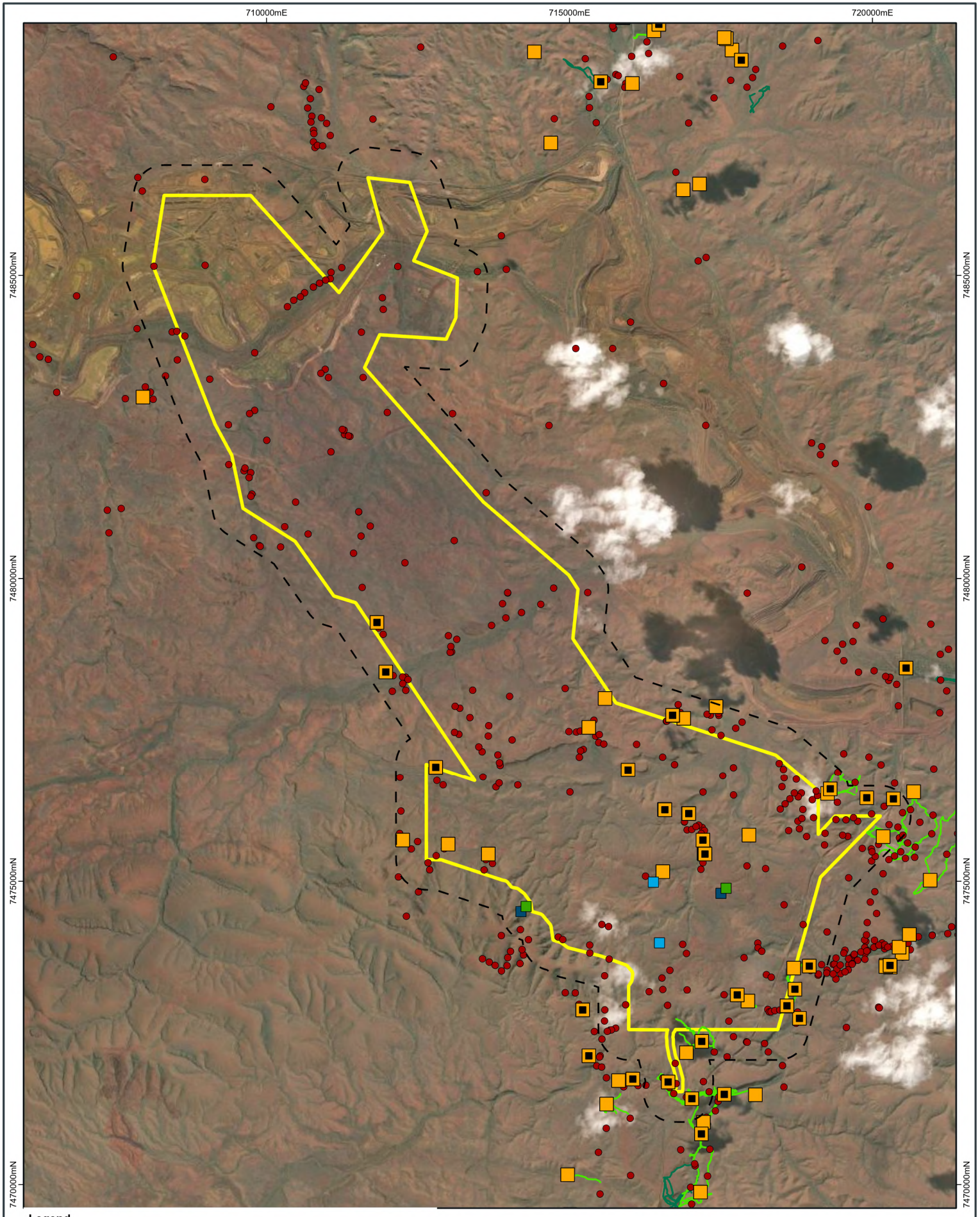
PUBLIC

MINISTERS NORTH
PILBARA LEAF-NOSED BAT REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-17
DATE:	27/01/2026	PREPARED:	Geomatics	NO:	A1412-020 RevA
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_020_MN\ValidationNotice_PilbaraLeafNosedBatRecords_.aprx



Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Pilbara Leaf-nosed Bat Survey Sampling Type

- Anabat/Acoustic Recording
- Bat Detector
- Cave Assessment
- Foraging
- Habitat Assessment
- Transect

All other Vertebrate Sampling Effort

- all other Vertebrate sampling sites
- All other Vertebrate Transects

N

0 1 2

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

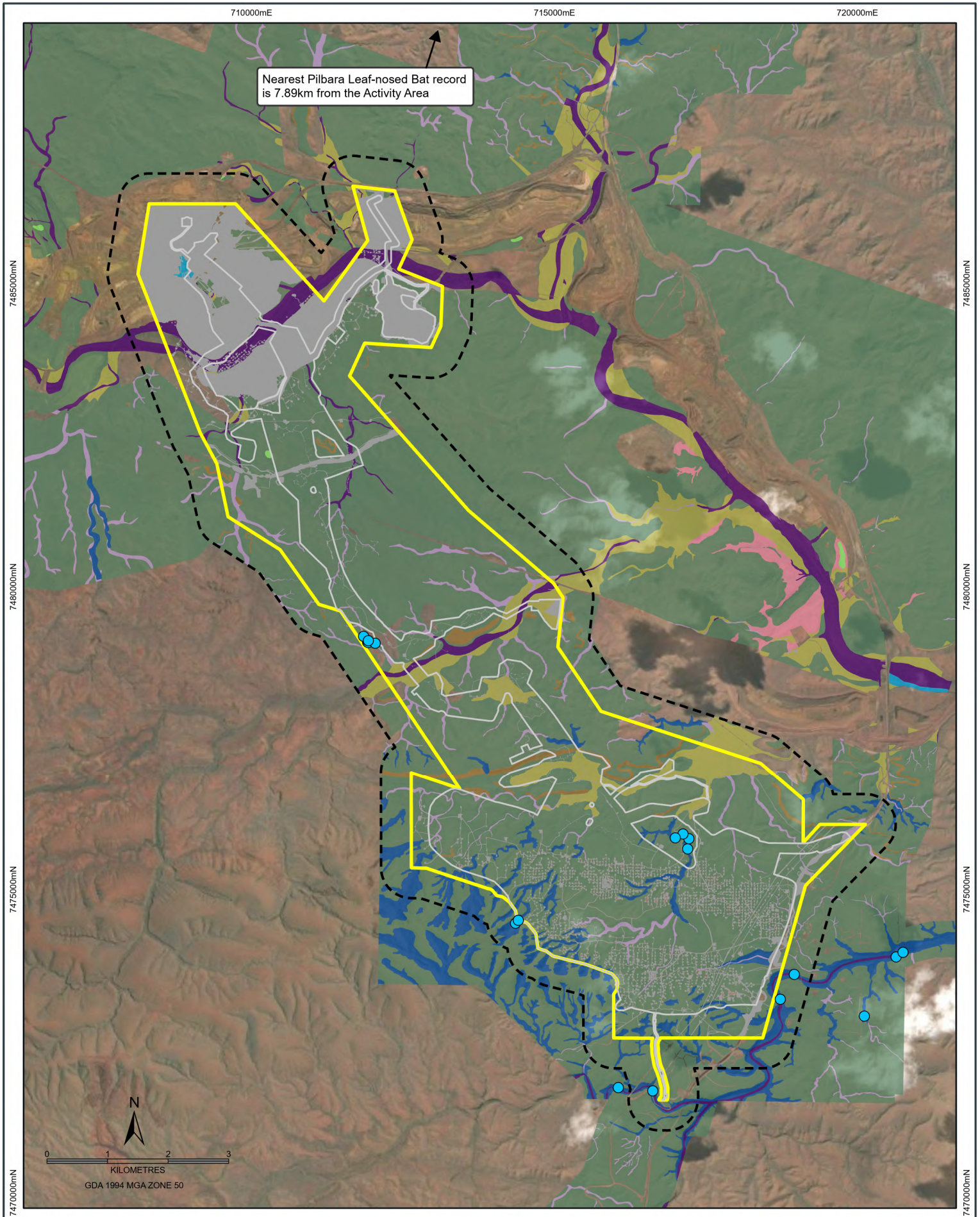
PUBLIC

MINISTERS NORTH
PILBARA LEAF-NOSED BAT SURVEY COVERAGE

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-18
DATE:	20/05/2026	PREPARED:	GEOMATICS	NO:	A1412-021 RevB
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_021_MNValidationNotice__PilbaraLeafNosedBatSurveys.aprx



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer
- Surface Water Features

Habitat Type

- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Hillcrest/ Hillslope
- Major Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Sand Plain
- Wetland

BHP

PUBLIC

MINISTERS NORTH
PILBARA LEAF-NOSED BAT MAPPED HABITAT AND RECORDS

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-19
DATE:	26/02/2026	PREPARED:	GEOMATICS	NO:	A1412-022 RevC
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_022_MNValidationNotice_PilbaraLeafNosedBat\Habitat.aprx

5.6.4 Impact assessment

The potential direct and indirect impacts to the Pilbara Leaf-nosed Bat from the Activity (see Section 2) are considered below. In short, the Activity is not predicted to result in residual impacts to Pilbara Leaf-nosed Bat through either direct or indirect impacts to Pilbara Leaf-nosed Bat supporting habitat. No critical habitat will be impacted, and the Notifiable Action triggers are not applicable as there are no records of Pilbara Leaf-nosed Bat within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area.

Habitat loss

No critical habitat for Pilbara Leaf-nosed Bat will be impacted for the Activity. However, much of the Activity Area consists of potential supporting habitat, as such the Activity will result in the loss of 1,795.1 ha of supporting habitat (Mulga Woodland, Major Drainage Line, Minor Drainage Line, Gorge/Gully, Breakaway/Cliff, Hillcrest/Hillslope, Sand Plain, Drainage Area/Floodplain and Wetland).

Given the lack of records of Pilbara Leaf-nosed Bat within the Activity Area or within the 500 m buffer (where surveyed) of the Activity Area boundary, the Activity is not predicted to result in a residual impact to the species.

Furthermore, as the distance between the Activity and the nearest record of the Pilbara Leaf-nosed Bat is approximately 8 km and the nearest known significant roosts being approximately 26 km north, habitat loss associated with this Activity does not fulfil the Notifiable Action Triggers for this Program Matter and is considered to present a low risk of impact for the species.

Habitat degradation from alteration of groundwater and surface water

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat or native vegetation that is reliant on groundwater will not occur.

As discussed in Section 5.2.5, the excavation of pits, construction of infrastructure, and creek crossings all have the potential to alter surface water regimes from changes to water quality, quantity, flow rates, and/or physical or biological attributes. This can subsequently result in degraded or modified fauna habitats including habitats for terrestrial vertebrate fauna. Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

Noise and vibration

Noise and vibration in proximity to Pilbara Leaf-nosed Bat roosts have the potential to disturb Pilbara Leaf-nosed Bats that may be present, causing flushing from roosts and temporary or permanent abandonment. All caves recorded in the Activity Area are Category 4 roosts, which are shallow, structurally simple and may be used opportunistically for feeding or nocturnal use by bat species (Astron 2025). Given no evidence of use by the Pilbara Leaf-nosed Bat and the nearest records occur approximately 8 km from the Activity, it is not predicted that the activity will result in residual impact to Pilbara Leaf-nosed Bat individuals or habitat as a result of noise and vibration

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, as discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. The BHP Environmental Weed Management in Western Australia procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is therefore not expected that dust emissions from the Activity will represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures.

Light

Artificial light has the potential to indirectly impact Pilbara Leaf-nosed Bats by altering nocturnal foraging behaviours and/or potentially restricting the use of roosts. The Pilbara Leaf-nosed Bat is known to display a curiosity for light sources (Armstrong 2001 cited in DCCEEW, 2024e).

During mine design and planning phases, opportunities to minimise potential light-related impacts on fauna, will be considered. This may include evaluating lighting needs, placement, intensity, directionality and spectral characteristics in proximity to various fauna habitat types, and in consideration of other factors such as health and safety and regulatory requirements.

Given no evidence of Pilbara Leaf-nosed Bats have been recorded within the Activity Area, potential impacts from artificial light are considered minimal.

Feral predators

As discussed in Section 5.2.5, surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). BHP has proposed a targeted feral cat control program to reduce predation impacts on Program Matters (as discussed in Section 8.3). Nevertheless, any potential impacts from feral predators attributable to the Activity, are likely to be limited to individuals. Feral predators are unlikely to impact any species at regional or species level, particularly given that the Pilbara Leaf-nosed Bat has not been recorded within the Activity Area or in proximity to the Activity.

Human disturbance

Although the entering caves (e.g. for monitoring by humans, such as laying scat sheets) or minor disturbances on the perimeter of caves, including approaching vehicles or people, can cause the flushing or abandonment of caves, there are no critical roosts for Pilbara Leaf-nosed Bats in the Activity Area. All caves have been Categorised as Category 4 and no records have been identified in the Activity Area or in proximity to the Activity Area.

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 Bat are understood to fly low to the ground and display a curiosity for light sources (DCCEEW, 2024e). As such they are susceptible to vehicle strike, with roadkill records in the Pilbara and Kimberley (DCCEEW, 2024e). Sporadic occurrences of roadkill along the many kilometres of road in the Pilbara are unlikely to have a significant impact on the population size, however, local declines could occur if a busy haul or access road is to be located close to a known roost or foraging site (DCCEEW, 2024e).

The risk of vehicle strike to Pilbara Leaf-nosed Bat attributable to the Activity is considered to be negligible given the lack of records in or proximal to the Activity Area and no significant roosts in proximity.

5.6.5 Summary

The Pilbara Leaf-nosed Bat Notifiable Action Triggers are not applicable, as there are no records of the Pilbara Leaf-nosed Bat in the Activity Area or within the 500 m buffer of the Activity Area boundary. The nearest record is located approximately 8 km to the north. The Activity is not expected to result in residual impacts, either direct or indirect, to Pilbara Leaf-nosed Bat critical or supporting habitat.

5.7 Grey Falcon

The following sections provide background information to demonstrate that Notifiable Action Triggers for Grey Falcon are not met. Potential impacts on the Grey Falcon are assessed to demonstrate that the Program Matter Objective for this species (described below) 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 Local habitat

The Activity Area falls within the current distribution of the Grey Falcon whereby the species or species habitat may occur Figure 5-20. The Grey Falcon typically occurs in open habitats of semi-arid deserts, grassy inland plains, timbered watercourses and pastoral lands (DCCEEW 2023 cited in Astron 2025). The species usually nests in the tallest trees along watercourses such as River Red Gum (*E. camaldulensis*).

Astron (2025) included targeted searches for the Grey Falcon, with a specific focus on critical habitat areas such as Major Drainage Line habitats where large trees provided opportunities for nesting and perching. Survey coverage for the Grey Falcon is shown in Figure 5-21, with local habitat and nearest record presented in Figure 5-22.

Critical habitat

Within the Activity Area there is approximately 131.6 ha of critical habitat (i.e. Major Drainage Line habitat), of which 15.9 ha will be cleared (see Table 5-14).

Supporting habitat

Approximately 308.1 ha of supporting habitat is present within the Activity Area, consisting of Drainage Area/Floodplain, Mulga woodland, Sand plain, Stony Plain and Undulating Low Hills. Of this, approximately 124.3 ha of supporting habitat is proposed to be cleared (see Table 5-14).

Table 5-14: Grey Falcon habitat

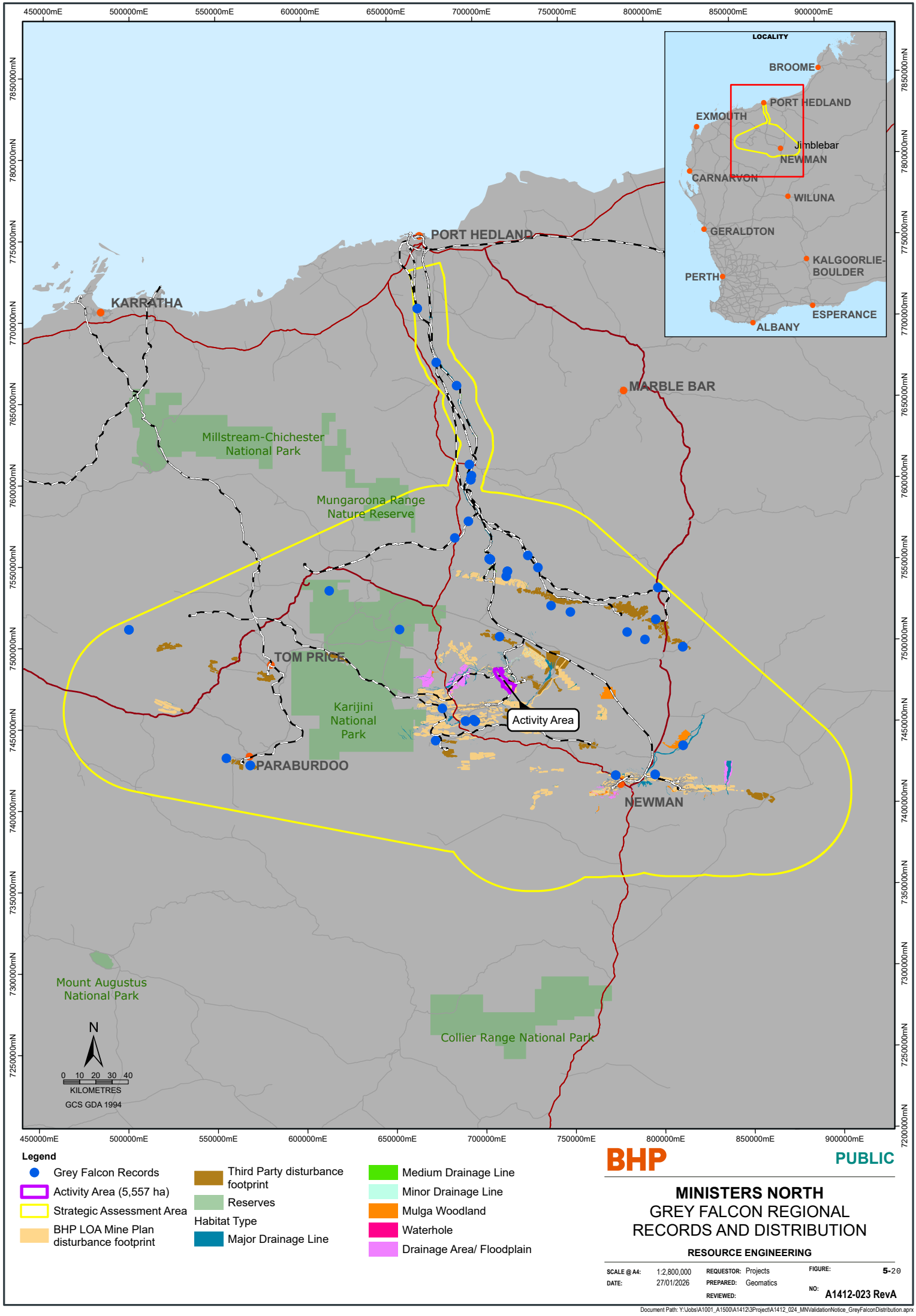
Habitat Description	Extent within Activity Area (ha)	Extent within Indicative Footprint (to be cleared, ha)
Critical habitat		
Major Drainage Line	131.6	15.9
Total	**131.6**	**15.9**
Supporting habitat		
Drainage Area / Floodplain	243.8	111.9
Mulga Woodland	1.3	0.2
Sand Plain	<0.1	0
Stony Plain	4.8	0
Undulating Low Hills	58.2	12.2
Total	**308.1**	**124.3**

5.7.3 Grey Falcon records

Survey history for Ministers North has been ongoing for several decades (since the 1990's) with many of these encompassing bird census surveys as shown in Figure 5-21 (e.g. Ecologia 2006, ENV Australia 2009, Biota 2013, Biologic 2017).

Astron (2025) indicated there was a moderate chance of this species occurring along major drainage lines with large trees and foraging within supporting habitats of drainage area/floodplain and minor drainage line habitats. Astron (2025), did not undertake "bird census" surveys and as such are not displayed as bird census sites in the Figures below, however, targeted searches for this species were undertaken by Astron (2025). Grey Falcon searches were focused within Major Drainage Line habitat where large trees provide potential nesting and perching opportunities. Astron (2025) also noted that the acoustic recording sampling sites within drainage area/ floodplain habitat types, were used to target the Grey Falcon. These sites, and track logs detailing searches along drainage lines, are shown in Figure 6 of Astron (2025).

Despite the historic and contemporary survey effort (see section 4.2), no records of the Grey Falcon occur within the Activity Area or 500 m buffer. The nearest known records are approximately 26 km south-west of the Activity Area (Figure 5-22).Given the lack of evidence of residing individuals and lack of evidence of transient, infrequent or dispersing individuals, the Activity Area is not considered to support the species.



Legend

- Grey Falcon Records
- Activity Area (5,557 ha)
- Strategic Assessment Area
- BHP LOA Mine Plan disturbance footprint
- Third Party disturbance footprint
- Reserves

Habitat Type

- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Waterhole
- Drainage Area/ Floodplain

BHP

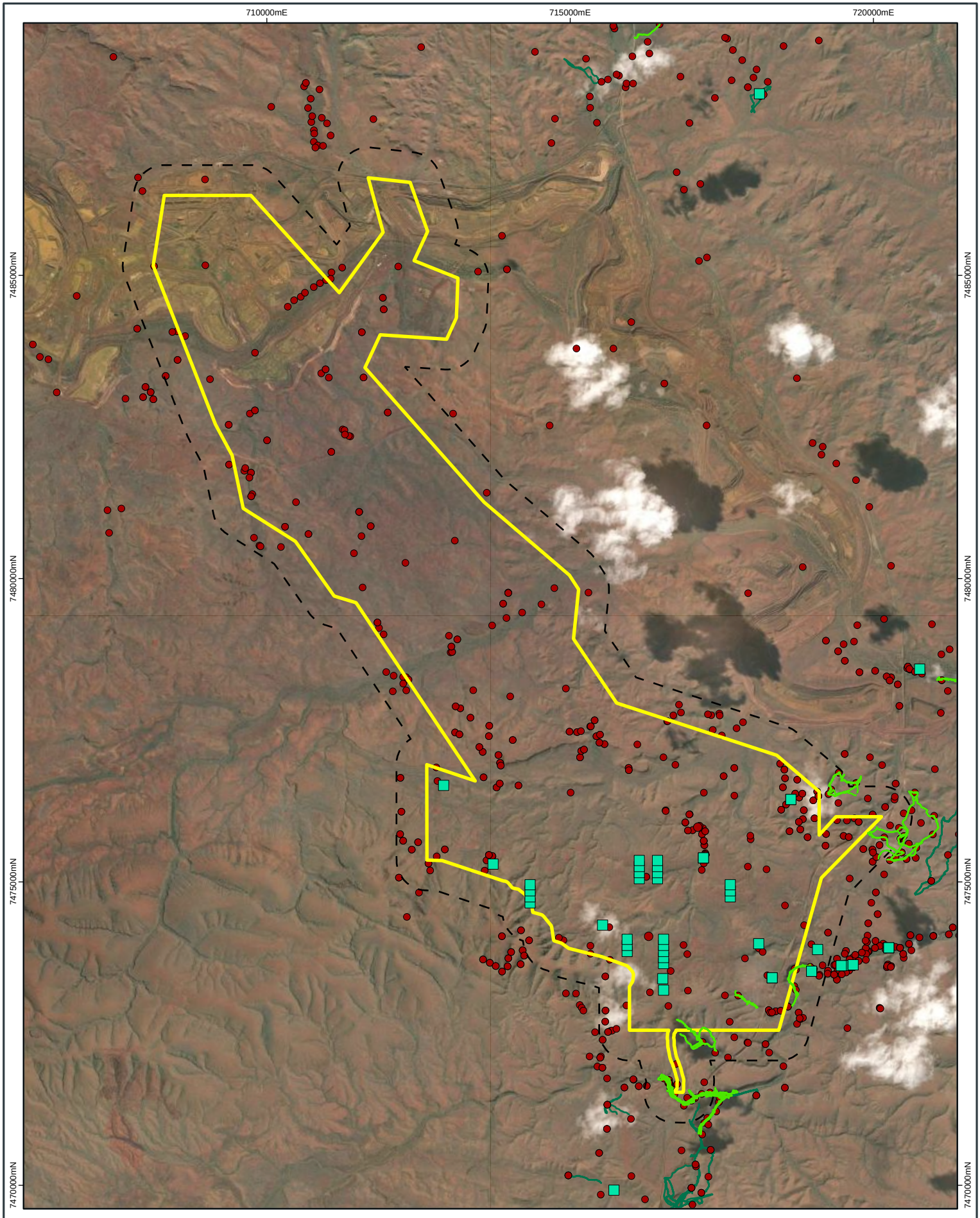
PUBLIC

MINISTERS NORTH
GREY FALCON REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-20
DATE:	27/01/2026	PREPARED:	Geomatics	NO:	A1412-023 RevA
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_024_MNValidationNotice_GreyFalconDistribution.aprx



Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Grey Falcon Survey Sampling Type

- Bird Census
- Transect

All other Vertebrate Sampling Effort

- all other Vertebrate sampling sites
- All other Vertebrate Transects

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KILOMETRES

GDA 1994 MGA ZONE 50

BHP

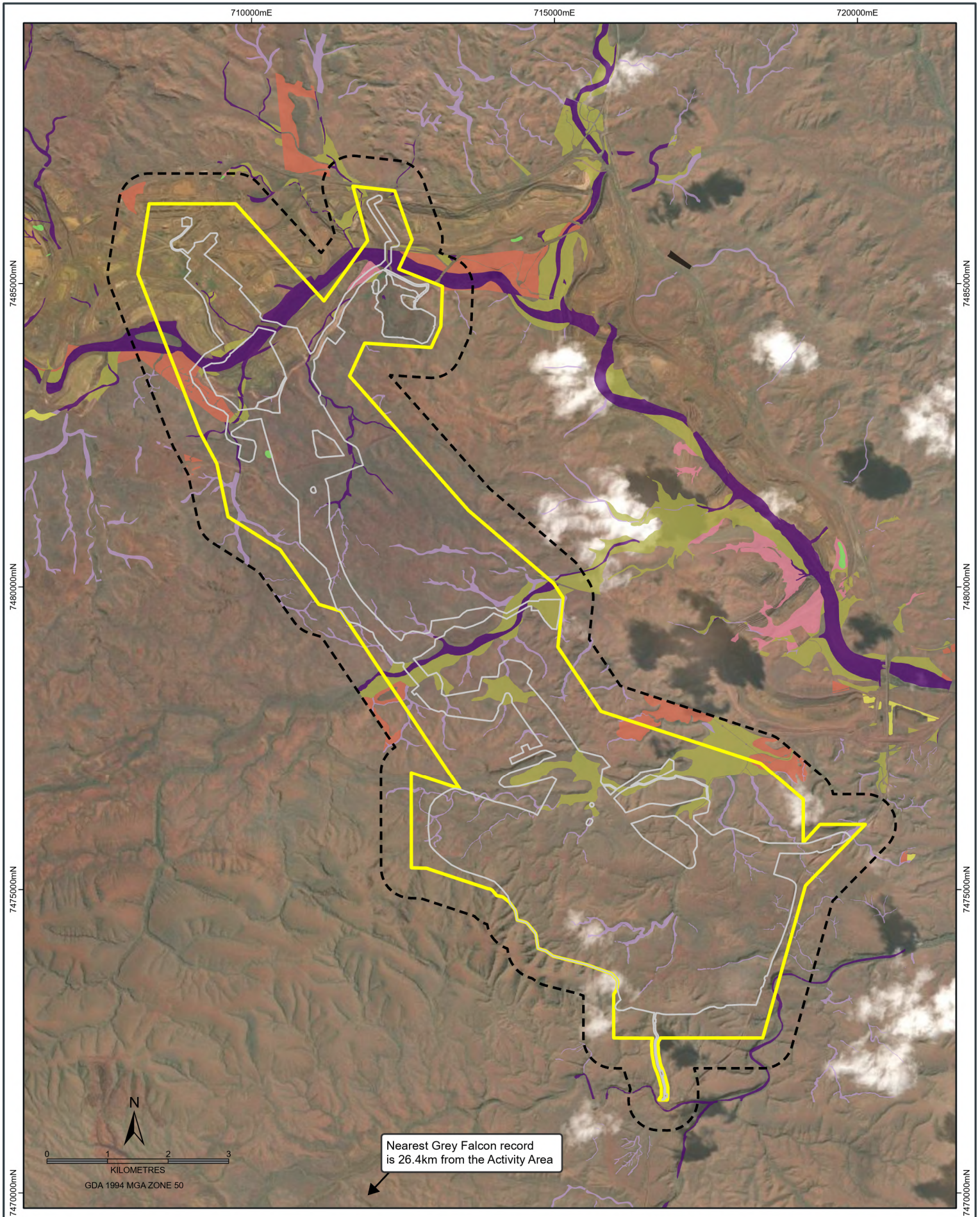
PUBLIC

MINISTERS NORTH
GREY FALCON SURVEY COVERAGE

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-21
DATE:	22/05/2026	PREPARED:	GEOMATICS	NO:	A1412-024 RevC
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_024_MNValidationNotice_GreyFalconSurveys.aprx



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- Activity Area 500m Buffer

Habitat Type

- Drainage Area/ Floodplain
- Hardpan Plain
- Major Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Sand Plain
- Stony Plain
- Undulating Low Hills

BHP

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MINISTERS NORTH
GREY FALCON MAPPED HABITAT AND RECORDS

WAIO PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-22
DATE:	15/05/2026	PREPARED:	GEOMATICS	NO:	A1412-025 RevD
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_025_MNValidationNotice_GreyFalconHabitat.aprx

5.7.4 Impact assessment

The potential direct and indirect impacts to the Grey Falcon from the Activity are considered below. In short, whilst the Activity will impact critical and supporting habitat for the Grey Falcon, this is not predicted to result in residual impacts given the lack of records in the Activity Area. The Notifiable Action Triggers are not applicable as there are no records of Grey Falcon within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area.

Habitat loss

The Activity will result in the loss of 15.9 ha of critical habitat (Major Drainage Line) and 124.3 ha of supporting habitat (Drainage Area/Floodplain, Mulga Woodland and Undulating Low Hills).

Given the lack of records of Grey Falcon within the Activity Area or within the 500 m buffer of the Activity Area boundary, the Activity is not predicted to result in a residual impact to the species.

Furthermore, as the distance between the Activity and the nearest record of the Grey Falcon is 26 km, habitat loss associated with this Activity does not fulfil the Notifiable Action Triggers for this Program Matter and is considered to present a negligible risk of impact for the species.

Habitat degradation from alteration of groundwater and surface water

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat or native vegetation that is reliant on groundwater will not occur.

As discussed in Section 5.2.5, the excavation of pits, construction of infrastructure, and creek crossings all have the potential to alter surface water regimes from changes to water quality, quantity, flow rates, and/or physical or biological attributes. This can subsequently result in degraded or modified fauna habitats including habitats for terrestrial vertebrate fauna. Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, as discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. The procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is therefore not expected that dust emissions from the Activity will represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures.

Feral predators

Surveys for the Activity have recorded multiple introduced fauna species including, European cattle (**Bos taurus*) and feral cats (**Felis catus*) (Biologic 2017b, Biologic 2018a, GHD 2021b, Astron 2025). Habitat clearing can enhance the ability of feral predators to move through the landscape and prey on native fauna. Construction and operation of mining activities can also introduce and attract feral predators. Introduced fauna species may affect native fauna through direct predation, competition for food and shelter, habitat destruction and the spread of diseases.

Feral predators such as feral cats (*Felis catus*) may predate on the Grey Falcon (TSSC 2020, accessed from DCCEEW 2024f). Grey Falcons may roost on the bare open ground, and there is evidence of Grey Falcon within the gut contents of cats (Schoenjahn 2018 as cited in TSSC 2020). Chicks may also be vulnerable to predation at nest sites that are accessible to cats.

BHP has proposed a targeted feral cat control program to reduce predation impacts on Program Matters (as discussed in Section 8.3). Nevertheless, any potential impacts from feral predators attributable to the Activity, are likely to be limited to individuals. Feral predators are unlikely to impact any species at regional or species level, particularly given that the Grey Falcon has not been recorded within the Activity Area.

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. Schoenjahn (2018) (as cited in TSSC 2020) documented six cases of Grey Falcons being found injured or dead along roads between 2007 and 2017. However, the risk of vehicle strike to Grey Falcons is considered to be low given the lack of records in or proximal to the Activity Area.

5.7.5 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 Great 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. Potential impacts on the Night Parrot are assessed to demonstrate that the Program Matter Objective for this species (described below) 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 *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 (DCCEEW 2024g). 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). 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).

5.8.2 Local habitat

The Survey Area is in the area mapped as 'high priority for survey' for the night parrot according to DBCA's *Guidelines for determining the likely presence and habitat usage of night parrot in Western Australia* (Department of Biodiversity Conservation and Attractions 2024) (see Figure 5-23). Therefore, habitat usage assessments and passive acoustic surveys have been undertaken, and Autonomous Recording Units (ARUs) used in the most prospective habitats (Astron 2023, 2025; Biologic 2018, 2023; GHD 2021) (Figure 5-24).

BHP notes that Astron (2025) has undertaken Night Parrot surveys in accordance with *DBCA's Guidelines for determining the likely presence and habitat usage of night parrot in Western Australia* (DBCA 2024). The first key step in these guidelines is determining whether or not suitable night parrot habitat is present through a desktop assessment of habitat. The focus should be on Triodia-dominated roosting habitat, although the possibility that night parrots use chenopod dominated habitats should also be considered during the desktop analysis, given confirmed historical records.

Astron (2025) noted that the preferred habitat required for this species, being long unburnt, old growth hummock grassland and/or chenopod shrubland, does not occur within the Survey Area and the nearest records of this species occurred approximately 52 km north of the Activity Area. The DBCA (2024) Guidelines note that if a thorough desktop

analysis for a site cannot identify any suitable roosting habitat within 10 km of the area of interest, it is unlikely that night parrots occur in that area, and further surveys are unlikely to be required. Nevertheless, potential prospective locations were targeted in Drainage Area/Floodplain habitat.

The Night Parrot was also historically surveyed for at Ministers North by GHD (2021) and Biologic (2018) with consideration of the *Interim guideline for preliminary surveys of Night Parrot (Pezoporus occidentalis) in Western Australia* (Department of Parks and Wildlife, 2017). GHD (2021) deployed acoustic detectors in areas where Night Parrot might be recorded such as potential roosting or feeding habitat i.e. utilising water bodies or Triodia and grassland plain. GHD however also noted that the spinifex in the Drainage Area/Floodplain habitat is generally small and thin lacking old grown structure and is not optimal for the Night Parrot. Biologic (2018) deployed SM4 units targeting Night Parrot across the Study Area at five locations for a total of 12 recording nights. Units were deployed within long unburnt spinifex hummock grasslands, specifically Triodia longiceps hummock grasslands.

Night Parrot Surveys were also undertaken by Astron (2023) at Yandi (noting Ministers North proximity and overlap) and by Biologic (2023a) for the Mining Area C significant amendment (noting the proximity and overlap with the eastern portion of the Ministers North Activity Area). It was again noted however that habitat within the study areas was considered marginal, with limited suitable habitat (i.e. no long unburnt, old growth Triodia).

Critical habitat

No habitat within the Activity Area is considered critical habitat. As noted by the supporting studies described above, the habitat required for this species, being old growth hummock grassland and/or chenopod shrubland, does not occur within the Activity Area.

Supporting habitat

Approximately 306.8 ha of supporting habitat is present within the Activity Area, consisting of Drainage Area/Floodplain, Sand plain, Stony Plain and Undulating Low Hills. Of which, approximately 124.1 ha occurs within the Indicative Footprint and will be cleared.

Table 5-15: Night Parrot habitat

Habitat Description	Extent within Activity Area (ha)	Extend within Indicative Footprint (to be cleared, ha)
Critical habitat		
N/A	N/A	N/A
Supporting Habitat		
Drainage Area/Floodplain	243.8	111.9
Sand plain	<0.1	0
Stony plain	4.8	0
Undulating Low Hills	58.2	12.2
Total	**306.8**	**124.1**

5.8.3 Night Parrot records

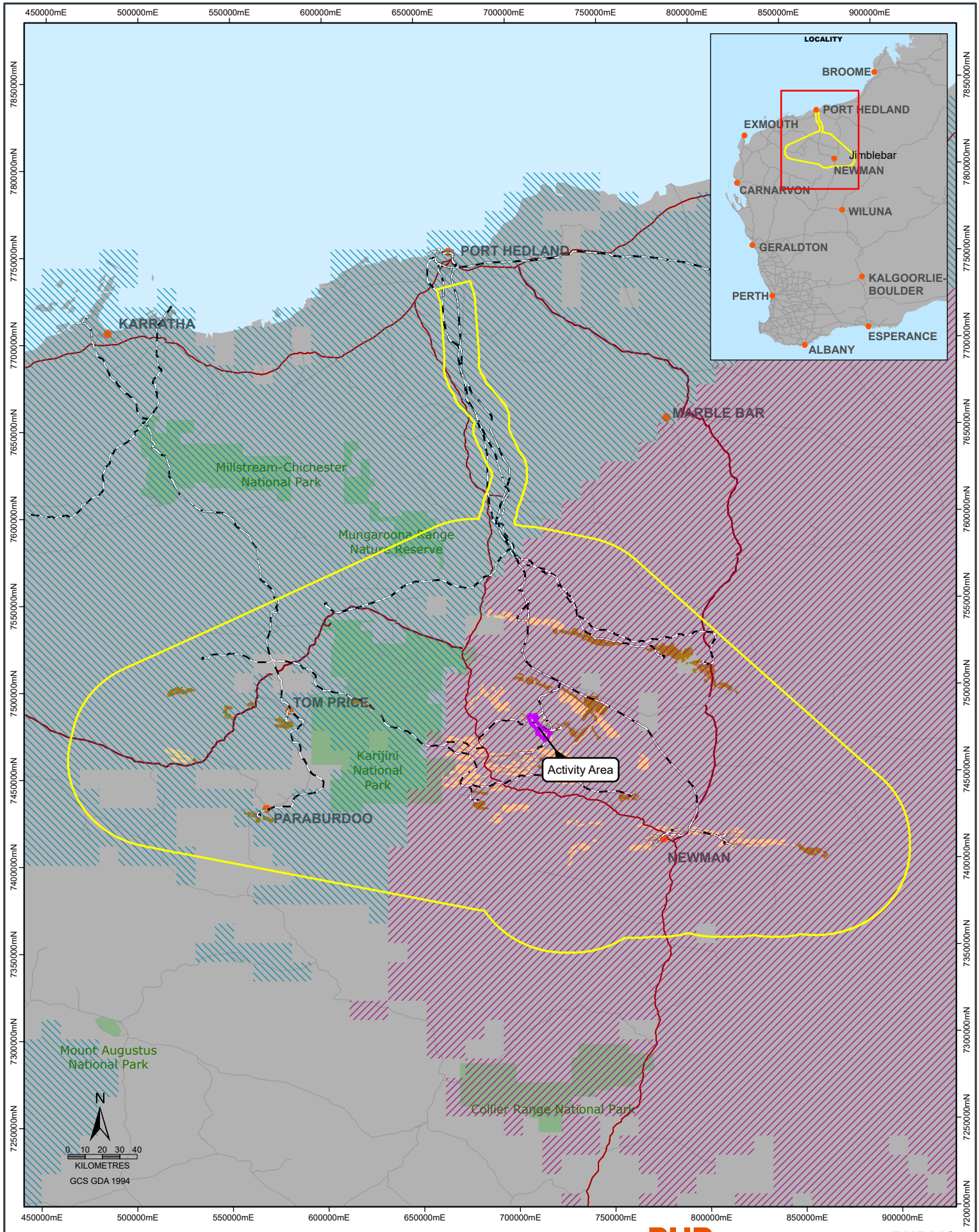
In the most recent survey by Astron (2025), ARUs recorded 1-hour pre-sunset to 1-hour post-dawn and were set at six locations for six nights, resulting in a total of 36 recording nights. The audio data was recorded at 44.1 k bits and covered the frequency range 100 kHz to 21,000 kHz, which brackets the night parrot call frequency range of 1,500 kHz to 3,500 kHz (Greatwich and Jackett). The audio data was analysed by external specialist Robert Bullen (Bat Call WA) for presence of the Night Parrot. Astron (2025) did not record any Night Parrot calls within the Activity Area and noted one record detailed on the DBCA Threatened and Priority Fauna Database capturing three individuals from 2005 approximately 52 km north in the Fortescue Marsh.

Astron (2023) deployed ARUs at Yandi, recording 1-hour pre-sunset to 1-hour post-dawn, at two locations for six nights, resulting in a total of 12 recording nights. Zero detections were recorded. Biologic (2023a) sampled at 31 locations which met the required period of six consecutive nights (four of these locations coincide with the corridor between Yandi and Mining Area C – in proximity to Ministers North). Zero detections of night parrot were recorded.

In the survey by GHD (2021) the detectors were set for a maximum of three nights and programmed to record from 25 minutes pre-dusk to 25 minutes post-dawn. Following three nights of deployment, the detectors were moved to a different area to increase coverage resulting in a total of 16 nights of Night Parrot assessment. Data from the recorders was downloaded onto a computer and analysed by Nigel Jackett, an Ecologist with three years' experience in analysis and identification of Night Parrot acoustic data. A total of 68,523 acoustic detections were manually analysed for Night Parrot with no detections for the target species.

Biologic (2018) deployed SM4 units targeting Night Parrot at five locations for a total of 12 recording nights. All recordings were analysed manually by Bob Bullen for Night Parrot with no detections for the target species.

Given the lack of evidence of residing individuals and lack of evidence of transient, infrequent or dispersing individuals, the Activity Area is not considered to support the species.



Legend

- Activity Area (5,557 ha)
- Strategic Assessment Area
- Species or species habitat likely to occur
- Species or species habitat may occur
- BHP LOA Mine Plan disturbance footprint
- Third Party disturbance footprint
- Reserves

BHP

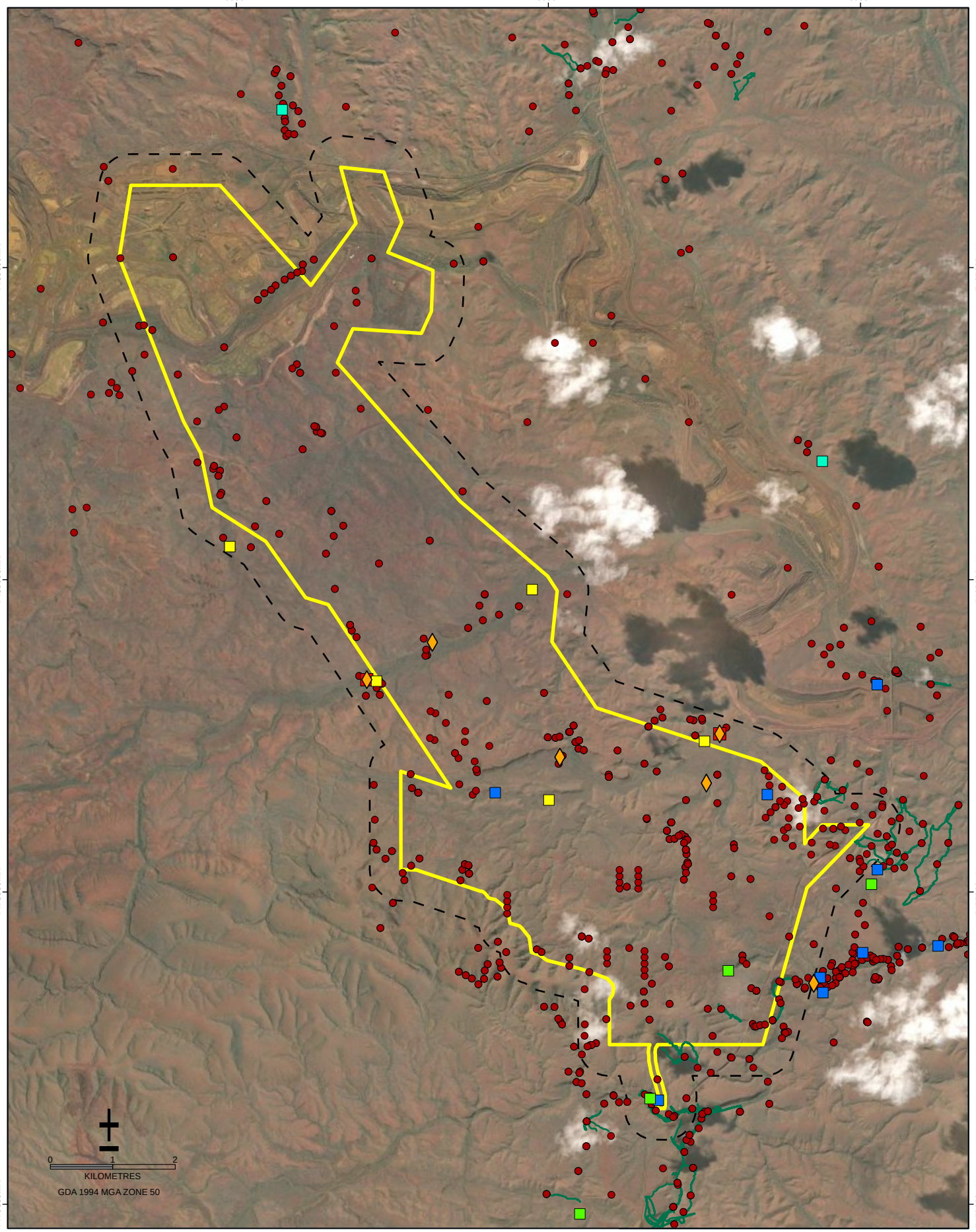
PUBLIC

MINISTERS NORTH
NIGHT PARROT REGIONAL RECORDS AND DISTRIBUTION

RESOURCE ENGINEERING

SCALE @ A4:	1:2,800,000	REQUESTOR:	Projects	FIGURE:	5-23
DATE:	2/02/2026	PREPARED:	Geomatics	NO:	A1412-026 RevA
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_026_MNValidationNotice_NightParrotDistribution.aprx



Legend

- Activity Area (5,557 ha)
- Activity Area 500m Buffer

Acoustic Recording Units by Survey

- Ministers North to Yandi Corridor Level 2 Vertebrate Fauna survey Biologic (2018)
- Ministers North Level 2 Fauna Survey GHD (2020)
- Central Pilbara Hub: Targeted Matters of National Environmental Significance Vertebrate Fauna Survey GHD (2021)
- Yandi 45C Targeted Significant Vertebrate Fauna Survey Biologic (2023)
- Consolidated Ministers North Targeted Significant Vertebrate Fauna Surveys Astron (2025)

All other Vertebrate Sampling Effort

- all other Vertebrate sampling sites
- All other Vertebrate Transects

BHP

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MINISTERS NORTH
NIGHT PARROT SURVEY COVERAGE

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:80,000	REQUESTOR:	PROJECTS	FIGURE:	5-24
DATE:	20/05/2026	PREPARED:	GEOMATICS	NO:	A1412-027 RevD
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_027_MNValidationNotice_NightParrotSurveys.aprx

5.8.4 Impact assessment

The potential direct and indirect impacts to the Night Parrot from the Activity (see Section 2) are considered below. In short, the Activity is not predicted to result in residual impacts to Night Parrot through either direct or indirect impacts to Night Parrot supporting habitat. No critical habitat will be impacted, and the Notifiable Action triggers are not applicable as there are no records of Night Parrot within the Activity Area or populations/residing individuals within the 500 m buffer of the Activity Area.

Habitat loss

The Activity will result in the loss of no critical habitat and 124.1 ha of supporting habitat (Drainage Area/Floodplain and Undulating Low Hills).

Given the lack of records of Night Parrot within the Activity Area or within the 500 m buffer (where surveyed) of the Activity Area boundary, the activity is not predicted to result in a residual impact to the species.

Furthermore, as the distance between the Activity and the nearest record of the Night Parrot is 52 km, habitat loss associated with this Activity does not fulfil the Notifiable Action Triggers for this Program Matter and is considered to present a negligible risk of impact for the species.

Habitat degradation from alteration of groundwater and surface water

The Activity does not include groundwater abstraction, and accordingly, impacts to fauna habitat or native vegetation that is reliant on groundwater will not occur.

As discussed in Section 5.2.5, the excavation of pits, construction of infrastructure, and creek crossings all have the potential to alter surface water regimes from changes to water quality, quantity, flow rates, and/or physical or biological attributes. This can subsequently result in degraded or modified fauna habitats including habitats for terrestrial vertebrate fauna. Consistent with BHP practices for its Pilbara iron ore mine operations, surface water for the area of the Activity can be appropriately managed through standard engineering design and infrastructure including culverts, earthen bunds and swale drains.

The Activity includes the installation of multiple temporary turkey's nests during construction (particularly along the haul road route), and the installation of a long-term turkey's nest located at the NPI during operations (noting this will be decommissioned at closure). All turkey's nests will be fenced to restrict fauna access and the permanent turkey's nest at the NPI will have fauna egress points to ensure fauna entrapment risk is minimised.

Habitat modification, fire, weeds and dust

Fire

Hot work activities on site and vehicle movements could increase the risk of fire. Fire has the potential to degrade Night Parrot supporting habitat within the Activity Area and within 500 m of the Activity Area. Astron (2025) noted that the preferred habitat required for this species, being long unburnt, old growth hummock grassland and/or chenopod shrubland, does not occur within the Activity Area.

Hot works are to be undertaken in line with the relevant procedures, including but not limited to the WAIO Hot Works Procedure and WAIO Permit to Work Procedure (as described in Section 5.2.6). With the implementation of standard BHP fire management, the potential for increased risk of fire as a result of the Activity, are considered low and are not predicted to result in residual impacts to the species.

Weeds

In relation to weeds, as discussed in Section 5.2.5, BHP will implement the BHP Environmental Weed Management in Western Australia procedure, within the Activity Area and as applicable. The procedure defines the process to manage the risk of environmental weeds and incorporates management measures.

Dust

As discussed in Section 5.2.5, ETA (2024) modelled the potential risk of dust deposition from the Activity to vegetation (using 7 g/m^2/month as an indicative criterion for potential effects on vegetation). Modelled monthly dust deposition at the various receptors, as a result of the Activity in isolation, is predicted to be below this criterion (0.01 to 0.29 g/m^2/month). It is therefore not expected that dust emissions from the Activity will represent a significant indirect risk to fauna.

Particulate air emissions from the Activity are proposed to be managed and monitored through BHP's normal business practices and targeted management measures.

Feral predators

The Night Parrot is vulnerable to predation by feral cats (*Felis catus*) and foxes (*Vulpes vulpes*) (TSSC 2016d). As discussed in Section 8.3, BHP has proposed a targeted feral cat control program implemented to reduce predation impacts on Program Matters. Nevertheless, based on the lack of Night Parrot records and critical habitat in the Activity Area and surrounds, the implementation of BHP feral animal management practices, the impacts from feral predators on the Night Parrot associated with the Activity are considered to present a low risk and is not predicted to result in residual impact to Night Parrot.

5.8.5 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

Detail on compliance tracking is provided in Section 8 and below.

BHP is required to produce an Annual Environmental Report (AER) to monitor performance against the Program. As a minimum, the following aspects relevant to this Validation Notice will be included in the AER:

- 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 Program Matter Objectives 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 proposal

7.1 Residual impacts

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

- Critical and supporting habitat for the Ghost Bat

Habitat types to be offset are illustrated in Figure 7-1.

7.2 Offset requirements

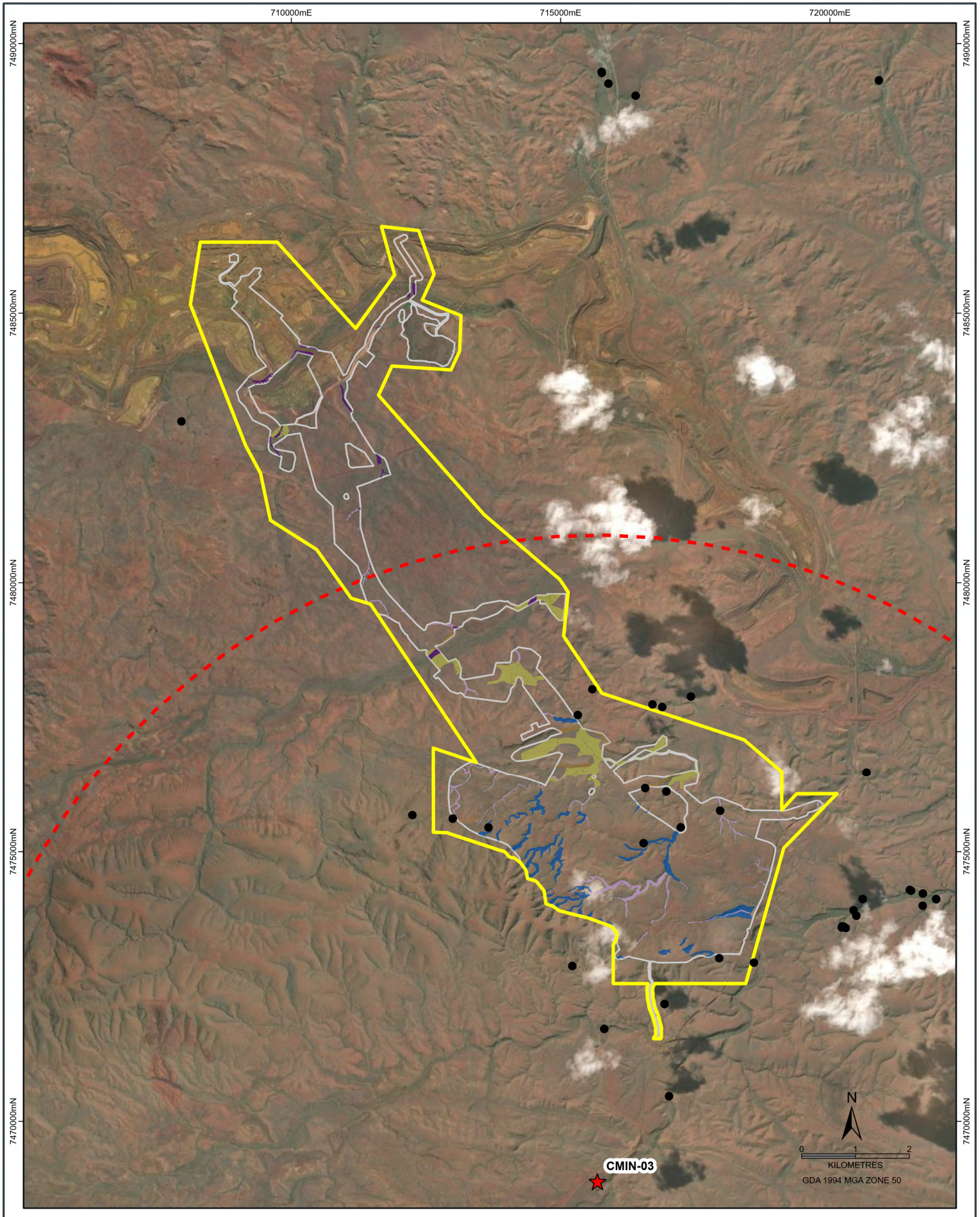
BHP has developed the following objectives for each of the relevant Program Matters based on the Standards for Accreditation of Environmental Approvals under the *Environment Protection and Biodiversity Conservation Act 1999* and in consultation with the DCCEEW (Section 3.1.1 of the Program):

- Ghost Bat *'To support the long-term persistence and viability of the Ghost Bat within the strategic assessment area'.*

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

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 (86.0) Breakaway/Cliff (13.6)	99.6	Critical	$ 3,306	$ 329,277.6
Clearing of critical foraging habitat within 12 km of a Category 2 roost (CMIN-03)	Drainage Area/Flood plain (106.8) Major Drainage Line (3.5) Minor Drainage Line (46.9)	157.2	Critical	$ 3,306	$ 519,703.2
Clearing of supporting habitat	Sand Plain (0) Stony Plain (0) Mulga Woodland (0.2) Drainage Area/Flood plain (5.1) Major Drainage Line (12.4) Minor Drainage Line (2.0)	19.7	Supporting	$ 1,653	$ 32,564.1
Total Amount to be offset					**$881,544.9**
Initial 10% advance payment					**$88,154.5**



Legend

- Activity Area (5,557 ha)
- Indicative Footprint (2,360 ha)
- 12km Foraging Range
- Category 2 Ghost Bat Cave
- Ghost Bat Caves

Critical Habitat (Inside 12 Km Foraging Range)

- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Major Drainage Line
- Minor Drainage Line

Supporting Habitat (Outside 12 Km Foraging Range)

- Drainage Area/ Floodplain
- Major Drainage Line
- Minor Drainage Line
- Mulga Woodland

BHP

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MINISTERS NORTH
FAUNA HABITAT REQUIRING OFFSETS

WAIO- PLANNING, TECHNICAL & ENVIRONMENT

SCALE @ A4:	1:90,000	REQUESTOR:	PROJECTS	FIGURE:	7-1
DATE:	18/05/2026	PREPARED:	GEOMATICS	NO:	A1412-028 RevC
		REVIEWED:			

Document Path: Y:\Jobs\A1001_A1500\A1412\3Project\A1412_028_MNValidationNotice_FaunaHabRequiringOffsets.aprx

7.3 Proposed offset contributions

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

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 (see Section 0).

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 2024) and
- fauna habitat mapping and relevant Program Matter records within the Activity Area or nominated buffer.

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[24]. 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

24 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. 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 Proposal (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 Advanced Payment	Advanced Payment (10% of the estimated total contribution), in accordance with the APOP	Within one month of Validation Notice becoming effective
	BHP to report Advanced Payment in the AER	1 October 2026
Implementation Period 1* (Financial Years 2026 and 2027)	Disturbance undertaken during period	1 July 2026 to 30 June 2027
	Aerial survey/ground truthing	30 June 2026 and 30 June 2027
	EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW	30 October 2027
	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 2028
Implementation Period 2 (Financial Years 2028 and 2029)	Disturbance undertaken during period	1 July 2027 to 30 June 2029
	Aerial survey/ground truthing	30 June 2028 and 30 June 2029
	EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW	30 October 2029
	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

Validation Process Stage	Action	Timing
Implementation Period 3 (Financial Years 2030 and 2031) *and so forth until final offset contributions are completed*	Disturbance undertaken during period	1 July 2029 to 30 June 2031
	Aerial survey/ground truthing	30 June 2030 and 30 June 2031
	EPBC Act Impact Reconciliation Report and dataset submitted to PEOF and DCCEEW	30 October 2031
	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 2032

*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.

BHP intends to manage the Activity, via an adaptive management approach. BHP's framework embeds a cycle of monitoring, reporting and implementing change where required. The framework allows for an evaluation of the management and mitigation measures so that they are progressively improved and refined, or alternative solutions adopted, in order to ensure that the environmental objectives and outcomes within the relevant Environmental Management Plans (and commitment tables below) are achieved. The key steps of BHP's adaptive management approach are depicted in Figure 8-1.

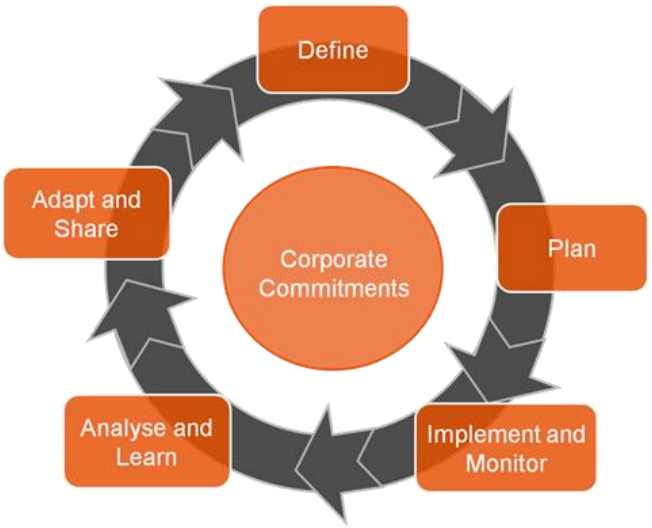


Figure 8-1: BHP's adaptive management approach

BHP will review the management and monitoring commitments, including internal processes (and update if required), to ensure the commitments continue to be met. A review may arise from the following:

- If initiated by BHP as part of the adaptive management process.
- If triggered by a non-achievement of a performance targets and/or failure to implement management actions.

Changes to management and monitoring commitments may arise from the following:

- BHP reviews of monitoring and management commitments or relevant government agencies develop new or amend existing guidance or policy.
- BHP adds components when a change to the existing operation is proposed.
- BHP adds or amends components when there is a change to the Activity, if approved.

8.1 Monitoring commitments

The monitoring commitments which form part of this Validation Notice are presented in Table 8-1.

Table 8-1: Proposed monitoring commitments – Ghost Bat

Monitoring Commitment	Action	Monitoring And Frequency	Reporting
No blasting within the 500 m radius Blast Management Zone (Figure 1-5) around 'Category 3' Ghost Bat roost CMN-02 without the relevant controls in place (see Action). Trigger and Threshold Criteria limits applied to the cave (Trigger >15mm/s PPV[25], and Threshold >20mm/s PPV[26]), to be monitored during blasting events.	Implement Terrestrial Fauna EMP (BHP 2025, including subsequent revisions). Inspect the cave for baseline structural condition before the first blast event within the Blast Management Zone and record the inspection ('one-off' inspection). Follow up annual cave structural condition inspections. [27] Ground vibration monitor installed at the cave.	The Site Environmental Superintendent (or delegate) is responsible for ensuring ground vibration data is monitored during each blast event and that the data is assessed to determine if the trigger criteria has been exceeded, and for ensuring that monitoring data records are kept.	SEA AER
Implement a pre-disturbance protocol prior to disturbing a Category 4 Ghost Bat roost (CMN-07, CMN-09, CMNY-01, CMIN-01, CMN-05, CMN-06).	Roost inspection prior to disturbance to confirm bat absence/presence. If present, a reasonable effort to displace the bats using approved displacement methods.	Prior to each disturbance, completed the Ghost Bat roost pre-disturbance protocol checklist.	SEA AER

8.2 Clearing commitments

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

Table 8-2: Proposed clearing commitments

Clearing Commitment	Action	Monitoring And Frequency	Reporting
Clearing of no more than 1,848 ha of native vegetation (Fauna habitat) including:	Implement BHP's land disturbance permit system to ensure clearing does not exceed the identified limits	Annual review of land clearing undertaken	SEA AER

[25] In the event the Trigger criteria is met a number of response actions will be triggered including investigate the exceedance. review vibration monitoring data. refine the drill and blast tactical plan (blast design parameters, scheduling and sequencing) to reduce vibration levels.

[26] If the Threshold Criteria is met BHP will implement the following threshold contingency actions: visually inspect the cave for structural condition and record the inspection, assess if there has been a material change in the structural condition of the cave. If there has been a material change, prepare and implement an action response plan prior to any further blasting

[27] An annual assessment period has been selected to minimise the risk of disturbance to Ghost Bats. It is acknowledged that frequent visitation may cause Ghost Bats to flee a roost, either temporarily or permanently. Accordingly, an annual assessment period provides an appropriate balance between the collection of information/data and the risk that the visitation for the information collection may affect Ghost Bat roost occupancy

Clearing Commitment	Action	Monitoring And Frequency	Reporting
- 99.6 ha of Critical habitat for Ghost Bat - 157.2 ha of critical foraging habitat for Ghost Bat (within 12 km of Category 2 roost – CMIN-03) - 19.7 ha of supporting habitat for Ghost Bat			
No new clearing within the MEZ (to protect retained Category 3 Ghost Bat roosts (CMN-02 and CMNY-05)).	Implement BHP's land disturbance permit system to ensure clearing does not exceed the identified limits. Avoidance condition to be included in BHP's internal ground disturbance permits (for any work near the exclusion zones).	Land clearing monitored via quarterly land clearing data and annual land disturbance reconciliation process (spatial footprint and hectares) to identify any land disturbance within the MEZ. Site inspections during construction to check land disturbance near the MEZ. Any potential incidents of MEZ disturbance will be reported.	SEA AER
BHP will not clear any currently known/recorded waterholes whether temporary or permanent within the Activity Area (as shown on Figure 5-2).	Avoidance condition to be included in BHP's internal ground disturbance permits (for any work near the waterholes).	Land clearing monitored via quarterly land clearing data and annual land disturbance reconciliation process (spatial footprint and hectares) to identify any land disturbance within or in proximity to known waterholes.	SEA AER
The haul road is to be rehabilitated, including removal of culverts and all other infrastructure associated with the haul road with the aim of returning land to pre-disturbance	All fill used for the haul road will be non-polluting. Rehabilitation of the haul road will be designed to meet agreed post mining land use requirements.	Land clearing monitored via quarterly land clearing data and annual land disturbance reconciliation process (spatial footprint and hectares)	SEA AER

Clearing Commitment	Action	Monitoring And Frequency	Reporting
drainage and topography where practicable.		Progressive rehabilitation to be undertaken in accordance with the MCP.	

8.3 Management commitments

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

Table 8-3: Proposed management commitments

Management Commitment	Action	Monitoring And Frequency	Reporting
Minimise risk of injury or mortality to Program Matters (i.e. Northern Quoll and Pilbara Olive Python) as a result of the Activity in proximity to known records	A suitably trained fauna spotter is to be present for the southern access road widening (in proximity to recent Program Matter records). In the event that significant fauna species are observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on. Fauna spotter condition to be included in BHP's internal ground disturbance permits.	During clearing works for the southern access road.	SEA AER
Minimise risk of injury or mortality to Pilbara Olive Python as a result of works interacting with Marillana Creek (attributable to the Activity)	A suitably trained fauna spotter is to be present for the works associated with the Marillana Creek (i.e. widening of existing creek crossing, 33kV powerline component which crosses Marillana Creek and temporary pipeline construction across the creek (i.e. interacting with Major Drainage Line habitat)). In the event that significant fauna species are observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on. Fauna spotter condition to be included in BHP's internal ground disturbance permits.	During clearing works that interact with the drainage line habitats (i.e. Major Drainage Line and Minor Drainage Line) of Marillana Creek.	SEA AER

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. 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
Minimise risk of vehicle related mortality of Program Matters (haul road and unsealed access roads).	Light vehicle speed limits restricted on unsealed access roads and haul road (60km/h), and speed limit signage installed, to minimise vehicle-strike risks to Program Matters.	Site inspections to verify speed limit signage. Site Vehicles and plant will have IVMS which will report any speed breach incidents in a specific area. Reported light vehicle fauna strike incidents.	SEA AER
Implement weed management	Implement BHP WAIO Weed Management Procedure for the duration of the Activity.	Continuous 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 in accordance with the WAIO Animal and Pest Management Plan. Environmental induction provided to site personnel. Report sightings of feral cats in the BHP Event Management System (EMS) as an environment event. Baiting and/or trapping implemented as approved on a risk-based, site-specific basis in accordance with animal welfare and regulatory requirements.	Annual assessment of feral cat sightings and the feral animal control program implementation status. Periodic review of feral cat management actions.	SEA AER
Minimise risk of mortality of Program Matters as a result of entrapment within turkey's nests	Turkey's nests fenced to exclude fauna and fauna egress points installed (for operational, long-term turkey's nests) to minimise entrapment risks.	Site inspections to verify fencing and egress points. Reported fauna entrapment incidents.	SEA AER

Management Commitment	Action	Monitoring And Frequency	Reporting
Implement fire management	Abide by hot work management procedures. Firebreaks are maintained. Ensure designated smoking areas are available.	During construction and operation phase	SEA AER
Critical infrastructure (road culverts and sediment basins) shall be reviewed annually to ensure operating effectively	Annual review of critical infrastructure (roads and sediment basins). If critical infrastructure is not operating effectively, infrastructure maintenance and/or modifications will be undertaken where necessary.	During operations	SEA AER
Event Management System – reporting sightings and events of Program Matters	All sightings and events involving Program Matters (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 within 60 days of finding.	Continuous for duration of Activity	SEA AER
Site personnel to be informed of Program Matters and other aspects of environmental awareness	Site personnel will undertake inductions containing environmental awareness information (which includes information on conservation significant fauna (Program Matters) and sighting/event reporting).	Continuous for duration of Activity	SEA AER
Implement dust management measures	Management to be undertaken in accordance with the Ministers North Air Quality Environmental Management Plan, including but not limited to: - Apply water to exposed land surfaces to minimise the generation of particulate air emissions, including haul roads and mine access roads - Dust suppression chemicals added to the water, if required and appropriate	During life of operations	SEA AER

Management Commitment	Action	Monitoring And Frequency	Reporting
	- Light vehicle speed limits restricted on unsealed access roads to reduce particulate air emissions.		

8.4 Offset commitments

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

Table 8-4: Proposed offset commitments[28] – Ghost Bat

Offset Commitment	Action	Monitoring And Frequency	Reporting
Payment of financial contribution to PEOF	Advanced payment of 10% of offset amount within one month of the Validation Notice becoming effective.	One off payment within one month of Validation Notice becoming effective.	EPBC Act Impact Reconciliation Report 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. EPBC Act IRR provided biennially (every 2 years). 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

[28] BHP has also proposed offsets for Pilbara Olive Python and Northern Quoll under the *Environmental Protection Act 1986* (WA) in the Ministers North Derived Proposal Request (BHP 2025). However, additional offsets are not proposed for these species within the Validation Notice as neither species meets the Notifiable Action requirements and as such do not warrant additional consideration of offsets under the APOP.

9 References

Abbott, I (2001). '*The bilby Macrotis lagotis (Marsupialia: Peramelidae) in south-western Australia: original range limits, subsequent decline, and presumed regional extinction'*, Records of the Western Australian Museum, vol. 20, pp. 271-305.

Armstrong N.K. and Anstee D.S. (2000). *The Ghost Bat in the Pilbara: 100 years on. Australian Mammalogy*. vol.22 pp. 83-101

Armstrong K. (2001). '*The distribution and roost habitat of the orange leaf-nosed bat, Rhinonicteris aurantius, in the Pilbara region of Western Australia'*, Wildlife Research, vol. 28, pp. 95-104.

Astron Environmental Services Pty Ltd (Astron) (2023) *Yandi 45C Targeted Significant Vertebrate Fauna Survey.* Report prepared by Astron Environmental Services Pty Ltd for BHP Iron Ore Pty Ltd. Revision 0. March 2023

Astron Environmental Services Pty Ltd (Astron) (2025) *Ministers North Consolidated Targeted Significant Vertebrate Fauna Surveys.* Report prepared by Astron Environmental Services Pty Ltd for BHP Iron Ore Pty Ltd.

Augusteyn J., Hughes J., Armstrong G., Real, K and Pacioni C. (2018) *Tracking and tracing central Queensland's Macroderma – determining the size of the Mount Etna Ghost Bat population and potential threats*. Australian Mammalogy, vol 40(2), pp. 243-253

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.

Baudinette R.V., Churchill S.K., Christian K.A., Nelson J.E. and Hudson P.J. (2000) Energy, water balance and the roost microenvironment in three Australian cave-dwelling bats (Microchiroptera). Journal of Comparative Physiology. B 170:439–446

BHP (2017). *BHP Pilbara Strategic Assessment Impact Assessment –The Program*.

BHP (2018a). *BHP Pilbara Strategic Assessment Impact Assessment –Assurance Plan.*

BHP (2018b). *BHP Pilbara Strategic Assessment Impact Assessment –Offsets Plan.*

BHP (2022) *Communications, Community and External Engagement Our Requirements*

BHP (2022) *Northern Quoll Management Plan (Document number: 0130513) Version 3.0*

BHP (2023). *Pilbara Strategic Assessment– Assurance and Offsets Plan. Revision 2.3.* BHP Pty Ltd. Perth, Western Australia.

BHP (2025) *Ministers North Derived Proposal Request.*

Biologic (2011) Area C to Yandi Fauna Survey

Biologic (2011) Yandi Vertebrate Fauna Review

Biologic (2017a) Ministers North to Yandi Corridor Single Phase Level 2 Fauna and Detailed Flora/Vegetation Survey.

Biologic (2017b) Ministers North Level 2 Vertebrate Fauna Survey. Report prepared by Brooks C, Knuckey C and Durrant B of Biologic Environmental Survey Pty Ltd for BHP Iron Ore Pty Ltd. Revision 3. October 2017.

Biologic (2018) Ministers North to Yandi Corridor Two Phase Targeted Fauna Survey. Report prepared by Biologic Environmental Survey Pty Ltd for BHP Iron Ore Pty Ltd. Revision 3. October 2018.

Biologic (2020). *Developments in knowledge of Ghost Bat home range and foraging areas, and its application at Mining Area C - South Flank*. Unpublished report prepared for BHP Western Australian Iron Ore Biologic Environmental Survey, East Perth, WA

Biologic (2023a) Central Pilbara Hub: Targeted Matters of National Environmental Significance Vertebrate Fauna Survey. Report prepared by Biologic Environmental Survey Pty Ltd for BHP Iron Ore Pty Ltd. Final (Revision 4). May 2023.

Biologic (2023b) Targeted Pilbara Olive Python Survey: South Flank and Mining Area C. Report to BHP Western Australia Iron Ore.

Biologic (2024) Central Pilbara Ghost Bat Monitoring: 2023 – 2024. Report to BHP WAIO.

Biologic (2025a) MAC to Yandi Corridor & Runaway Valley North Targeted Vertebrate MNES Fauna Survey. Report to BHP WAIO.

Biologic (2025b) Central Pilbara Ghost Bat Monitoring: 2024 – 2025. Report to BHP WAIO.

Biota (2010) Yandicoogina Junction South West Oxbow Fauna Survey

Biota (2013) Area C West to Yandi Level 2 Vertebrate Fauna Survey

Biota (2026a, unpublished) Regional Pilbara Olive Python Monitoring – Central Hub October 2025 Summary

Biota (2026b, unpublished) Regional Pilbara Olive Python Monitoring – Central Hub January 2026 Summary

Braithwaite, R. W., and Griffiths, A. D. (1994). Demographic variation and range contraction in the Northern Quoll, *Dasyurus hallucatus (Marsupialia: Dasyuridae)*. *Wildlife Research, 21*, 203-217.

Bullen B. (2013). Pilbara Leaf-Nosed Bat (PLN) *Rhinonicteris aurantia*: Summary of current data on distribution, energetics, threats, Microsoft PowerPoint presentation prepared by Bob Bullen. Viewed 10 October 2014. Available at: www.sustainable.net.au/pilbara-leaf-nosed-bat/.

Bullen, R. D. (2021). Ghost Bats in the Pilbara, *Macroderma gigas*: Summary of current data on distribution, energetics and threats. Presentation made to Curtin University workshop, 2 March 2021.

Bullen, B., Reiffer, S., and Trainer, J. (2023). Satellite tracking Ghost Bats (*Macrodermas gigas*) in the Pilbara, Western Australia. Records of the Western Australian Museum 38(1): 1-10.

Burbidge, A. (2020) 'Night Parrot habitats'. Interim Night Parrot Habitat Statement, Leading Night Parrot Conservation. Available from https://nightparrot.com.au/index.php/2022/04/05/night-parrot-habitats/.

Bush B. and Maryan B. (2011). *Field Guide to Snakes of the Pilbara, Western Australia*. Western Australian Museum. Western Australia, Perth.

Churchill S.K., Helman P.M. and Hall L.S. (1988) Distribution, populations and status of the Orange Horseshoe Bat, *Rhinonicteris aurantius* (Chiroptera: Hipposideridae). Australian Mammalogy. 11(1):27–33.

Churchill S.K. (1991) Distribution, abundance and roost selection of the Orange Horseshoe-bat, Rhinonycteris aurantius, a tropical cave dweller. Wildlife Research. 18:343–353.

Cramer, V.A., Dunl op, J., Davis, R., Ellis, R., Barnett, B, Cook, A., Morris, K. and van Leeuwen, S. (2016a). Research priorities for the northern quoll (*Dasyurus hallucatus*) in the Pilbara region of Western Australia. *Australian Mammology* 38(2): 135-148

Cramer, V. A., Armstrong, K. N., Bullen, R. D., Ellis, R., Gibson, L. A., McKenzie, N. L., van Leeuwen, S. (2016b). Research priorities for the Pilbara leaf-nosed bat (*Rhinonicteris aurantia* Pilbara form). *Australian Mammalogy,* 38(2), 149-157.

Davis R.A. and Metcalfe B.M. (2008). The Night Parrot (*Pezoporus occidentalis*) in northern Western Australia: a recent sighting from the Pilbara region. *Emu* 108: 233-236.

DCCEEW (2023). Recovery Plan for Greater Bilby (*Macrotis lagotis*). DCCEEW, Canberra.

DCCEEW (2024a). *Species Profile and Threats Database – Ghost Bat (Macroderma gigas).* Macroderma gigas — Ghost Bat (environment.gov.au). Accessed 11th December 2024

DCCEEW (2024b). *Species Profile and Threats Database – Greater Bilby (Macrotis lagotis).* Macrotis lagotis — Greater Bilby (environment.gov.au) Accessed 23rd December 2024

DCCEEW (2024c). *Species Profile and Threats Database – Northern Quoll (Dasyurus hallucatus).* Dasyurus hallucatus — Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] (environment.gov.au). Accessed 11th December 2024

DCCEEW (2024d). *Species Profile and Threats Database – Pilbara Olive Python (Liasus olivaceus barroni).* Liasis olivaceus barroni — Pilbara Olive Python (environment.gov.au). Accessed 23rd December 2024

DCCEEW (2024e). *Species Profile and Threats Database – Pilbara Leaf-nosed Bat (Rhinonicteris aurantia).* Rhinonicteris aurantia (Pilbara form) — Pilbara Leaf-nosed Bat (environment.gov.au). Accessed 23rd December 2024

DCCEEW (2024f). *Species Profile and Threats Database – Grey Falcon (Falco hypoleucos).* Falco hypoleucos — Grey Falcon (environment.gov.au) Accessed 23rd November 2024

DCCEEW (2024g). *Species Profile and Threats Database – Night Parrot (Pezoporus occidentalis).* Pezoporus occidentalis — Night Parrot (environment.gov.au)..Accessed 23rd December 2024

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.

Department of Parks and Wildlife (2017) *Interim guideline for preliminary surveys of Night Parrot (Pezoporus occidentalis) in Western Australia*

DEWHA (2008a). Department of the Environment, Water, Heritage and the Arts *Threat abatement plan for predation by the European red fox*

DEWHA (2008b). Department of the Environment, Water, Heritage and the Arts *Approved Conservation Advice for Liasis olivaceus barroni (Olive Python – Pilbara subspecies)*

DEWHA (2010). Department of the Environment, Water, Heritage and the Arts *Survey guidelines for Australia's threatened bats*

DotE (2013). Department of the Environment, *Significant Impact Guidelines 1.1: Matters of National Environmental Significance*. DoE, Canberra, Western Australia

DotE (2015). Department of the Environment. *Threat abatement plan for predation by feral cats*

DotE (2016). *EPBC Act referral guideline for the endangered northern quoll Dasyurus hallucatus*. Canberra, Australian Capital Territory: DoE.

Doughty, P, Rolfe, J, Burbidge, A, Pearson, D and Kendrick, P (2011). '*Herpetological assemblages of the Pilbara biogeographic region, Western Australia: ecological associations, biogeographic patterns and conservation,'* Records of the Western Australian Museum- Supplement 78, pp. 315–341.

DSEWPaC (2011a) Department of Sustainability, Environment, Water, Population and Communities *Survey guidelines for Australia's threatened mammals*

DSEWPaC (2011b) Department of Sustainability, Environment, Water, Population and Communities *Survey guidelines for Australia's threatened reptiles*

DSEWPaC (2011c). Department of Sustainability, Environment, Water, Population and Communities *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads*

Dziminski M.A. and Carpenter F. (2017). *The conservation and management of the bilby (Macrotis lagotis) in the Pilbara*. Progress Report (April 2017). Department of Biodiversity, Conservation and Attractions, Perth, WA

Dziminski, M. A., Carpenter, F. M., and Morris, F. (2020). *Range of the Greater Bilby (Macrotis lagotis) in the Pilbara Region, Western Australia.* Journal of the Royal Society of Western Australia 103:97-102.

Ecologia Environment (Ecologia) (2004) Yandi Stockyard and Overland Conveyor Fauna and Flora Assessment

Ecologia (2005). *Western Ridge Exploration Project Biological Survey.* Unpublished report prepared for BHP Billiton Iron ore.

Ecologia (2006) Ministers North Biological Survey

Ecologia (2008) Marillana Creek (Yandi) Iron Ore Mine Modification Level 2 Fauna Survey

Eco Logical Australia (Eco Logical) (2014). BHP Proposal: Cumulative Impact Assessment, Species Synopsis – Pilbara Leaf-Nosed Bat. Unpublished report prepared for BHP, Western Australia, Perth.

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

EPA (2021) *Instructions for preparing Impact Reconciliation Procedures and Impact Reconciliation Reports*.

ENV Australia (2008) RGP5 Railway Project Biological Assessments

ENV Australia (2009) Munjina and Minsters North (Yandi Hub) Fauna Assessment

ENV Australia (2009) Newman to Yandi Transmission Line Terrestrial Vertebrate Fauna Assessment

Falkenberg, I. D. (2011). Aspects of the ecology of the Grey Falcon *Falco hypoleucos* in the South Australian arid zone. Corella 35: 23–28.

Garnett, S. T., Szabo, J. K. and Dutson, G. (2011). *The Action Plan for Australian Birds 2010*. CSIRO, Melbourne.

GHD Pty Ltd (GHD) (2021a) Ministers North Fauna Survey Level 1 Survey. Report prepared by GHD Pty Ltd for BHP Iron Ore Pty Ltd. February 2021.

GHD Pty Ltd (GHD) (2021b) Ministers North Fauna Survey Level 2 Survey. Report prepared by GHD Pty Ltd for BHP Iron Ore Pty Ltd. February 2021.

Halpern Glick Maunsell, (1999) Marillana Creek Western Access Corridor – Biological Assessment

Jackett N.A., Greatwich B.R., Swann G. and Boyle A. (2017) A nesting record and vocalisations of the Night Parrot 'Pezoporus occidentalis' from the East Murchison, Western Australia. *Australian Field Ornithology* 34: 144-150

Janse, I., Kloecker, U., Roshier, D. and Witte, I. (2015) Breeding diet and behaviour of a pair of Grey Falcons *Falco hypoleucos* and their offspring in north-western New South Wales. *Corella* 39: 46–51.

Johnson, K.A (2008). Bilby, *Macrotis lagotis*. In '*The Mammals of Australia*.' (pp. 191-193) Third edition.

Jolly S. (1988) Five colonies of the Orange Horseshoe Bat, Rhinonycteris aurantius (Chiroptera: Hipposideridae), in the Northern Territory. Australian Wildlife Research. 15:41–49.

Kulzer E., Nelson, J.E., McKean, J.L. and Mohres F.P. (1970) Untersuchungen über die Temperaturregulation australischer Fledermäuse (Microchiroptera). Zeitschrift fuer Vergleichende Physiologie. Vol 69, pp. 426–438.

Ley, A. and Tynan, B. (2016). Observations on nesting Grey Falcons*, Falco hypoleucos*. *South Australian Ornithologist* 41: 49–64.

Marchant, S. and Higgins, P. J. (Eds) (1993). *Handbook of Australian, New Zealand & Antarctic Birds*, Vol. 2: Raptors to Lapwings. Oxford University Press, Melbourne.

Maunsell, Bamford Consulting (2003) Yandi Life of Mine Flora and Fauna

McKenzie, N.L. and Bullen, R.D. (2009). The echolocation calls, habitat relationships, foraging niches and communities of Pilbara microbats. *Records of the Western Australian Museum*, Supplement 78: 123–155.

Murphy, S.A., Silcock, J., Murphy, R., Reid, J. and Austin, J.J. (2017) *Movements and habitat use of the night parrot Pezoporus occidentalis in south-western Queensland*. Austral Ecology 42: 858-868.

Mine Waste Management Pty Ltd (MWM) (2024) AMD Risk Assessment Update: Ministers North. Report prepared by Mine Waste Management Pty Ltd for BHP WAIO.

Oakwood M. (2002). Spatial and social organization of a carnivorous marsupial *Dasyurus hallucatus* (Marsupialia: Dasyuridae). *Journal of Zoology London* 257: 237-248.

Oakwood, M. (2008). Northern Quoll *Dasyurus hallucatus*. *The Mammals of Australia*. (Ed: R. Strahan). Sydney, Reed New Holland.

Olsen, P. D. and Olsen, J. (1986). Distribution, status, movements and breeding of the Grey Falcon *Falco hypoleucos*. *Emu* 86: 47–51.

Pearson D. (2006). *Giant Pythons of the Pilbara, Landscope*, vol. 19, pp. 32-39.

Schoenjahn, J. (2013). *A hot environment and one type of prey: investigating why the Grey Falcon (Falco hypoleucos) is Australia's rarest falc*on. Emu 113: 19–25

Schoenjahn, J. (2018). Adaptations of the rare endemic Grey Falcon *Falco hypoleucos* that enable its permanent residence in the arid zone of Australia. PhD Thesis. University of Queensland.

Southgate, R. and S. Carthew (2006). *Diet of the bilby (Macrotis lagotis) in relation to substrate, fire and rainfall characteristics in the Tanami Desert*. Wildlife Research 33, 507-519.

Southgate, R., Paltridge, R., Masters, P., and Carthew, S. (2007). *Bilby distribution and fire: a test of alternative models of habitat suitability in the Tanami Desert, Australia.* Ecography 30, 759–776.

Southgate, R., Dziminski, M., Partridge, R., Schubert, A., and Gaikhorst, G. (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.

Spectrum (2026) Marillana Power 2030 Detailed Fauna Survey

Strahan, R. (1995). *The Mammals of Australia*. Reed New Holland 1995.

TSSC (2005). Threatened Species Scientific Committee, *Commonwealth Listing Advice on Northern Quoll* (*Dasyurus hallucatus*).

TSSC (2008). *Approved conservation advice for Lias barroni (Olive Python – Pilbara subspecies)*. TSSC, Commonwealth of Australia, Canberra.

TSSC (2016a). Threatened Species Scientific Committee*, Conservation advice: Macroderma gigas, Ghost Bat*. TSS, Canberra, Australian Capital Territory.

TSSC (2016b). Threatened Species Scientific Committee*, Conservation advice: Macrotis lagotis Greater Bilby*. TSSC, Canberra, Australian Capital Territory.

TSSC (2016c). Threatened Species Scientific Committee, *Conservation advice: Rhinonicteris aurantia (Pilbara form), Pilbara leaf-nosed bat*. TSSC, Canberra, Australian Capital Territory.

TSSC (2016d). Threatened Species Scientific Committee, *Conservation advice: Pezoporus occidentalis*, Night Parrot, TSSC, Canberra, Australian Capital Territory.

TSSC (2020) Threatened Species Scientific Committee. *Conservation advice: Falco hypoleucos, Grey Falcon. TSSC, Canberra, Australian Capital Territory.* Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=929.

Watson, C. (2011) *A failed breeding attempt by the Grey Falcon Falco hypoleucos near Alice Springs, Northern Territory.* Australian Field Ornithology 28, 167–179.

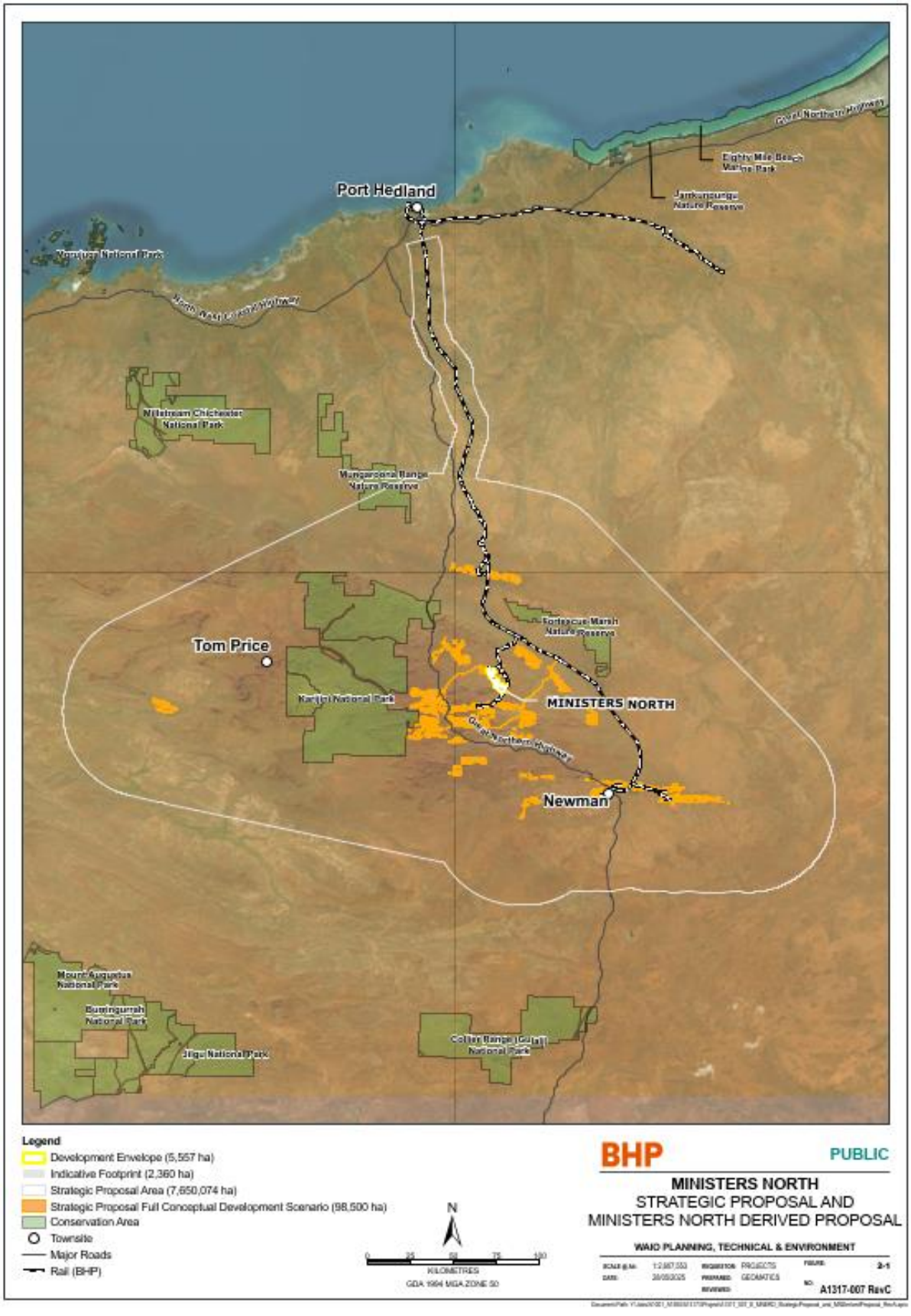
Woinarski, J. C. Z., Burbidge, A. A., and Harrison, P. L. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing, Collingwood.

van Vreeswyk, A., Leighton, K A. Payne, A L. and Hennig, P. (2004). *An inventory and condition survey of the Pilbara region, Western Australia*. Department of Primary Industries and Regional Development.

van Dyck S. and Strahan R. (2008). *The Mammals of Australia*, ed. 3, Reed New Holland, Sydney.

Appendices

Appendix 1: Strategic Assessment Area



Appendix 2: Contemporary Fauna Surveys

Appendix 3: Surface Water Modelling Report

Appendix 4: Terrestrial Fauna EMP (Draft – submitted under Part IV EP Act (WA))

Appendix 5: Mine Closure Plan (submitted under Part IV EP Act (WA))

Appendix 6: Public Consultation – Response to Comments

Section	Comments	BHP Response
General Comments		
	Program Matters: Northern Quoll and Pilbara Olive Python – Given the predominantly greenfield nature and large spatial extent of the development, contemporary survey coverage appears incomplete across parts of the Activity Area. Records of Northern Quoll and Pilbara Olive Python occur in close proximity to the Activity Area, suitable critical and supporting habitat is present, and the most recent surveys indicate a high likelihood of occurrence. Accordingly, there remains a high level of uncertainty regarding conclusions of species absence. To address this uncertainty and support the management of potential cumulative impacts in line with Program Matter Objectives and Outcomes, the department encourages BHP to commit to on-site threat-abatement and management measures that would benefit the Ghost Bat, Pilbara Olive Python and Northern Quoll.	BHP commits to additional mitigation measures for the Ghost Bat, Pilbara Olive Python and Northern Quoll as detailed in this comments table.
	Significant residual impact - As previously advised, replace all references to 'significant residual impact' with 'residual impact' throughout the validation notice, including removal of references to significance as a test/threshold.	The terminology has been amended in the final Validation Notice.
Section 1 – Introduction		
1.7-1	Decision for a Validation Notice Figure 1.1 (p.2) and 1.2 (p.7): Include map coordinates on all figures in the validation notice. Ensure the planned Activity and all components are clearly shown. At a finer scale, distinguish infrastructure, including haul roads, pipelines, powerlines, water infrastructure, using inset maps, colours and/or line styles.	Map coordinates have been provided on all figures. Figures have been updated show the planned Activity and components. Figure 1.2 has been broken down into four figures to show the Activity at a finer scale (1.2a – 1.2d).
1.7-2	Table 1.2: Notifiable Action Triggers for the Activity (pp.8-13) – For each Program Matter, include the distance to the nearest known record. a) Ghost Bat - State the cave classification for CMNY-05. b) Northern Quoll - Include the scat record (bringing the total to 9 records) and clarify that individual identification from camera imagery could not be confirmed. c) Pilbara Olive Python - Reclassify the scat within the 500 m buffer as a contemporary scat (6 – 12 months old). Note that negative eDNA results provide only short-term evidence of absence, as eDNA typically remains detectable for only a few days under warm, sunny conditions. (see Section 4.3 of GHD, 2021b).	The distance to the nearest known record of the Pilbara Leaf-nosed Bat, Grey Falcon and Night Parrot has been included in Table 1.2. This information is already provided for the remaining Program Matters. (a) Ghost Bat cave classifications are provided in Table 5-3. Table 1.2 has been amended to state the cave classification for CMNY-05 (Category 3). (b) The draft Validation Notice Table 1.2 states that the Northern Quoll was recorded on nine occasions from four separate locations. The table has been amended to clarify that three of the locations were from camera traps and the fourth being the scat location; further, that the eight records were from the camera traps and that although the camera trap records are likely attributed to the same individual, this could not be confirmed from camera trap imagery alone. (c) Pilbara Olive Python scat discussion in Table 1.2 has been amended to note the age of the scat was 6-12 months old. See additional response relating to eDNA in item 5.5.3.2.
Section 2 - Project disturbance and description		
2.2	Activity description (pp.16-19) - Clarify activities proposed within the narrow southern extension of the Activity Area toward Yandicoogina Gorge, depicted in Figure 1.2. Include a summary of hydrological studies or modelling undertaken, addressing potential impacts to surface water availability and quality from mine pits, OSAs, crossings and diversions. Append relevant hydrological and cumulative impacts from the Marillana Creek (Yandi) activities and consider impacts extending beyond the Activity Area boundary.	The narrow southern extension of the Activity Area is for access (minor track widening required). As discussed in Section 2.2.4 of the draft Validation Notice, initial mobilisation of mining fleet will occur from BHP's existing Mining Area C – Southern Flank (MAC/SF) operations, utilising an existing rail access road. An access road from Ministers North, connecting to the existing rail access road has been incorporated into the Activity to facilitate this fleet movement. Surface water modelling was undertaken by Stantec (2024) *Ministers North Trucking Surface Water Impact Assessment Report*. This has now been appended to the final Validation Notice as Appendix 3.

		Yandicoogina Gorge is approximately 1-2 km east of the Activity Area, separated by existing rail infrastructure. A small portion of the local Yandicoogina Gorge sub-catchment will be impacted, with a catchment reduction of approximately 1% and negligible reduction in peak flows. Whilst the Activity Area crosses into the Yandicoogina Creek floodplain, the primary flow path is not impacted by the Indicative Footprint. BHP has expanded discussion on the local hydrology and surface water features within Section 5.1.1. Additional discussion on the outcomes of the modelling and potential impacts to surface water are provided within Section 5.2.5.
2.2.2	Haul Road fill material sources (p.17) - Confirm whether fill will be non-polluting and whether the haul road will be rehabilitated.	Section 2.2.2 has been updated to reflect the following text. All fill will be non-polluting. The haul road is to be rehabilitated, including removal of culverts and all other infrastructure associated with the haul road with the aim of returning land to pre-disturbance drainage and topography where practicable. Rehabilitation of the haul road will be designed to meet agreed post mining land use requirements. The following rehabilitation principles will be incorporated: • Reinstatement of natural water ways/drainage paths/surface water flows. • Removal of haul road fill material if no longer required for post mining land use. • Road cuttings would remain in place. • Remainder will be reprofiled and contoured to natural topography where practicable.
2.2.3	Connection to Yandi (W5 landbridge and Marillana Creek crossing) (pp. 17-18) - Identify all planned crossings, diversions and widening works including location, seasonal timing, duration and potential ecological or hydrological impacts to Program Matters	BHP can confirm only one creek crossing (with two disturbance areas) is proposed for Marillana Creek, with additional crossings required for the Central Creek Tributary (haul road) and Mungadoo Creek Tributaries (haul road near the mine). Section 2.2.3 in the final Validation Notice has been updated to reflect the following text: "*In addition to the above creek crossing, the Indicative Footprint includes two disturbance areas across Marillana Creek for the purposes of pipelines and powerlines to connect Ministers North to Yandi (see Figure 1-2). The pipeline will be buried and the powerline will be strung across Marillana Creek meaning there will be no impediment to flows. The access road shown across Marillana Creek on Figure 1-2 is an existing track which does not obstruct flows.* *All works associated with creeks will be undertaken during the dry season in order to avoid impacting flow regimes. The duration of the works associated with creeks are short term. For example, the temporary pipeline works across Marillana Creek are scheduled to be completed within approximately 3-4 weeks, powerline works will be completed within approximately 4-5 weeks. Creek crossings require additional time but are still scheduled for construction to be completed within approximately 3-4 months*." BHP can confirm no creek diversions are required for the Activity. Several controls to further minimise hydrological impacts during construction and operation are proposed. As part of engineering design, roads that cross drainage lines will include culverts to maintain surface water flows.

		Rip rap armouring (or other energy dissipation structures) will be installed to reduce flow velocities and erosion potential. Where required, rock sizing (for rip rap) is selected based on predicted flow velocities, section thickness and rock sizing recommendations from Main Roads WA Floodway Design Guide. During the construction staging and operation, sediment basins will be implemented to retain sediment-laden rainfall runoff to allow for the settling of sediments before runoff enters the environment, minimising the risk of sediment levels exceeding natural conditions. The effectiveness of critical infrastructure (such as culverts) shall be reviewed annually and outcomes recorded in BHP's internal records. If critical infrastructure is not operating effectively, infrastructure maintenance and/or modifications will be undertaken where necessary. This has been included as a management commitment within the final VN (see Table 8.3). For the above reasons, potential ecological or hydrological impacts to Program Matters are not predicted.
2.2.5	Water supply (p.18) - Clarify the intended lifespan and decommissioning of the temporary pipeline and note that Mining Area C – Southern Flank pipeline has not yet been constructed	Section 2.2.5 has been updated and states that the indicative lifespan for the temporary water pipeline is approximately 12 to 18 months. The intent is that this temporary pipeline will be decommissioned once the Mining Area C – Southern Flank Northeast Scheme to Ministers North (MN) Pipeline and connecting MN to Yandi Pipeline is in place. Section 2.2.5 has also been updated and states that the Mining Area C – Southern Flank Northeast Scheme to Ministers North (MN) Pipeline has not yet been constructed.
2.2.7	Rehabilitation and closure (p.19) - Include the objectives of mine closure and rehabilitation and the intended post closure habitat outcomes (inc. rehabilitation)	Section 2.2.7 in the final VN has been updated as follows. Closure and rehabilitation objectives and criteria are based on the land uses applicable to a particular area, in recognition of the fact that the land is altered fundamentally from its pre-existing condition. The completion criteria for Ministers North are based on an assumed outcome of a combination of "*natural environments for managed resource protection*" and "*relatively natural environment for pastoral grazing purposes*". Rehabilitation, decommissioning and closure will be undertaken in accordance with the Ministers North Mine Closure Plan (MCP) (Appendix 5). Current completion criteria relating to rehabilitation and fauna habitat include, but are not limited to: • Fauna habitats constructed into rehabilitation areas • Landforms substantially support target vegetation communities and the associated agreed post-closure land use • Demonstrated capacity of flora to reproduce as evidenced by seedling recruitment and vegetative production Rehabilitation will be undertaken progressively when disturbed areas are no longer required for operations. A specified seed mix will be used which includes 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. The MCP also addresses how pits and constructed landforms (principally the Central OSA) will be designed, constructed and rehabilitated, to ensure they are safe, stable and non-polluting. Development of Ministers North is being undertaken in collaboration with the Banjima People through BNTAC. BNTAC has developed mine closure objectives, principles and outcomes for closure of all mines across the Banjima Native Title Determination Area. The objectives, principles and outcomes inform ongoing collaboration between BHP and the Banjima People. Outcomes include but are not limited to restoration of environmental diversity and condition, and return of animals (including mandu (bush meats)), medicine plants and bush tucker. As the planning of mine closure progresses, the level of detail presented in a Ministers North MCP will increase to eventually evolve into a fully formed plan that facilitates execution of mine closure (consistent with ICMM 2019). BHP commits to updating this plan as mining progresses, including on closure fauna habitat outcomes.
2.3	Existing Environmental Approvals (pp. 19-21) - Table 5-1 (pp.34-37): Quantify clearing and disturbance already undertaken within the Indicative Footprint under MS 1039 and NVCPs 8033/2, 8953/3 and 7009/4. Currently it indicates there is 1,155 ha of cleared areas within the Activity Area of which 512.2 ha was cleared under 'other approvals mechanisms' prior to the EPBC Act strategic assessment approval. We note the Northern extent of the Activity overlaps BHP's Yandi mine and associated activities. The validation notice states mining operations at Yandi within a 13,158 ha Development Envelope (excluding the proposed Activity) are currently approved by the Western Australian Minister for Environment under Ministerial Statement (MS) 679 dated 6 July 2005, as amended by MS 1039 dated 4 October 2016. We also note that clearing within the Activity Area has been undertaken in accordance with the below WA State Government Native Vegetation Clearing Permits: • Permit 8033/1 - granted in May 2018 and amended in September 2025 (8033/2) – clearing for mineral exploration, hydrological investigations, geological investigations, communications towers, LiDAR systems, meteorological masts and associated activities • Permit 8953/1 – granted in November 2020 and amended in June 2023 (8953/3) – clearing of native vegetation to undertake geotechnical and baseline surveys. • Permit 7009/1 – granted 21 July 2016 and amended in November 2025 (7009/4) - clearing for railway construction, maintenance and associated activities. Approval granted by a State Minister in accordance with state legislation does not necessarily provide an exemption for activities requiring referral under Part 7 of the EPBC Act or consideration under a validation notice or decision report as part of the BHP Billiton Iron Ore's Pilbara strategic assessment program (the program). Please provide more information regarding the existing disturbance subject to MS 1039, NVCP 8033/2, NVCP 8953/3 5617 and NVCP 7009/4: • When did this action occur? • Who undertook the action? • Was this action referred and/or approved under parts 7-9 of the EPBC Act or subject of a validation notice or decision report under the endorsed program? • Do you believe this action was exempt from referral, assessment and approval under the EPBC Act, and if so, include reason for exemption (i.e. section 43A or 43B of the EPBC Act). If	Existing disturbance within the Activity Area is associated with mining operations at Yandi (which overlaps the northern extent of the Activity Area) and exploration activities. It has occurred both pre- and post-commencement of the EPBC Act. All post-2000 disturbance was undertaken pursuant to the approvals identified in the DCCEEW comment. BHP has interpreted activities within the scope of the existing state approvals as falling within the intended meaning of "previously approved" activities for the purposes of the program. In accordance with BHP's practices at the time, no referral was made for Yandi or its exploration programs.

	the action commenced prior to commencement of the EPBC Act, has the action been varied or extended since the date of approval? • Was this action assessed by BHP as not requiring referral under the EPBC Act based on a self-assessment of likely significant impact? Was this self-assessment supported by MNES habitat and fauna surveys prior to clearing?	
2.3.1.3	Existing Environmental Approvals (p.21) - The footnote states that 'Additional clearing within the Activity Area will be authorised under the NVCPs for the purposes of the enabling communications works and 132kV Powerline Relocation works. These scope items do not form part of the Activity and are subject to the separate Decision Report assessments.' Please explain why these items are not considered as part of the Activity.	The 132kV powerlines are existing authorised infrastructure operated by both BHP and third-party miner Rio Tinto servicing existing mining operations, and are not dependent on, or specific to Ministers North. These powerlines intersect the eastern extent of the proposed mine pits for the Activity. As such, both BHP and Rio Tinto will be relocating this infrastructure. Although this relocation is required to facilitate the Activity, it is separate to the Activity. BHP is upgrading its communications infrastructure. The upgrades will service existing BHP Yandi and rail operations, and the proposed Activity (i.e. not exclusively for use by the Activity). The communication infrastructure, which includes mobile communication towers, is necessary enabling works for the Activity with only minor land disturbance required. BHP has completed Decision Reports for these activities.
Section 4.2 Surveys and Studies		
General comments	Ensure consistent information across text, tables and map figures in each validation notice	Addressed.
4.2.1-1	Contemporary surveys (pp.26-27) - We understand that survey results are still pending for the Marillana Creek (Yandi) draft validation notice. If the results of this survey are relevant to program matters, critical and supporting habitat and the Ministers North Activity Area we expect this new information to be considered and included in the final validation notice.	BHP notes one report was pending for the Marillana Creek (Yandi) draft Validation Notice, specifically the *Yandi E8 Additional Targeted Fauna Survey* (Biota 2026 in prep). The survey boundary is outside of the Ministers North Activity Area and 500m buffer, and as such was not included within the Ministers North draft (or final) Validation Notice. The survey report is now complete and no Program Matters were recorded and no critical habitat features (i.e. Category 2 caves), that would influence critical and/or supporting habitat for Program Matters within the Ministers North Activity Area, were recorded.
4.2.1-2	Contemporary surveys (pp.26-31) - Contemporary survey coverage in the northern part of the Activity and the 500m buffer area (within MS 1039 development envelope) is not comprehensive. Some habitat values appear in this area, such as the drainage channels and wetland feature, and are included in the Indicative Footprint. What habitat or program matter data is available for these features?	Survey history in the Yandi tenement (MS 1039 Development Envelope) has been ongoing for several decades and there is a thorough understanding of the fauna values, including fauna habitat, habitat features and likelihood of Program Matters. The fauna habitats are defined in Table 5-2, and key features (e.g., a cave) are shown on Figure 5-1. No Program Matters have been recorded within this portion of the Activity Area across all historic and contemporary surveys. Table 4-2 and Figure 4-2 in the final Validation Notice have been updated to provide confidence in the breadth of survey coverage and data across the northern part of the Activity Area. In the northern part of the Activity Area, the Indicative Footprint overlaps predominately cleared and disturbed areas associated with the existing Yandi mining operation (Figure 5-1). These cleared and disturbed areas are of no or limited value to Program Matters; hence, have not been re-surveyed for the Activity. In addition, the infrastructure corridor between the Ministers North and Yandi mines is heavily constrained, including from heritage sites and as such, is unlikely to deviate from the Indicative Footprint (covered by contemporary surveys). As such risks to Program Matters outside of the Indicative Footprint are low.
4.2.1-3	Table 4.1 (pp:28-29): Contemporary studies and surveys	(a) Figure 4.2 has been amended as requested.

	a) Two GHD studies no longer constitute contemporary data as they were conducted in 2019 (GHD, 2021a) and 2020 (GHD, 2021b). They should instead be included in Figure 4.2. b) As per the equivalent table in the draft Marillana Creek (Yandi) validation notice, please consider including the proportion of the Activity Area that each study has surveyed, due to the large extent of both the Activity Area and the contemporary survey areas.	(b) Table 4-1 and 4-2 have been amended to include the proportion of the Activity Area and 500m buffer covered by each survey.
4.2.1-4	Figure 4.1 Contemporary vertebrate fauna surveys undertaken in the Activity Area (p.31) - two aquatic surveys - Ministers North Aquatic Survey - Dry 2022 Wet 2023 (Biologic 2023) and Ministers North Aquatic survey - Dry 2021 Wet 2022 (Biologic 2022) do not appear in Table 4.1 and do not appear to be referred to in the text, appendices or references. Suggest they are removed from the Figure	The aquatic fauna surveys have been removed from Figure 4.1 and are not referenced in the final Validation Notice.
4.2.1-5	Figure 4.2 Historical and contemporary fauna survey coverage relevant to the Activity Area (p.32) - This Figure does not depict contemporary fauna surveys, 7 historical survey shapefiles/polygons are shown, however 8 are listed in the legend and Ministers North: Yandicoogina Creek Aquatic Ecosystem Surveys (Biologic, 2020) is listed twice in the legend and appears as 2 different surveys in the Figure. Please amend accordingly.	Figure 4.2 title has been amended to “Historical fauna survey coverage”, noting contemporary fauna surveys are shown on Figure 4.1. Figure 4.2 has also been updated by removing the aquatic surveys and including the following additional surveys: - Maunsell, Bamford Consulting (2003) Yandi Life of Mine Flora and Fauna - Ecologia (2004) Yandi Stockyard and Overland Conveyor Fauna and Flora Assessment - ENV Australia (2008) RGP5 Railway Project Biological Assessments - Ecologia Environment (2008) Marillana Creek (Yandi) Iron Ore Mine Modification Level 2 Fauna Survey - ENV Australia (2008) Newman to Yandi Transmission Line Terrestrial Vertebrate Fauna Assessment - Biota (2010) Yandicoogina Junction South West Oxbow Fauna Survey - Biologic (2011) Yandi Vertebrate Fauna Review - Biota (2013) Area C West to Yandi Level 2 Vertebrate Fauna Survey.
Section 5 – Existing Environmental Values (Program Matters)		
5.1-1	Fauna habitats (p.33) - Clarify discussion of ‘Strategic Proposal’ in section 5.1. Provide information on the unsurveyed areas overlapping third party operations and confirm whether rehabilitated areas have been surveyed for Program Matters (54.3 ha within the Activity Area overlaps with third-party operations, of which 26.8 ha is within the Indicative Footprint).	BHP has reviewed the Strategic Proposal discussion in Section 5.1. To avoid confusion, this text has been removed from the final Validation Notice. The areas attributed to ‘No survey data’ in Table 5-1 in the draft VN, were combined with Cleared/Disturbed areas mapped by consultants (outside of BHP’s clearing data). The ‘No survey data’ component corresponds to a long slither where boundaries of surveys do not align with BHP tenement boundaries (essentially a mapping error resulting in a survey gap). Review of the spatial data confirms this area comprises 12 ha within the Activity Area and 0 ha within the Indicative Footprint. Accordingly, this discrepancy is not considered a limitation to the impact assessment, noting there is no survey gap within the Indicative Footprint. The remaining Cleared/Disturbed areas mapped by consultants (42.3 ha within the Activity Area and 26.8 ha within the Indicative Footprint) have been incorporated into BHP’s clearing dataset presented in Table 5-1 of the final VN. See response to item 5.1-2 in relation to rehabilitated areas.
5.1-2	Fauna habitats in the Activity Area (Table 5.1, pp.34-37) - Refer to comment 2.3 regarding cleared areas in the Activity Area and Indicative Footprint. The Table indicates the cleared areas include 89 ha of rehabilitated vegetation, of which 87.9 is within the Indicative Footprint. Have the rehabilitated areas been surveyed for Program Matters or Program Matter habitat?	The rehabilitated areas within the Activity Area are at various stages of rehabilitation. Rehabilitation is monitored in relation to progression towards completion criteria but not specifically surveyed for Program Matters.

		The location accounting for most of the rehabilitation within the Activity Area is an existing Overburden Storage Area (OSA) at Yandi (Figure 1-2a), which was identified as a potential solution for fill material to construct the Ministers North haul road. Recent analysis of fill requirements indicates this is unlikely to be required; however, BHP has maintained the OSA within the Activity for optionality should a fill shortfall occur during construction. The rehabilitated OSA is still progressing towards completion criteria and not considered to be critical or supporting habitat for any Program Matters.
5.2 – Ghost Bat		
5.2.3-1	Local Habitat (p.40) - The draft validation notice states that although cave CMN-02 displayed geological characteristics potentially suitable to support a non-permanent maternal roost (Category 2), 'the lack of occupancy evident over the breeding and pupping seasons indicates that CMN-02 is a diurnal roost with occasional occupancy (Category 3)'. We note that a roost can be classified as a Category 2 roost if it is a diurnal roost with regular occupancy.	CMN-02 has only shown occasional occupancy (no additional scats or calls recorded during the long-term monitoring), as opposed to regular occupancy. As such the Category 3 rating is considered appropriate. CMN-02 will be protected within a Mining Exclusion Zone (MEZ) (Figure 5-5).
5.2.3-2	Local Habitat (p.41) - The Astron 2025 survey states Hillcrest/ Hillslope habitat in the study area provides both critical (within 12 km of a Category 2 roost cave CMIN-03) and supporting foraging habitat for the Ghost Bat. We note that Hillcrest/ Hillslope habitat is not included in the current Assurance Plan and Offsets Plan as Ghost bat critical or supporting habitat, however it states that 'BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the described critical and supporting habitats'. Has BHP considered this information?	BHP has considered the information provided by Astron (2025) that Hillcrest/Hillslope may provide critical foraging habitat for Ghost Bat (being within 12 km of a Category 2 roost). However, on review of all available data and information BHP does not consider Hillcrest/Hillslope to be critical foraging habitat on the basis that historic records at Ministers North are limited (only recent records in two caves), ANABAT surveys (historic and contemporary) have not recorded any foraging calls from Ghost Bats, and the lack of nearby Category 2 caves (see discussion below on CMIN-03 – not likely a Category 2). Cave CMIN-03 (formerly called ACY 1) (approx. 2 km south of the Activity Area) was noted as a potentially suitable roost for Ghost Bat on the basis of scats being present in the cave during a historic survey (Biologic 2011). This finding was prior to Category ratings being applied to Ghost Bat caves, with the Category 2 rating later applied in subsequent reports by consultants without any further documented evidence. BHP notes Astron (2025) reported: "*more recent cave assessments and broader ghost bat surveys have identified a potential overstatement in the initial Category 2 (for ghost bat) rating of CMIN-03, with the status of this cave to potentially be downgraded to Category 3 (T. Betts pers. comm., November 2024). If this cave is downgraded, then all reported critical ghost bat foraging habitat is to be recategorised as supporting habitat, with only Gorge/ Gully habitats to remain as critical habitat for ghost bat within the Survey Area*." The corridor in proximity to CMIN-03 has been surveyed multiple times since the initial scat recording, with no further evidence of Ghost Bats utilising the area. Ongoing monitoring of the cave itself by BHP has found no further evidence of usage at this cave (Biologic 2024, Biologic 2025) and light exposure is evident within the cave (BHP pers. comms). In light of the recent monitoring findings, BHP considers this cave does not represent a Category 2 cave (as there is no regular occupancy). Based on the above, the conclusion was that these habitat types at Ministers North were unlikely to represent critical foraging habitats. This approach is also consistent with the habitats listed for Ghost Bat in Table 5.13 of the APOP (i.e. Hillcrest/Hillslope not considered foraging habitat) (BHP 2023) and consistent with other recent approved Validation Notices (i.e. Jimblebar Significant Amendment Validation Notice, Orebody 25 West Validation Notice).

		BHP does not consider financial offsets for this habitat type are warranted under the Validation Notice as the assessment of impacts to Ghost Bat have been in accordance with the Assurance Plan and Offsets Plan (with additional reasoning provided above). BHP will, however, provide financial offsets to PEOF for impacts to Hillcrest/Hillslope habitat as required under the *Environmental Protection Act 1986* (WA) and detailed in the *Ministers North Derived Proposal Request* (BHP 2025).
5.2.3-3	Local Habitat: Figure 5.4 Ghost Bat Mapped Habitats and Records (p.48) - Ghost Bat records are not indicated in the Figure and are not listed in the legend. Please amend and also include the Cave IDs in the Figure	Figure 5-4 (now Figure 5-5) has been amended to include cave IDs and Ghost Bat records.
5.2.3-4	Local Habitat (p.40) - Discuss what ongoing monitoring is planned for Ghost Bat use of Caves CMN-02 and CMNY-05.	BHP proposes to undertake annual cave structural condition inspections for the Category 3 Ghost Bat cave (CMN-02) given its proximity to the mining operations. This was included as an Action in Table 8-1. Noting the ad hoc usage of this cave, monitoring of the cave structural integrity is considered appropriate to ensure the cave remains suitable for use both during and post mining. An annual assessment period has been selected to minimise the risk of disturbance to Ghost Bats. It is acknowledged that frequent visitation may cause Ghost Bats (if present) to flee a roost. Accordingly, an annual assessment period provides an appropriate balance between the collection of information/data and the risk that the visitation for the information collection may affect Ghost Bat roost occupancy. If threshold criteria for vibration limits are exceeded at the cave (CMN-02) entrance, BHP has also proposed additional visual inspection of the cave for structural condition. BHP will assess if there has been a material change in the structural condition of the cave and if there has been a material change, prepare and implement an action response plan prior to any further blasting. This has been described in a footnote to Table 8-1. BHP has not proposed ongoing monitoring of cave CMNY-05 given its distance from mining, cave structure and limited records of usage.
5.2.5-1	Impact Assessment: General Comment - The discussion in this section should be specific to direct and indirect impacts to the Program Matter, being the Ghost Bat, rather than general impacts to fauna. Please amend accordingly	BHP has reviewed this section and considers discussion on both impacts specific to the Ghost Bat (i.e. impacts to caves, blast management, barbed wire, human visitation) and those more general to fauna (i.e. fire, dust, vehicle strike etc.) is considered appropriate as it provides a holistic approach and ensures appropriate mitigation has been applied. Minor amendments have been made within Section 5.2.5 to provide additional detail on potential impacts.
5.2.5-2	Impact Assessment: Habitat loss (p.50) - We note potentially all of the identified category 4 caves within the Activity Area will be directly impacted by the Activity. Please include the cave IDs of the 3 caves already identified to be directly impacted and the 4 caves (1 classified as unsuitable) that will potentially be directly impacted	Section 5.2.5 has been amended to include cave IDs in the discussion. The section explains that BHP is intending to avoid direct impacts to the Category 4 caves in close proximity (<100 m) to the Indicative Footprint (i.e. CMIN-01, CMN-05, CMNY-06), however, given the nature of the footprint being indicative, there remains a potential that these caves are also impacted.
5.2.5-3	Impact Assessment: Noises and vibration (p.50) - Include in this section that blast management measures are not proposed for Category 3 cave CMNY-05 as it is more than 500m from a pit	Section 5.2.5 has been updated to include "*Note, BHP has not proposed blast management measures around CMNY-05 as it is located greater than 500 m from the proposed mine pits*."
5.2.5-4	Impact Assessment: Habitat degradation from alteration of groundwater and surface water (pp.50-51) - Has any modelling been conducted to examine changed surface water dynamics on the Category 3 Ghost Bat roosts and foraging habitat within and surrounding the Activity Area?	BHP has undertaken surface water modelling and provided this as Appendix 3 in the final VN. BHP has discussed potential impacts from surface water changes and how this relates to the surface water features in proximity to the Ghost Bat caves within Section 5.2.5. Section 5.2.5 has been amended to include additional discussion on how vegetation and in turn, supporting foraging habitat may be impacted by changes to surface water regimes.

5.2.6-1	Mitigation hierarchy: Avoid (p.55) - It is good to see avoidance applied by the extension of the Mining Exclusion Zone (MEZ) to maintain habitat connectivity by incorporating the ephemeral water features along the gorge/gully and drainage channel to Cave CMN-02. For clarity, we suggest including the four waterholes within the MEZ, with identifiers, on Figure 5-5 (p.56).	Figure 5-5 (now Figure 5-6) has been amended to include the waterholes.
5.2.6-2	Mitigation hierarchy: Avoid Figure 5-5 Management of category 3 Ghost Bat caves (p.56) - We suggest identifying the planned infrastructure indicated by the black lines to inform the reader of potential impacts to the MEZ	Figure 5-5 (now Figure 5-6) has been amended to label the infrastructure shown on the map.
5.2.6-3	Mitigation hierarchy: Avoid (p.55) - We suggest including that in the current Indicative Footprint, BHP is intending to avoid direct impacts to three Category 4 caves (and include cave IDs) and whether this avoidance was considered in mine planning and design.	In Section 5.2.6, the avoidance section has been updated to include: "*In addition to the Category 3 Ghost Bat roosts, BHP is intending to avoid direct impacts to the Category 4 caves (CMIN-01, CMN-05, CMNY-06), in close proximity to the Indicative Footprint, however, given the nature of the footprint being indicative, there remains a potential that these caves may be impacted (whether direct or indirect) by the Activity. Effort will be made during mine planning and execution to avoid these caves where practicable*."
5.2.6-4	Mitigation hierarchy: Mitigate - General Comment (pp.57-58) - As per comment 5.2.5-1, the mitigation discussion is not adequate and should be specific to the Ghost Bat, rather than to fauna generally. We also note the Ministers North Derived Proposal Request and therefore the corresponding Terrestrial Fauna Environmental Management Plan (EMP) was submitted to the WA EPA in October 2025, and to date has not been approved. Even if approved, it is also not sufficient to just reference the Terrestrial Fauna EMP, the specific mitigation measure to be employed (to help achieve the Program Matter Outcomes and Objective) should be identified and discussed.	BHP has provided a summary of the mitigation measures in Section 5.2.6, noting that in addition to the MEZ, blast management and pre-disturbance protocols, the EMP includes: • site personnel to complete a site induction which includes information on the Program Matters • limiting vehicle speeds (i.e. 60km/h) on unsealed roads to minimise the risk of collision with Program Matters • fencing turkey's nests to restrict fauna access and maintaining fauna egress points, where necessary (i.e. long-term turkey's nests), to minimise fauna entrapment risks • targeted feral cat control program to be implemented to reduce predation impacts on Program Matters • minimising risk of injury or mortality to Ghost Bats from entanglement in barbed wire fencing by avoiding the use of barbed wire fencing within the Activity Area as far as practicable, except where required by legislation. In addition, BHP will install bat reflectors where barbed wire fencing is required. BHP have also now provided the Fauna EMP that was submitted to the EPA as an appendix to the Validation Notice (Appendix 4). In addition to the above, BHP included in the draft VN (and maintained in the final VN) a summary of the impact assessment in Table 5-8 (Section 5.2.8) which documents how the Activity will meet the Program Matter Outcome for the Ghost Bat.
5.2.6-5	Mitigation hierarchy: Mitigate - Feral predators (p.58) - Please provide more details about the implementation protocol for targeted feral cat control. Are there triggers for control or is feral cat management ongoing? The Department's position is that proactive feral cat management contributes to positive conservation outcomes for all Program Matters that are likely to or may be impacted by activities at Ministers North. We note that feral cats were observed in every contemporary survey used to inform this validation notice. Construction can create access pathways for feral predators, and they can be attracted to areas of human activity.	Feral cat management will be undertaken in accordance with the WAIO Animal and Pest Management Plan (Document 0121815). Section 5.2.5 and Table 8-3 have been updated to reflect this commitment. Management is applied using a risk-based and site-specific approach, with an emphasis on monitoring, humane control where approved, and compliance with animal welfare and regulatory requirements. Under the plan: • Environmental inductions are to be provided to site personal. • All sightings and opportunistic observations of feral cats are required to be reported in the WAIO Event Management System (EMS).

		• Monitoring information is captured through fauna surveys, pre-clearance assessments, routine site activities, and pest control records. • Any trapping or baiting programs are only undertaken where approved, coordinated with site Environment teams, and reported in EMS, including details of trap locations, methods, and outcomes. BHP applies an adaptive management framework (Section 8 of the final Validation Notice), under which management and mitigation measures are progressively reviewed and refined, or alternative approaches adopted where necessary. The effectiveness of the risk-based feral cat management approach will be periodically evaluated within this framework, and management practices adjusted as required.
5.4 – Northern Quoll		
5.4.2	5.4.2 Local habitat (p.70) - We note that, although the Activity did not meet the Notifiable Action trigger for the Northern Quoll, within the indicative footprint, approximately 85% of the habitat to be cleared is considered suitable Northen Quoll habitat	BHP acknowledges that a high proportion of the indicative clearing footprint comprises habitat considered suitable for Northern Quoll. Land clearing will be minimised to as low as reasonably practicable, including prioritising the use of existing disturbed areas. Hillcrest/Hillslope habitat, which is defined as supporting habitat for Northern Quoll in the APOP (BHP 2023), is the dominant habitat type within the Activity Area (~80%) and Indicative Footprint (~82%) and is widespread regionally. As such, residual impacts to this habitat type are largely unavoidable. Notwithstanding habitat availability, historic survey effort undertaken since the 1990s and contemporary surveys (including targeted surveys) have not recorded Northern Quoll within the Activity Area, indicating the absence of a local population. As the Activity does not meet the Notifiable Action trigger for Northern Quoll, the APOP (BHP 2023) does not require offsets. BHP will, however, provide financial offsets to PEOF for impacts to Hillcrest/Hillslope habitat as required under the *Environmental Protection Act 1986* (WA) and detailed in the *Ministers North Derived Proposal Request* (BHP 2025).
5.4.3-1	Northern Quoll records (p.71) - The statement that extensive sampling occurred within the Activity Area is not supported by Figure 5.11, with survey coverage concentrated in the southeast edges of the Activity Area boundary, including just outside the 500m buffer area along Yandicoogina Creek area. Figure 5.11 indicates that few transect searches were undertaken within the Activity Area and the only nocturnal search was within the 500m buffer. We recommend a preclearance survey of the areas where survey sampling has not occurred but there is suitable habitat, to confirm the lack of species occurrence, and publishing results of this survey with the final validation notice.	BHP has amended the discussion on surveys to no longer reference “extensive” and instead refer to the “historic and contemporary” survey effort. Survey history for Ministers North has been ongoing for several decades (since the 1990’s) and BHP has a thorough understanding of the fauna values within the Activity Area, including the fauna habitat, habitat features and likelihood of Program Matters. Amendments to Table 4-2 and Figure 4-2 provide additional confidence in the breadth and history of survey coverage. Figure 5-11 has also been amended to show the full extent of nocturnal searches, camera traps, cage traps and sampling sites.

		Traverses/transects have historically not been supplied as data with historic reports but are displayed on figures within individual consultant reports. Therefore, the transect searches shown on Figure 5-11 are an underrepresentation to those undertaken. Given the historic and contemporary survey effort and lack of evidence of a population of Northern Quoll within the Activity Area, BHP does not propose additional pre-clearance surveys for this species. However, in acknowledgment of the recent records within the 500m buffer, BHP has amended its management commitments in the final Validation Notice (see Table 8-3) to commit to a fauna spotter for works in proximity to the Northern Quoll records (i.e. fauna spotter to be present during works for the southern access road). If a Northern Quoll is observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on.
5.4.3-2	Northern Quoll records (p.71) - Provide more details (type and date) of the two opportunistic Northern Quoll records on Figure 5.12	The two records were historic opportunistic records from 2010 and 2016. These were not described within the draft Validation Notice (or final Validation Notice) as they occur outside of the Activity Area and 500m buffer. The record from 2010 was by BHP on the main Yandi access road in 2010 (pers. comm. cited in Biologic (2011)). This was a deceased individual that was subsequently lodged with the Western Australian Museum. The record in 2016 was an opportunistic sighting (direct observation of an individual by BHP staff).
5.4.3-3	Northern Quoll records (p.71) - Have records from the contemporary surveys informing this validation notice been included on Map Figure 5.10?	Figure 5.10 as amended in the final Validation Notice incorporates the contemporary records.
5.4.4	Impact Assessment Habitat loss (p.75) - Has maintaining connectivity for dispersal pathways for the source Northern Quoll population in the ridgelines north of the Activity Area been considered in mine planning?	BHP records do not indicate the presence of any source population of the Northern Quoll in the ridgelines north of the Activity Area. BHP has considered connectivity and dispersal opportunities for Program Matters more generally, including avoiding direct disturbance to key habitat areas including Khargoonha (ridgeline to the south of the Activity Area) and the major creeklines to ensure dispersal opportunities are retained. This includes consideration and avoidance of Yandicoogina Creek and Yandicoogina Gorge.
5.5 – Pilbara Olive Python		
5.5-1	Pilbara Olive Python records: Table 5.11 Pilbara olive python mapped habitat and records (p.79) - include the Wetland habitat type in this figure.	Figure 5-15 has been updated as requested.
5.5.3-2	Pilbara Olive Python records (pp.79-82) - We note that survey effort within the Activity Area is described as extensive, but Figure 5.14 shows that much of targeted effort for this Program Matter occurred outside of the Activity Area and the 500m buffer area. We also note that there appears to be limited on-ground survey coverage in the northern part of the Activity Area and along the haul road area, and the Pilbara Olive Python is known to use Marillana Creek. We recommend a preclearance survey of the areas where survey sampling has not occurred but there is suitable habitat, to confirm the lack of species occurrence, and publishing results of this survey with the final validation notice.	BHP has amended the discussion on surveys to no longer reference “extensive” and instead refer to the “historic and contemporary” survey effort. Figure 5-14 has been amended to show the full extent of nocturnal searches, camera traps and sampling sites. BHP has appropriately applied the mitigation hierarchy and proposed management measures which will mitigate risks more broadly (e.g. reducing speed limits, feral cat management, environmental awareness etc.). Given the proposed mitigation and lack of evidence of a population of Pilbara Olive Python within the Activity Area, BHP does not consider pre-clearance surveys for this species is warranted specific to the Activity.

		However, noting the recent record within the 500m buffer, BHP has amended its management commitments in the final Validation Notice (see Table 8-3) to commit to a fauna spotter for works in proximity to this record (i.e. fauna spotter to be present during works for the southern access road). If a Pilbara Olive Python is observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on. In addition, BHP acknowledge the DCCEEW comment on Pilbara Olive Python being known to use Marillana Creek. A fauna spotter will also be used for works at Ministers North that interact with Marillana Creek (i.e. widening of existing creek crossing, 33kV powerline and installation of the temporary water pipeline). As above, if a Pilbara Olive Python is observed within the clearing area, clearing will cease until it is confirmed that the individual has moved on. BHP have also commissioned Biota to undertake Pilbara Olive Python monitoring across WAIO's Central Hub mining operations. BHP have commenced this program, with one of the monitoring sites including the Ministers North Yandicoogina Creek site (in proximity to the previous scat record). To date three monitoring events have been undertaken in October 2025, January 2026 and April 2026. The Ministers North site was targeted with a total effort of 1216 mins of searches in October and 852 mins of searches in January. The third monitoring period was undertaken this month (April 2026) (total minutes of searches to be confirmed). Across all monitoring periods no live individuals or secondary signs were recorded at the Ministers North site. Information regarding this recent monitoring program has been included within the final Validation Notice in Section 5.5.3, Pilbara Olive Python Records. The additional monitoring outcomes support and is consistent with historical and contemporary survey findings, thereby increasing confidence in the conclusions for this Program Matter.
5.5.3-2	Pilbara Olive Python records (pp.79-82) - As noted at comment 1.7-3, negative eDNA results can only be relied upon as evidence of absence for several days preceding testing. The Pilbara Olive Python scat recorded in Astron 2025 was found 130 m from the Activity Area boundary and represents a contemporary record as it was estimated to be 6-12 months old	Noted. BHP has included a footnote in Section (5.5.3) to note: "*BHP acknowledge eDNA relies on longevity of the DNA within the water column which is influenced by water temperature, sunlight, turbidity and other environmental factors. Tests indicate eDNA for Pilbara Olive Python may only be present for a short number of days and as such, does not exclude the potential presence of the species outside of this period*"
5.7 – Grey Falcon		
5.7.2	Local habitat (pp.95-99) - The text of this section discusses the critical habitat type Major Drainage Line, but it is not included as a habitat type in Figure 5.21. Please Amend.	Figure 5-21 (now Figure 5-22 in the final VN) has been amended to include Major Drainage Line habitat.
5.7.3	Grey Falcon records (pp.95-99) - Targeted survey effort for the Grey Falcon seems insufficient as surveys appear to be limited to the southern third extent of the activity area and do not appear substantial, as described. Where survey effort is considered unnecessary to assess notifiable action triggers, a clear justification must be provided. Survey effort should include visual assessment of suitable habitat across the activity area and buffer area, particularly tall trees along drainage lines that may be used for hunting, roosting, and nesting.	BHP has amended the discussion in Section 5.7.3 to no longer reference "substantial" and instead refer to the "historic and contemporary" survey effort. Figure 5-20 (now Figure 5-21) has been amended to better show survey effort and includes additional sampling sites not previously shown. BHP has added in additional text in the final VN in Section 5.7.3 to note: *"Astron (2025), did not undertake "bird census" surveys and as such are not displayed as bird census sites in the Figures below, however, targeted searches for this species were undertaken by Astron (2025).*

		Grey Falcon searches were focused within Major Drainage Line habitat where large trees provide potential nesting and perching opportunities. Astron (2025) also noted that the acoustic recording sampling sites within drainage area/ floodplain habitat types, were used to target the Grey Falcon. These sites, and track logs detailing searches along drainage lines, are shown in Figure 6 of Astron (2025).”
5.8 – Night Parrot		
5.8.3	Night Parrot Records: Figure 5.23 Night Parrot Survey Coverage (p.106) - Check the details of the listed surveys	BHP has amended the listed surveys in this figure.
7 – Offset Proposal		
7.3	Proposed offset contributions (p.113) - Financial contributions alone are insufficient unless they deliver demonstrable, timely conservation outcomes for impacted Program Matters.	Consistent with the Offset Pathways set out in Section 12 of BHP’s Pilbara Strategic Assessment Assurance Plan and Offset Plan, BHP’s financial contribution to offset residual impacts will be made to the Pilbara Environmental Offsets Fund (PEOF). The administration of the PEOF and the offset projects funded by it are managed by the Department of Water and Environmental Regulation.
8.1 – Monitoring Commitments		
8.1-1	Table 8-1: Monitoring commitments - Ghost Bat (p.117) - Vibration monitoring should be undertaken within an adaptive management framework, with corrective/preventative action implemented for any exceedance events.	BHP intends to manage this aspect (and others), via an adaptive management approach. BHP's framework embeds a cycle of monitoring, reporting and implementing change where required. The framework allows for an evaluation of the management and mitigation measures so that they are progressively improved and refined, or alternative solutions adopted, in order to ensure that the environmental objectives and outcomes are achieved. BHP has added additional detail in relation to the adaptive management framework within Section 8. Footnotes have also been added to Table 8-1 specifying in the event the Trigger criteria is met a number of response actions will be triggered including investigating the exceedance, reviewing vibration monitoring data and refining the drill and blast tactical plan (blast design parameters, scheduling and sequencing) to reduce vibration levels. In addition to the above, if the Threshold criteria is met BHP will implement additional actions including visually inspecting the cave for structural condition and assessing if there has been a material change in the structural condition of the cave. If there has been a material change, BHP will prepare and implement an action response plan prior to any further blasting.
8.1-2	Table 8-1: Monitoring commitments - Ghost Bat (p.117) - As per comment 5.2.3-4, include monitoring commitments for Ghost Bat use of Caves CMN-02 and CMNY-05.	BHP proposes to undertake annual cave structural condition inspections for the Category 3 Ghost Bat cave (CMN-02) given its proximity to the mining operations. This was included as an Action in Table 8-1 in relation to the commitments on blast management. Noting the ad hoc usage of this cave, monitoring of the cave structural integrity is considered appropriate to ensure the cave remains suitable for use both during and post mining. An annual assessment period has been selected to minimise the risk of disturbance to Ghost Bats (if present). It is acknowledged that frequent visitation may cause Ghost Bats to flee a roost. Accordingly, an annual assessment period provides an appropriate balance between the collection of information/data and the risk that the visitation for the information collection may affect Ghost Bat roost occupancy. BHP has amended Table 8-1 to include a footnote providing justification for the chosen methodology (aligning with the discussion above). BHP has also included implementing the Terrestrial Fauna EMP (including subsequent revisions) as an action associated with this monitoring commitment in Table 8-1.

		BHP has not proposed ongoing monitoring of cave CMNY-05 given its distance from mining, cave structure and limited records of usage.
8.2 – Clearing Commitments		
Table 8-2.1	Proposed clearing commitments - Ghost Bat (p.118) - Include what on-ground measures will be undertaken by BHP to ensure no clearing within the MEZ. BHP's stated commitment to not clear any currently known/recorded waterholes whether temporary or permanent within the Activity Area should also be included as a clearing commitment. Please show the location of the waterholes on a map figure in the validation notice, with ident	BHP has amended Table 8-2 to include the following actions to ensure no clearing occurs within the MEZ: - Avoidance condition included in BHP's internal ground disturbance permits (for any work near the exclusion zones) - Site inspections during construction to check land disturbance near the MEZ. - Reported incidents of MEZ disturbance. - Land clearing monitored via quarterly land clearing data and annual land disturbance reconciliation process (spatial footprint and hectares) to identify any land disturbance within the MEZ. BHP has amended the clearing commitments within Table 8-2 to include the avoidance of all known/recorded waterholes. BHP has expanded discussion on the local hydrology and surface water features within Section 5.1.1 and included a new figure (Figure 5-2) specifically focussing on the local hydrology, including labelled water features.
8.3 – Management Commitments		
General Comment	General comment (pp.118-119) - The management commitments should be targeted to Program Matters rather than 'conservation significant fauna	This has been amended as requested.
8.3-1	Table 8-3 Proposed management commitments - Ghost Bat (pp.118-119) - Confirm if speed limits will be applied to the haul road and heavy vehicles as well as light vehicles on unsealed access roads. What is the proposed speed limit? How will adherence of this be measured or reported?	BHP has amended the final VN to include additional detail in relation to the speed limits. This is discussed below. Speed limits will be applied across the haul road and unsealed access roads (i.e. 60km/h). Noting the Small Mining Equipment (SME) haul road design is based on the WAIO Non-Autonomous Mine Road Design Standard. Within this standard, the speed is 60km/h for surface haul roads. In-pit haul roads will have a lower speed. LV roads (all unsealed) on the project (on and off haul road) speed limit will be 60km/h. Site vehicles and plant will have In-vehicle Monitoring System (IVMS) which will report any speed breach incidents in a specific area.
8.3-2	Table 8-3 Proposed management commitments - Ghost Bat (pp.118-119) - Although the Activity is not a Notifiable Action for the Northen Quoll and Pilbara Python, given the closes proximity of records to the Activity Area and suitable habitat for the species within the Activity Area, we recommend BHP implement protocols for reporting sightings of Northen Quoll and Pilbara Olive Python, including vehicle strike, and mine personnel education on avoiding vehicle strikes on the non-venomous Pilbara Olive Python (may be confused with the venomous brown snake)	Table 8-3 has been amended to state: • All sightings and events involving Pilbara Olive Python and Northern Quoll (including vehicle strike) will be identified and captured in WAIO's Event Management System. Pilbara Olive Python and Northern Quoll sightings will be recorded in BHP's internal GIS system as soon as practicable and within 60 days of the sighting. • Site personnel will undertake inductions containing environmental awareness information (which includes information on conservation significant fauna (Program Matters) and sighting/event reporting).
8.3-3	Table 8-3 Proposed management commitments - Ghost Bat (pp.118-119) - Details of what the feral cat control program involves must be discussed in sufficient detail in the validation notice to determine if the mitigation measure will manage potential impacts to the Ghost Bat and	Whilst a specific monitoring program for feral cats using motion cameras is not currently planned, as noted in response to 5.2.6-5, feral cat management within BHP WAIO is undertaken in accordance with the WAIO Animal and Pest Management Plan. Under this plan, all sightings and

	contribute to the achievement of Program Matter Outcomes. We note cats were observed in all contemporary surveys relevant to this validation notice. We recommend BHP undertake regular feral cat monitoring, such as via motion cameras at key locations, to assist in early identification and ongoing control of feral cats in the area over the life of the impact. This will also benefit other Program Matters such as the Northern Quoll and Pilbara Olive Python that have been detected in very close proximity to the Activity Area.	opportunistic observations of feral cats and other pest species are required to be reported in the EMS, including location and species information, and monitoring information is captured through fauna surveys, pre-clearance assessments, routine site activities, and pest control records. In addition to reporting procedures and implementation of feral cat control as required (risk-based and site-specific approach), BHP has provided mitigation for the risk associated with attracting feral animals including feral cats, attributable to the Activity, including no new landfills at Ministers North. Section 5.2.5 of the VN has been updated with the information above and Table 8-3 has been updated to include the following actions: • Feral cat control program implemented in in accordance with the WAIO Animal and Pest Management Plan • Environmental induction provided to site personnel. • Report sightings of feral cats in the BHP Event Management System (EMS) as an environment event. Given no resident colony or breeding roosts are recorded within the Activity Area, risks to Ghost Bat individuals from feral cats, attributable to the Activity, are considered appropriately mitigated. The effectiveness of the risk-based feral cat management approach will be periodically evaluated within this framework, and management practices adjusted as required.