



Impact Reconciliation Procedure

Mining Area C-Southern Flank Significant Amendment

**Central Pilbara Hub Surplus Water Proposal
Stage 1**

February 2025

Version 2.0

Version Control

Version	Description	Key changes	Date
Version 1.0	Submitted to meet the requirements of Ministerial Statement 1072	Original document	22/02/2018
Version 2.0	Draft version submitted with referral of Mining Area C-Southern Flank Significant Amendment	Revision of document for the Combined Proposal	19/02/2025

Abbreviations and Definitions

Term	Meaning
Amended Proposal	The combination of the Significant Amendment (once approved) together with the Approved Proposal (Mining Area C- Southern Flank Proposal)
Approved Proposal	The works and activities for mining operations within the Mining Area C-Southern Flank comprising the Approved Proposal under the existing Ministerial Statements: 491 (as amended by 1072)
AUD	Australian Dollars
BC Act	<i>Biodiversity Conservation Act 2016</i>
BHP	BHP Iron Ore Pty Ltd
CEO	Chief Executive Officer
Combined Proposal	The combination of the Significant Amendment together with the Approved Proposal.
CPI	Consumer Price Index
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DWER	Department of Water and Environmental Regulation
ECW	Enhanced Compressed Wavelet
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESRI	Environmental Systems Research Institution
GDA2020	Geocentric Datum of Australia 2020
GeoTIFF	Geographic Tagged Image File Format
GDV	Groundwater Dependent Vegetation
GST	Goods and Services Tax
ha	Hectares
IBRA	Interim Biogeographic Regionalisation for Australia
the Instructions	<i>Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports (EPA 2021)</i>
IRP	Impact Reconciliation Procedure
IRR	Impact Reconciliation Report
m	metres

Term	Meaning
Mining Area C- Southern Flank Significant Amendment (the Proposal)	The works and activities for which approval is sought (i.e. the Significant Amendment to the Approved Proposal)
MRF	Mining Rehabilitation Fund
MS	Ministerial Statement
NVCP	Native Vegetation Clearing Permit
PEOF	Pilbara Environmental Offsets Fund
Significant Amendment	An amendment to an Approved Proposal that is significant according to the definition in the <i>Environmental Protection Act 1986</i> and requires referral under s38 (i.e the Proposal)
WAIO	BHP Western Australia Iron Ore

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1 The Proposal and condition requirements

1.1 The Proposal

This Impact Reconciliation Procedure (IRP) has been prepared by BHP Iron Ore Pty Ltd (BHP) to meet the requirements under Part IV of the *Environmental Protection Act 1986 (WA)* (EP Act) for the Central Pilbara Hub Surplus Water Stage 1 Proposal (Proposal) (BHP 2024), which BHP aims to refer to the Environmental Protection Authority as a Significant Amendment to the existing Mining Area C - South Flank (MAC-SF) mine hub, approved under Ministerial Statement (MS) 1072 (Approved Proposal). The Proposal and the existing approved MAC-SF mine are referred to as the Amended Proposal in this document. The IRP has been developed in accordance with the *Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports* (Environmental Protection Authority [EPA] 2024) (the Instructions).

The approval of the Proposal will result in a single Ministerial Statement (MS) for the Amended Proposal (i.e. the combination of the Approved Proposal and the Proposal [once approved]; MSXXXX), and will authorise clearing of up to 22,900 hectares (ha) of native vegetation within the Development Envelope (

Figure 1).

This IRP will apply to the Amended Proposal. Clearing associated with the Approved Proposal will continue to be covered under the endorsed BHP Western Australia Iron Ore (WAIO) *Impact Reconciliation Procedure* (V1.0) (WAIO IRP) (BHP 2023) until the new Ministerial Statement for the Amended Proposal is granted (at which time clearing will then be covered under this IRP).

The purpose of this IRP is to outline the methods used to calculate the area of vegetation or environmental value/s impacted within the Hamersley Interim Biogeographic Regionalisation for Australia (IBRA) subregions of the Pilbara bioregion (Figure 2), in relation to the combination of the Proposal together with the Approved Proposal (Combined Proposal).

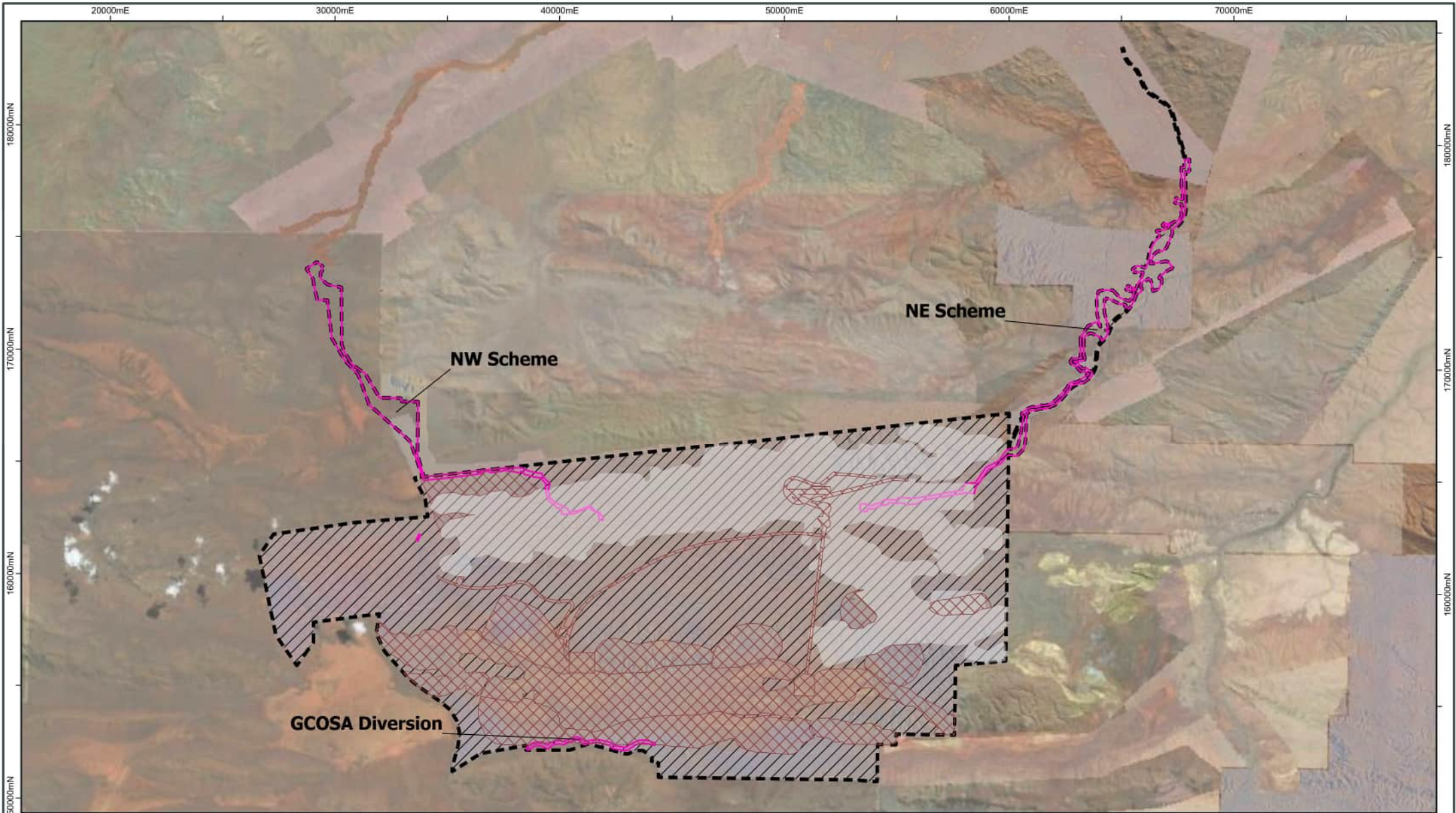
1.2 Ministerial Statement condition requirements

BHP is required to implement the IRP as per **Condition B6-5** of MSXXX (Table 1).

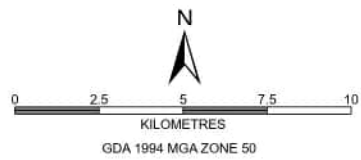
The relevant condition requirements for **Condition B6** of MSXXX are provided in Appendix 1.

Table 1: MSXXX Condition B6 Offsets

Ministerial Statement	Title	Condition number
XXXX	Mining Area C Southern Flank Amended Proposal	B6 Offsets B6-1 to B6-12



- Proposed Development Envelope
- Indicative Footprint
- Approved Development Envelope
- EMP Rev6 Area
- Additional Impact Assessment Area

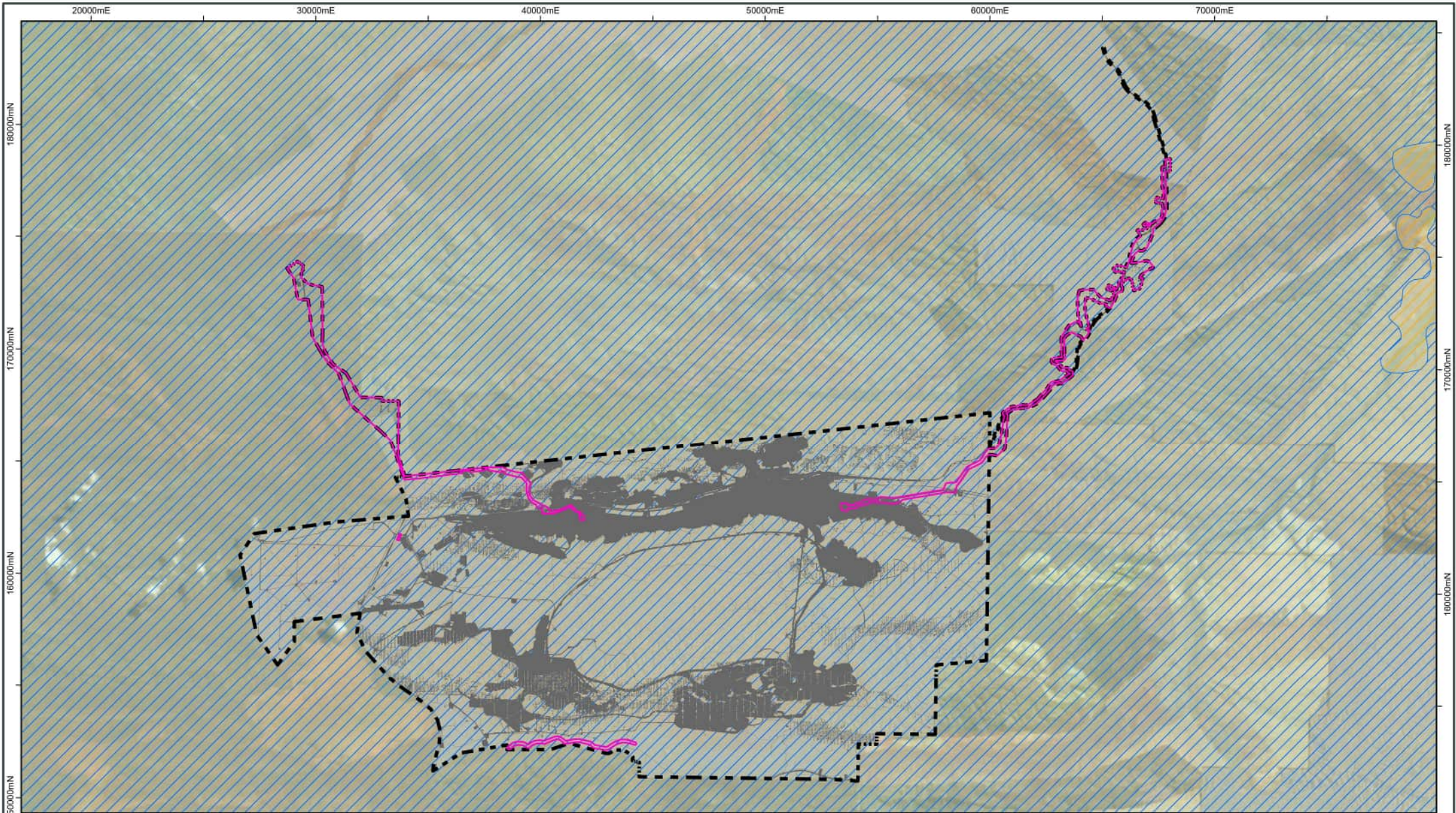


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**MINING AREA C-SOUTH FLANK
IMPACT RECONCILIATION PROCEDURE
APPROVED DEVELOPMENT ENVELOPE,
PROPOSED DEVELOPMENT ENVELOPE
AND INDICATIVE FOOTPRINT**

WAO PLANNING, TECHNICAL AND ENVIRONMENT

SCALE @ A3:	1:225,000	REQUESTOR:	ENVIRONMENT	FIGURE:	1
DATE:	19/02/2025	PREPARED:	GEOMATICS	NO:	A1285-086 RevA
		REVIEWED:			



- Indicative Footprint
- Development Envelope
- Existing Disturbance

- Interim Biogeographic Regionalisation For Australia (IBRA) V7 - Regions**
- Pilbara
- Interim Biogeographic Regionalisation For Australia (IBRA) V7 - SubRegions**
- Fortescue
 - Hamersley



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**MINING AREA C-SOUTH FLANK
IMPACT RECONCILIATION PROCEDURE
IBRA BIOREGIONS AND SUBREGIONS**

WAIO PLANNING, TECHNICAL AND ENVIRONMENT

SCALE @ A3:	1:225,000	REQUESTOR:	ENVIRONMENT	FIGURE:	2
DATE:	19/02/2025	PREPARED:	GEOMATICS	NO:	A1285-087_RevA
		REVIEWED:			

2 Procedure

2.1 Identification of the environmental values requiring offsets

The environmental values required to be offset have been identified through the environmental impact assessment for the Proposal and the Combined Proposal, and by Condition B6-1 of MSXXXX (Appendix 1)

BHP will contribute to the Pilbara Environmental Offsets Fund (PEOF) biennially, with the amount to be contributed calculated in accordance with the rates in Condition B6-3 of MSXXXX (Appendix 1).

Table 2: Environmental values that require offset and the contribution rate under MSXXXX Condition B6

Environmental value/s	Contribution rate		
	Condition	IBRA Subregion	Offset rate (\$/ha) ¹
Good to Excellent condition Native vegetation	B6-3 (1)(a)	Hamersley	945
Riparian vegetation ² (including groundwater dependent vegetation)	B6-3(2)(a)	Hamersley	1,891
Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) critical habitat	B6-3(2)(b)	Hamersley	1,891
Ghost Bat (<i>Macroderma gigas</i>) critical habitat	B6-3 (2)(c)	Hamersley	1,891
Northern Quoll (<i>Dasyurus hallucatus</i>) supporting habitat	B6-3(2)(d)	Hamersley	1,891
Grey Falcon (<i>Falco hypoleucos</i>) supporting habitat	B-3(2)(e)	Hamersley	1,891
Northern Quoll (<i>Dasyurus hallucatus</i>) supporting habitat	B6-3(3)(a)	Hamersley	945
Pilbara Leaf-nosed Bat (<i>Rhinonicteris aurantius</i>) supporting habitat	B6-3(3)(b)	Hamersley	945
Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) supporting habitat	B6-3(3)(c)	Hamersley	945
Grey Falcon (<i>Falco hypoleucos</i>) supporting habitat	B6-3(3)(d)	Hamersley	945

1. Based on FY22/23 financial offset rates, to be indexed annually in accordance with the Perth - All Groups Consumer Index.

2. Riparian vegetation means the distinctive vegetation associated with a wetland or watercourse, as defined in DWER's *A guide to the exemptions and regulations for clearing native vegetation* (Department of Water and Environmental Regulation [DWER] 2019).

Following the assessment of the significance of residual, BHP concluded that offsets are required for the following significant residual impacts for the Proposal:

- Clearing of up to 1,043 ha of native vegetation in Good to Excellent condition (in the Pilbara IBRA region)
- Clearing of up to 60 ha of riparian vegetation (locally significant vegetation)

- Potential decline or death of Eucalypt trees within 162 ha of vegetation impacted by groundwater mounding for the Northern RAV MAR scheme
- clearing of up to 809 ha of critical foraging habitat¹ for significant fauna, including Ghost Bat, Northern Quoll, Pilbara Olive Python, Pilbara Leaf Nosed Bat, and Grey Falcon
- clearing of up to 1,045 ha of supporting habitat for Northern Quoll, Pilbara Olive Python, Pilbara Leaf Nosed Bat, and Grey Falcon

Figure 3: Vegetation Condition shows the areas of Good to Excellent condition vegetation within the Pilbara IBRA bioregion and subregions and the likely areas of significant residual impact (i.e. the proposed clearing within the Indicative Footprint).

The environmental value of Good to Excellent condition vegetation that is required to be offset has been calculated based on the Amended Proposal (although the impacts associated with the Approved Proposal have been limited to the remaining areas to be cleared as authorised). This is in line with condition 10-1 of MS 1072. Condition 10-1 does not apply to the 5,564 hectares of clearing of native vegetation previously authorised under MS 491, however it does apply to the remaining 16,260 ha for the Approved Proposal.

The areas required to be offset for the environmental values of critical foraging and supporting habitat for significant fauna species as well as riparian vegetation have been calculated based on the Proposal, as these are not identified in Condition 10 of MS 1072.

A total of 6,882 ha of native vegetation in Good to Excellent condition has been identified in the Combined Proposal Development Envelope as residual impact requiring offset (Table 3). An additional 162 ha of Good to Excellent Vegetation has been identified as potentially requiring offset should vegetation be impacted by groundwater mounding of the Northern RAV MAR scheme.

Critical habitat for the Ghost Bat Pilbara Olive Python, Northern Quoll and Grey Falcon within the Development Envelope has been identified as Stony Plain, Minor Drainage Line, Medium Drainage Line, Breakaway/Cliff, Wetland, Sandy/Stony Plain, Gorge/Gully, Major Drainage Line, Drainage Area/Floodplain and Mulga Woodland. Figure 4 shows these habitats within the Development Envelope and the likely areas of impact (i.e. the proposed clearing within the Indicative Footprint).

A total of 9,307 ha of critical habitat for Ghost Bat has been identified in the Approved Proposal as residual impact requiring offset.

Different offset payment rates apply depending on the value impacted, with higher payment rates required for critical habitat for listed threatened species. Table 3 and Figure 5 indicate Area A which refers to the lower payment rate (\$946/ha) and Area B which refers to the higher payment rate (\$1,891/ha). To avoid duplication of offsets, the extent of residual impact to be offset for clearing of native vegetation in Good to Excellent condition will be excluded where there is an overlap in extent to be offset for critical foraging habitat (where the habitats align to vegetation that is in Good to Excellent condition).

As a result, the total extent requiring offset for the Amended Proposal (once approved) is 17,178 ha. The extent of impacts to the environmental values to be offset are summarised in Table 3.

¹ Critical fauna habitats for the different species partially overlap and therefore, to avoid duplication of offsets, where values overlap, they are accounted for once, not multiple times.

Table 3: Extents of environmental values to be offset under MSXXXX Condition B10

Significant residual impact	Values	Approved Proposal significant residual impact (ha)	Proposal significant residual impact (ha)	Combined Proposal significant residual impact (ha)	Combined extent to be offset (ha)
<p>Area A</p> <p>Clearing of native vegetation in Good to Excellent condition</p> <p>Clearing of supporting habitat for Pilbara Olive Python, Northern Quoll, Pilbara Leaf-nosed Bat and Grey Falcon</p>	<p>Vegetation in Good to Excellent condition in Indicative Footprint</p> <p>Stony Plain, Minor Drainage Line, Breakaway /Cliff, Wetland, Gorge/Gully, Major Drainage Line, Hillcrest/Hillslope, Drainage Area/Floodplain.</p>	6,635	247	6,882	6,882 ¹
<p>Potentially clearing of additional 'Good to Excellent' vegetation associated with the Proposal if vegetation decline or death occurs of Eucalyptus trees within 162 ha of vegetation impacted by groundwater mounding for the Northern RAV MAR scheme</p>	<p><i>Eucalyptus xerothermica</i>, <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Eucalyptus victrix</i> trees occurring within 'Good to Excellent' vegetation.</p>	n/a	162	162	162
<p>Area B</p> <p>Clearing of critical foraging habitat for Ghost Bat, Pilbara olive python, Pilbara leaf-nosed bat and Grey Falcon</p> <p>Clearing of riparian vegetation (including groundwater dependent vegetation)</p>	<p>Stony Plain, Minor Drainage Line, Breakaway/ Cliff, Wetland, Gorge/ Gully, Major Drainage Line, Drainage Area/ Floodplain</p> <p>Riparian vegetation (including groundwater dependent vegetation)</p>	9,307	827	10,134	10,134
Total extent to be offset					17,178

- This clearing extent excludes the 5,564 ha of clearing of native vegetation previously authorised MS 491, and as detailed by condition 10-10 of MS 1072.
- The extent to be offset has removed areas where vegetation and/or habitat overlap.

Note: The total extent to be offset may vary as the Approved Proposal under MS 491 as amended by MS 1072 has an indicative footprint, authorising a clearing limit within the 21, 824 ha Development Envelope. Only vegetation of Good to Excellent condition attracts an offset and as such vegetation cleared of lesser quality will not be included in the amount to be offset.

2.1.1 Baseline survey information

The baseline biological survey information that establishes the extent and condition of the environmental values, is described below and further in Appendix 2.

Native vegetation in Good to Excellent condition

Vegetation condition mapping for the majority of the Development Envelope is based on the survey data from the most recent consolidated vegetation association and condition mapping for the area (Onshore 2014). Some other parts of the Development Envelope have been mapped more recently by nearby intersecting surveys (Astron 2019, Onshore 2020, Biologic 2019a), as well as (Biologic 2023a) which mapped the majority of the Proposal in 2021 to 2022. Recent mapping has been used in place of the consolidated mapping at these locations. Due to survey area misalignment with lease boundaries, some of the vegetation association mapping around the edges of the Development Envelope is unmapped or has been sourced from previous surveys (Astron 2010, Onshore 2011). Collectively, these areas account for <0.1% of the Development Envelope.

Of the 21,824 ha of clearing authorised for the Approved Proposal, up to 6,635 ha of native vegetation is in Good to Excellent condition and will require offset (Table 3). The Proposal seeks an additional 1,040 ha of clearing of Good to Excellent condition vegetation which will require further offset.

The vegetation condition data was mapped spatially and is stored in an internal spatial database. The internal spatial database also contains the IBRA subregion spatial dataset as defined by the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW), as required by the Instructions.

Critical foraging habitat

Based on recent and historical surveys, a total of 15 vertebrate fauna habitat types have been described and mapped within the Development Envelope (Biologic 2018, 2019b, 2023b; Biota 2022; and Astron 2023). Twelve of the 15 mapped habitat types occur within the Indicative Footprint including Stony Plain, Minor Drainage Line, Medium Drainage Line, Breakaway/ Cliff, Artificial Wetland, Sandy/Stony Plain, Sand Plain, Gorge/ Gully, Major Drainage Line, Mulga Woodland and Drainage Area/ Floodplain. Cleared/ Disturbed areas also occur throughout the proposed Development Envelope but provide little to no value for terrestrial fauna.

Nine of these habitats have been identified as critical habitat for threatened fauna species including the Pilbara Olive Python, Ghost Bat, Northern Quoll, Pilbara Leaf-nosed Bat and Grey Falcon. There are 64 suitable Ghost Bat caves within the Development Envelope. Critical foraging habitat for these species includes Sandy/Stony Plain, Breakaway Cliff Minor Drainage Line, Gorge/Gully, Mulga Woodland Major Drainage Line, Medium Drainage Line, Stony Plain and Drainage Area/Floodplain (Figure 4).

Based on the Indicative Footprint of the Proposal, the total extent of clearing of critical foraging habitat for Pilbara Olive Python, Ghost Bat, Northern Quoll, Pilbara Leaf-nosed Bat and Grey Falcon will be up to 808 ha within the Hamersley IBRA subregion and will require offset (Table 3). The Approved Proposal p

Supporting habitat

The Sandy/Stony Plain, Breakaway Cliff, Undulating Low Hills, Minor Drainage Line, Gorge/Gully, Mulga Woodland, Major Drainage Line, Medium Drainage Line, Stony Plain and Drainage Area/Floodplain within the Indicative Footprint also represent supporting habitat for threatened fauna including Ghost Bat, Northern Quoll, Pilbara Leaf-nosed Bat, Pilbara Olive Python and Grey Falcon (Astron 2023). The critical and supporting habitats overlap, as do the requirements of each threatened fauna species. Based on the Indicative Footprint, the total extent of clearing of supporting habitat will be up to 247 ha within the Hamersley IBRA subregion and will require offset (Table 3). However, given that these same 11 fauna habitat types also represent critical habitat, it is proposed to only offset these values once (Table 3).

Riparian Vegetation

A total of 19 riparian² vegetation associations are mapped within the Development Envelope, eight were rated low-high for groundwater dependence and 11 were rated as negligible (Biologic 2023a).

The Proposal will clear up to 60 ha of riparian vegetation. These vegetation associations potentially represent 'ecosystems at risk' as described by DBCA, and five of these also have the potential to contain Groundwater Dependent Vegetation (GDV).

The clearing of 60 ha of locally significant riparian vegetation is considered to be a significant residual impact and requires an offset to ensure the EPA's objective for Flora and Vegetation can be met (Table 3).

Offset exemptions

This IRP applies only to clearing within the Development Envelope authorised under MS 1072 as amended (once approved) by the new MS for the Amended Proposal. The only IBRA subregion intersected by the Development Envelope is the Hamersley subregion of the Pilbara bioregion, and therefore impacts to environmental values for the purpose of offsets only apply to the Hamersley subregion (Figure 2).

As discussed under Section 2.1, the Proposal identified the clearing of critical foraging habitat for Ghost Bat, Pilbara Olive Python, Northern Quoll and Grey Falcon as a significant residual impact requiring offset. This offset requirement only applies to clearing approved as part of the Proposal and not clearing approved under the Approved Proposal.

It is noted that some of the authorised clearing within the Approved Proposal is exempt from offsets. Table 4 summarises the offset exemptions that will apply to MSXXXX.

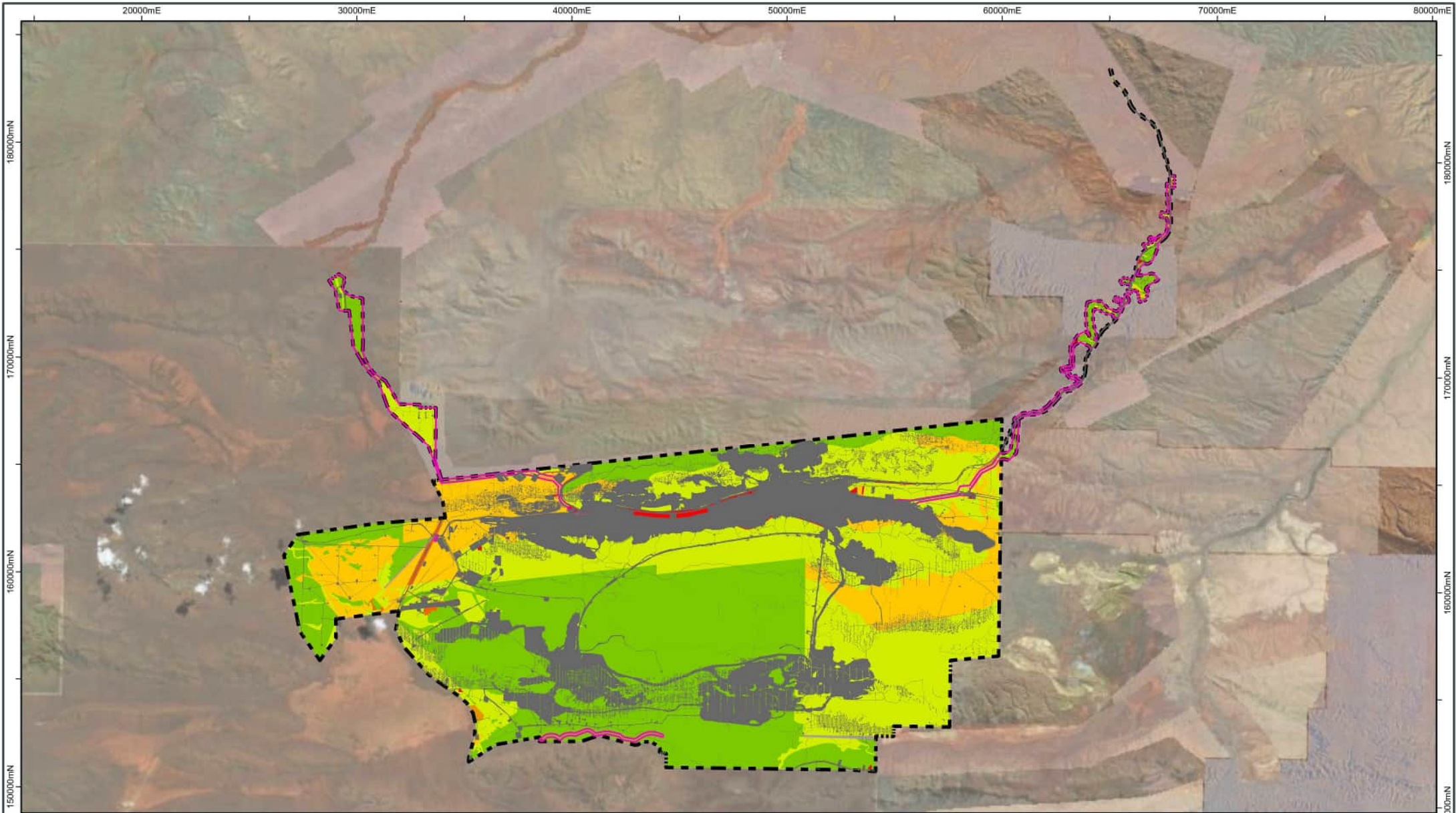
BHP notes that the Instructions require the offset exemption areas to be accurately documented and clearly delineated from those areas subject to offsets that are addressed in this IRP. It is important to note that in practice for Ministerial Statements, there is no spatial definition (i.e. a polygon) of the exempt areas; clearing is authorised anywhere within the Development Envelope and while unlikely, may not necessarily align with the Indicative Footprint provided during the assessment of a proposal.

Table 4: Clearing exempt from offsets under MSXXXX Condition B6

Condition	Condition requirement	Exemption area (ha)
B6-12	The clearing of 5,564 ha of native vegetation previously authorised under MS 491 is exempt from the requirement to offset under condition B6-1.	5,564

The Approved Proposal comprises existing mining operations and therefore, a large portion of these exemption amounts have been met. Specifically, 5,564ha of clearing has already taken place attributed to the exemption area for Condition B6-12. These areas have been tracked under the WAIO IRP.

² Riparian vegetation means the distinctive vegetation associated with a wetland or watercourse, as defined in DWER's A guide to the exemptions and regulations for clearing native vegetation (Department of Water and Environmental Regulation [DWER] 2019).



- Indicative Footprint
- Development Envelope
- Existing Disturbance

- Vegetation Condition**
- Completely Degraded
 - Degraded
 - Poor
 - Good
 - Very Good
 - Excellent

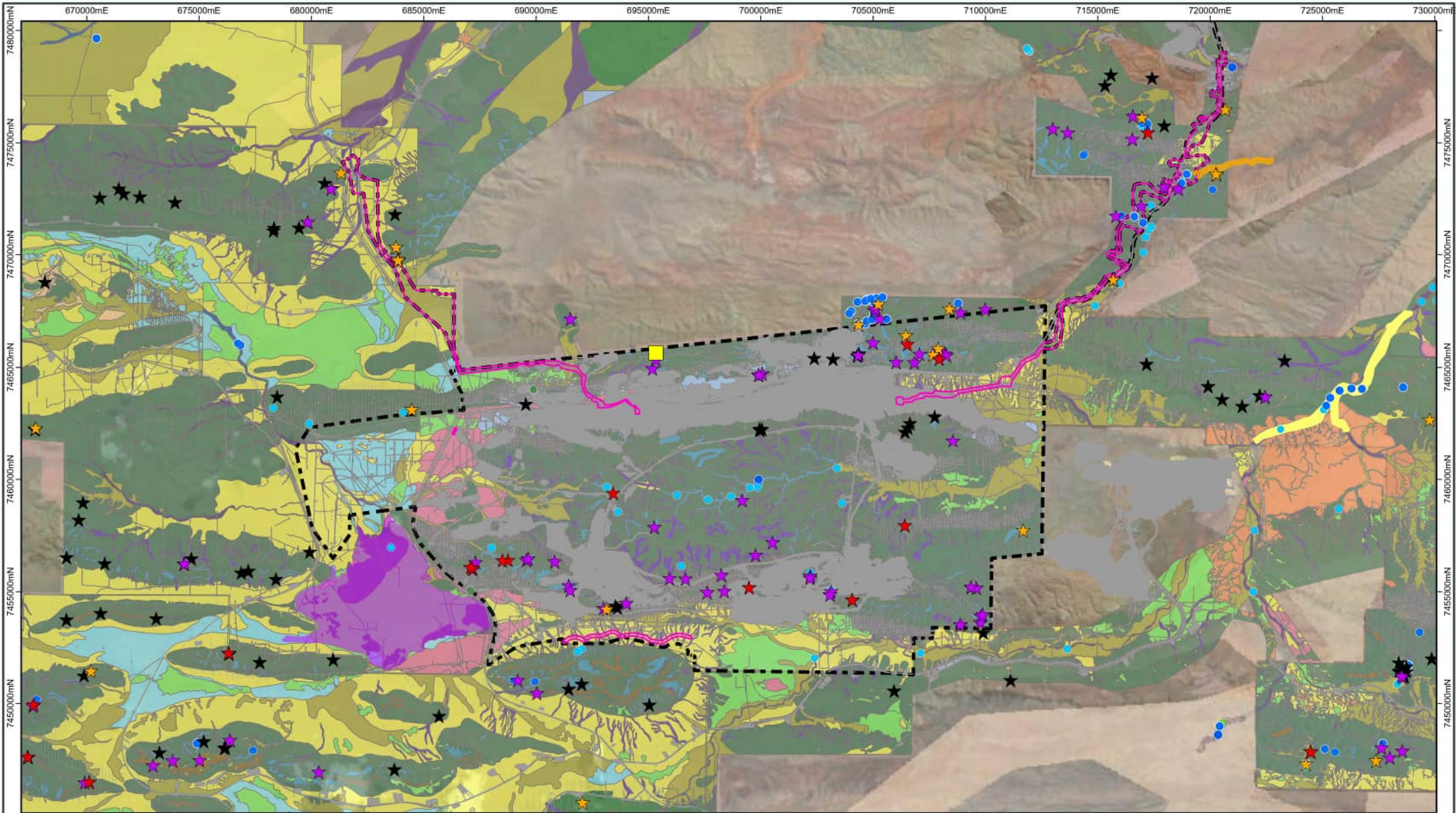


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MINING AREA C-SOUTH FLANK IMPACT RECONCILIATION PROCEDURE VEGETATION CONDITION

WAO PLANNING, TECHNICAL AND ENVIRONMENT

SCALE @ A3:	1:235,000	REQUESTOR:	ENVIRONMENT	FIGURE:	3
DATE:	19/02/2025	PREPARED:	GEOMATICS	NO:	A1285-088_RevA
		REVIEWED:			

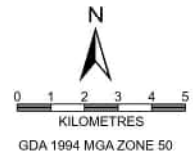


- Indicative Footprint
- Development_Envelope
- Existing Disturbance
- Coondewanna Flats
- Weeli Wollli Spring
- Ben's Oasis
- Yandicoogina Gorge

- Bat Cave Category**
- Artificial Roost
 - ★ Category 2
 - ★ Category 3
 - ★ Category 4
 - ★ Category TBC
- Water Feature Type**
- Dam
 - Waterhole
 - Water Feature

- Habitat Type**
- Basalt Outcrops
 - Breakaway/ Cliff
 - Calcrete Plain
 - Cleared
 - Drainage Area/ Floodplain
 - Gilgai Plain
 - Gorge/ Gully
 - Hardpan Plain
 - Hillcrest/ Hillslope

- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Rehabilitated Area
- Sand Plain
- Stony Plain
- Undulating Low Hills
- Wetland

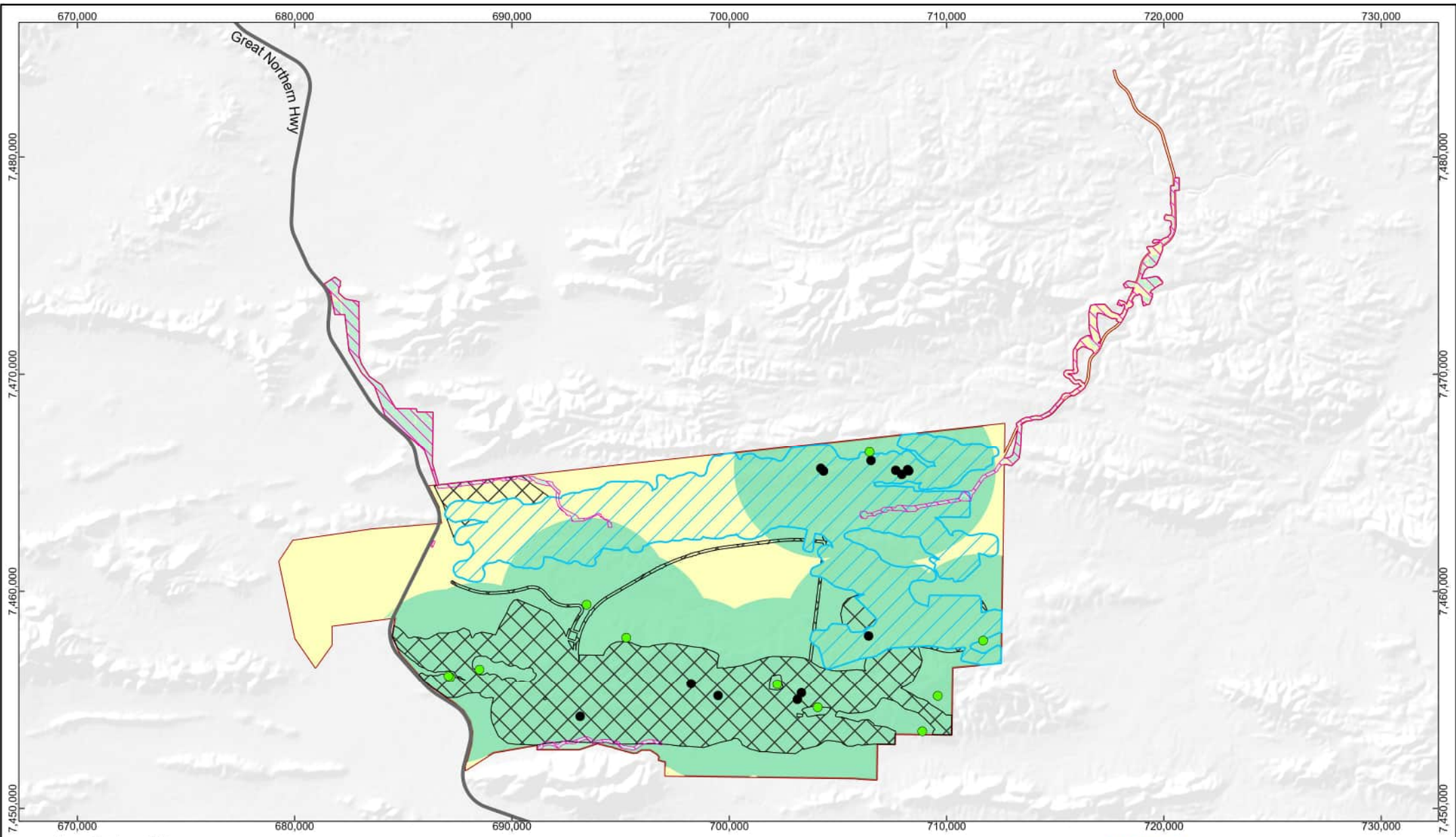


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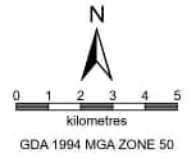
**MINING AREA C-SOUTH FLANK
IMPACT RECONCILIATION PROCEDURE
FAUNA HABITAT TYPES AND
HABITAT FEATURES**

WAIO PLANNING, TECHNICAL AND ENVIRONMENT

SCALE @ A3: 1:225,000 REQUESTOR: ENVIRONMENT FIGURE: 4
 DATE: 19/02/2025 PREPARED: GEOMATICS
 REVIEWED: NO: A1285-089_RevA



- Great Northern Highway
- High Value Ghost Bat Caves
- Retained High Value Ghost Bat Caves
- ▨ Ministerial Statement 491 (exempt from offsets)
- Area A
- Area B
- ▭ Development Envelope
- ▨ Approved Proposal Indicative Footprint
- ▨ Proposal Indicative Footprint



BHP **PUBLIC**

**MINING AREA C-SOUTHERN FLANK
IMPACT RECONCILIATION PROCEDURE**

'Good' to 'Excellent' condition native vegetation
(Area A) and Ghost Bat Foraging Habitat (Area B)

WAIO PLANNING, TECHNICAL AND ENVIRONMENT

SCALE @ A4: 1:235,000 PREPARED: GEOMATICS FIGURE: 5

DATE: 19/02/2025 REQUESTOR: ENV APPROVALS

A1285_090_RevA

2.2 Method to determine impacts

As discussed in Section 2.1, flora and vegetation surveying (including vegetation condition assessment and mapping) and vertebrate fauna surveying (including identification and mapping of fauna habitats for threatened fauna species) of the Development Envelope were undertaken in accordance with EPA Technical Guidance (EPA 2016, 2020). The vegetation condition and fauna habitat mapping completed during the surveys is considered to form the baseline state of the environmental values for this IRP (described further in Appendix 1).

The Approved Proposal comprises existing mining operations. As discussed in Section 1.1, clearing associated with the Approved Proposal will continue to be covered under and reported against the endorsed WAIO IRP (BHP 2023) until the new Ministerial Statement for the Amended Proposal is granted (following which clearing will then be covered under this IRP).

2.2.1 Impacts

BHP will use the methodology detailed in Steps 1-3 below to calculate the amount of land disturbance (i.e. clearing of native vegetation) within the Development Envelope. This will result in a verified Land Disturbance dataset that is used to determine the amount of clearing that is required to be offset against the environmental value/s (i.e. Step 4).

The verified Land Disturbance dataset is also used to update the baseline datasets for the condition of vegetation and state of environmental value/s that is to be used for the next financial year reconciliation.

This process will be repeated annually to determine the amount of clearing in each financial year, as is required to be reported in the Impact Reconciliation Report (IRR) (see Section 0).

Step 1 - Remotely Sensed data

BHP sources appropriate remotely sensed data (i.e. aerial photography or satellite imagery) for the area of the IRR. The remotely sensed data may come from a variety of sources and where appropriate, it will be mosaicked together. The mosaicked remotely sensed data is then re-sampled to 1 metre (m) resolution. This remotely sensed data set is used for the capture of the land clearing that is to be supplied as an end deliverable dataset.

Step 2 - Land Disturbance data

Direct land disturbance (i.e. clearing) is captured on a periodic basis throughout the financial year. The data is captured via digitising the land disturbance visible in the Remotely Sensed data, at a scale of 1:1,000. This scale is consistent with the precision of all BHP internal datasets. The data is ground-truthed by site surveyors in mining areas and geoscience technicians in resource definition drilling areas (where required).

All land disturbance data is then attributed with the reporting year, responsible operational entity, the underlying approval and the proposed or actual land-use (using the Department of Mines, Industry Regulation and Safety Mining Rehabilitation Fund (MRF) classifications). Where there are multiple approvals within the same area, the site responsible person is accountable for allocating the land disturbance to the appropriate approval.

Step 3 - Data review

Following the capture of the Land Disturbance data, the dataset is reviewed at the end of each financial year to ensure:

- all land disturbance activities for the financial year period have been identified
- accurate and clean boundaries (removal of overlaps and correction of anomalies)

- data attribute completeness and correctness.

As BHP captures land disturbance/clearing at a scale of 1:1,000 (i.e. +/- 0.5 m on the ground), 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.

Step 4 - Processing of environmental value/s datasets

BHP have developed a methodology which automates the process of combining Land Disturbance, IBRA subregions and environmental value/s (e.g. vegetation condition) datasets to ensure the process of deriving the final offset calculation is consistent and repeatable. The process manipulates the datasets (e.g. clips inputs to the project Development Envelope, cleans any overlaps) to match the requirements of the Instructions, resulting in a final area calculation.

3 Reporting

3.1 Frequency and timing

As discussed in Section 2.2, any clearing undertaken for the Approved Proposal will continue to be managed under the endorsed WAIO IRP until the new Ministerial Statement is granted for the Amended Proposal. The first biennial reporting period is expected to commence in FY2027. Table 5 documents the timing of the biennial reporting periods for the Amended Proposal to end of life.

As per the Instructions, the IRR will be submitted no later than four months after the conclusion of the biennial reporting period. As specified in Table 5, BHP propose to submit the IRR by the last day in September following the end of the reporting period.

Table 5: Reporting period and frequency of the Impact Reconciliation Reports

Biennial period	Action	Timing
	Ministerial Statement XXXX issued	TBC
	Proposal clearing commences under MSXXXX	Estimated to commence FY2027
Period 1	First biennial reporting period	1 July 2025 to 30 June 2027
	IRR submitted to DWER	By 30 September 2027
Period 2	Second biennial reporting period	1 July 2027 to 30 June 2029
	IRR submitted to DWER	By 30 September 2029
Period 3	Third biennial reporting period	1 July 2029 to 30 June 2031
	IRR submitted to DWER	By 30 September 2031
Period 4	Fourth biennial reporting period	1 July 2031 to 30 June 2033
	IRR submitted to DWER	By 30 September 2032
Period 5	Fifth biennial reporting period	1 July 2033 to 30 June 2035
	IRR submitted to DWER	By 30 September 2035
Period 6	Sixth biennial reporting period	1 July 2035 to 30 June 2037
	IRR submitted to DWER	By 30 September 2037
Period 7	Seventh biennial reporting period	1 July 2037 to 30 June 2039
	IRR submitted to DWER	By 30 September 2039
Period 8	Eighth biennial reporting period	1 July 2039 to 30 June 2041
	IRR submitted to DWER	By 30 September 2041

Biennial period	Action	Timing
Period 9	Ninth biennial reporting period	1 July 2041 to 30 June 2043
	IRR submitted to DWER	By 30 September 2043
Period 10	Tenth biennial reporting period	1 July 2043 to 30 June 2045
	IRR submitted to DWER	By 30 September 2045
Period 11	Eleventh biennial reporting period	1 July 2045 to 30 June 2047
	IRR submitted to DWER	By 30 September 2047
Period 12	Twelfth biennial reporting period	1 July 2047 to 30 June 2049
	IRR submitted to DWER	By 30 September 2049
Period 13	Thirteenth biennial reporting period	1 July 2049 to 30 June 2051
	IRR submitted to DWER	By 30 September 2051
Period 14	Fourteenth biennial reporting period	1 July 2051 to 30 June 2053
	IRR submitted to DWER	By 30 September 2053
Period 15	Fifteenth biennial reporting period	1 July 2053 to 30 June 2055
	IRR submitted to DWER	By 30 September 2055
Period 16	Sixteenth biennial reporting period	1 July 2055 to 30 June 2057
	IRR submitted to DWER	By 30 September 2057
Period 17	Seventeenth biennial reporting period	1 July 2057 to 30 June 2059
	IRR submitted to DWER	By 30 September 2059
Period 18	Eighteenth biennial reporting period	1 July 2061 to 30 June 2063
	IRR submitted to DWER	By 30 September 2063
Period 19	Nineteenth biennial reporting period	1 July 2063 to 30 June 2065
	IRR submitted to DWER	By 30 September 2065
Period 20	Twentieth biennial reporting period	1 July 2065 to 30 June 2067
	IRR submitted to DWER	By 30 September 2067
Period 21	Twenty first biennial reporting period	1 July 2067 to 30 June 2069

Biennial period	Action	Timing
	IRR submitted to DWER	By 30 September 2069
Period 22	Twenty second biennial reporting period	1 July 2071 to 30 June 2073
	IRR submitted to DWER	By 30 September 2073
Period 23	Twenty third biennial reporting period	1 July 2073 to 30 June 2075
	IRR submitted to DWER	By 30 September 2075

3.2 Impacts and reconciliation

Ground-disturbing activities will wholly occur within the Development Envelope. Clearing is ongoing for the existing operations authorised under the Approved Proposal, with new proposed clearing for the Proposal expected to commence in FY2025 once the new Ministerial Statement for the Amended Proposal is granted.

As discussed in Section 2.1, clearing of vegetation for the Amended Proposal will be up to 17,264 ha and includes clearing vegetation in Good to Excellent condition and critical foraging habitat for threatened fauna within the Hamersley IBRA subregion of the Pilbara bioregion. The Amended Proposal is estimated to have a maximum project life of approximately 49 years (comprising construction and mine operations), with no clearing expected to occur beyond 2073. As detailed in Section 2.2, the clearing of vegetation will be captured spatially and reconciled against the baseline data (for vegetation condition and fauna habitats) within the Development Envelope.

As per Condition B6-7 of MSXXXX, the IRR will provide the location and spatial extent of the clearing undertaken within each biennial reporting period. More specifically, the following information will be submitted in each IRR:

- amount of clearing (ha) of fauna habitats identified as critical foraging habitat for Pilbara Olive Python, Ghost Bat, Northern Quoll, and Grey Falcon, within the Hamersley IBRA subregion of the Pilbara bioregion that has occurred during each financial year of the reporting period, including the offset rate
- amount of clearing (ha) of riparian vegetation (including groundwater dependent vegetation), within the Hamersley IBRA subregion of the Pilbara bioregion that has occurred during each financial year of the reporting period, including the offset rate
- amount of clearing (ha) of vegetation in Good to Excellent condition, within the Hamersley IBRA subregion of the Pilbara bioregion that has occurred during each financial year of the reporting period, including the offset rate
- amount of clearing (ha) of supporting habitat for Ghost Bat, Northern Quoll, Pilbara Leaf-nosed Bat, Pilbara Olive Python and Grey Falcon, within the Hamersley IBRA subregion of the Pilbara bioregion that has occurred during each financial year of the reporting period, including the offset rate
- Potential clearing of additional 'Good to Excellent' vegetation associated with the Proposal if vegetation decline or death occurs of Eucalyptus trees within 248 ha of vegetation impacted by groundwater mounding for the Northern RAV MAR scheme.
- information used to validate amount of clearing (e.g. aerial imagery, remote sensing data, digitised polygons and/or ground-truthing surveys) in each financial year

- information regarding any exemptions, other clearing approvals or reductions to contributions to the fund (e.g. where impacts have occurred that are applied to a different Ministerial Statements or Native Vegetation Clearing Permits [NVCP])
- forward estimate of impacts expected to be reported in subsequent reporting periods
- details and spatial data for historical impacts excluded from offset requirements.

4 References

- Astron (2010) *Packsaddle West Vegetation and Flora Survey and Fauna Assessment March/April 2010*. Prepared for BHP Billiton Iron Ore Pty Ltd
- Astron. 2023. *Yandi 45C Targeted Significant Vertebrate Fauna Survey*. March 2024. Prepared for BHP Western Australian Iron Ore.
- Astron (2019) *Area C West to Yandi Flora and Vegetation Assessment*. Prepared for BHP WAIO. March, 2019
- Biologic. 2014. *Consolidated Fauna Habitat Mapping*. BHP Billiton Iron Ore Pilbara Tenure May 2014.
- Biologic Environmental Survey (Biologic) 2018. *Updated Consolidated Fauna Habitat Mapping*.
- Biologic. 2019a. *MAC4 Pipeline reconnaissance Flora and Vegetation Assessment*. Prepared for BHP Western Australian Iron Ore. March 2019
- Biologic. 2019b. *MAC 4 Pipeline Level 1 Vertebrate Fauna Assessment*. BHP Western Australian Iron Ore 8 March 2019.
- Biologic. 2023a. *Central Pilbara Hub Detailed and Targeted Flora Survey*. Prepared for BHP Western Australia Iron Ore. August 2023
- Biologic. 2023b. *CPH Targeted Matters of National Environmental Significance Vertebrate Fauna Survey*. Report to BHP WAIO.
- Biota. 2022. *MAC Phase 4 Marillana Creek Targeted MNES Fauna Survey*. Prepared for BHP WAIO.
- BHP. 2018. *Mining Area C Impact Reconciliation Procedure*. Version 1.0. Published February 2018.
- Department of Water and Environmental Regulation (DWER) 2019. *A guide to the exemptions and regulations for clearing native vegetation: Under Part V of the Environmental Protection Act 1986*. August 2019.
- Environmental Protection Authority (EPA) 2024. *Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports*. Environmental Protection Authority. Western Australia. Published March 2024.
- Onshore (2011) *Flora and Vegetation Survey Area C and Surrounds*. Prepared for BHP Billiton Iron Ore.
- Onshore Environmental (Onshore) (2014) *Consolidation of Regional Vegetation Mapping, BHP Billiton Iron Ore Pilbara Tenure*. Report prepared for BHP Billiton Iron Ore Pty Ltd, June 2014, Western Australia.
- Onshore Environmental (Onshore) 2020. *Ministers North and Yandi Vegetation Association and Condition Mapping*. Prepared for BHP Billiton Iron Ore, June 2020.

Appendix 1 Ministerial Statement **XXXX** Condition 6 requirements

Condition number	Condition requirements
B8 Offsets	
B6-1	<p>The proponent must contribute funds to the Pilbara Environmental Offsets Fund calculated pursuant to condition B6-2, to achieve the objective of counterbalancing the significant residual impacts by the proposal to:</p> <ol style="list-style-type: none"> (1) 'Good' to 'Excellent' condition native vegetation (2) Ghost Bat (<i>Macroderma gigas</i>) supporting habitat, Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) supporting habitat and Grey Falcon (<i>Falco hypoleucos</i>) supporting habitat, subject to any reduction approved by the CEO under condition B6-8.
B6-2	<p>The proponent's contribution to the Pilbara Environmental Offsets Fund must be paid biennially, with the amount to be contributed calculated based on the clearing of native vegetation undertaken in each year of the biennial reporting period in accordance with the rates in condition B6-3. The first biennial reporting period must commence from ground disturbing activities of the environmental value(s) identified in condition B8-1.</p>
B6-3	<p>Calculated on the 2024-2025 financial year, the contribution rates are:</p> <ol style="list-style-type: none"> (1) \$945 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion: <ol style="list-style-type: none"> (a) Good to Excellent condition native vegetation (2) \$1,891 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion: <ol style="list-style-type: none"> (a) Riparian Vegetation (3) \$1,891 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion: <ol style="list-style-type: none"> (a) Ghost Bat (<i>Macroderma gigas</i>) critical habitat (b) Grey Falcon (<i>Falco hypoleucos</i>) critical habitat (4) \$945 AUD (excluding GST) per ha of the following environmental values cleared as a result of the proposal within the Hamersley IBRA subregion: <ol style="list-style-type: none"> (a) Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) supporting habitat (b) Grey Falcon (<i>Falco hypoleucos</i>) supporting habitat
B6-4	<p>The rates in condition B6-3 change annually each subsequent financial year in accordance with the percentage change in CPI applicable to that financial year.</p>
B6-5	<p>To achieve the objective in condition B6-1 the proponent must prepare an Impact Reconciliation Procedure and submit to the CEO. This procedure must:</p> <ol style="list-style-type: none"> (1) spatially define the environmental value(s) identified in condition B6-1 (2) spatially define the areas where offsets required by condition B6-1 are to be exempt (3) include a methodology to calculate the amount of clearing undertaken during each year of the biennial reporting period for each of the environmental values identified in condition B6-3 (4) state that clearing calculation for the first biennial reporting period will commence from ground disturbing activities in accordance with condition B6-2 and end on the second 30 June following commencement of ground disturbing activities (5) state that clearing calculations for each subsequent biennial reporting period will commence on 1 July of the required reporting period, unless otherwise agreed by the CEO (6) indicate the timing and content of the Impact Reconciliation Reports; and

Condition number	Condition requirements
	(7) be prepared in accordance with <i>Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports</i> (or any subsequent revisions).
B6-6	The proponent must submit an Impact Reconciliation Report in accordance with the confirmed Impact Reconciliation Procedure in condition B6-5.
B6-7	The Impact Reconciliation Report required pursuant to condition B6-6 must provide the location and spatial extent of the clearing undertaken as a result of the proposal during each year of each biennial reporting period.
B6-8	The proponent may apply in writing and seek the written approval of the CEO to reduce all or part of the contribution payable under condition B6-2 where: <ul style="list-style-type: none"> (1) a payment has been made to satisfy a condition of an approval under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> in relation to the proposal; and (2) the payment is made for the purpose of counterbalancing impacts of the proposal on matters of national environmental significance.
B6-9	The CEO may grant approval to discount the amount payable under condition B6-2 if the CEO is satisfied that the payment will offset the significant residual impacts of the proposal.
B6-10	Condition C2 applies to the confirmed Impact Reconciliation Procedure required by condition B6-5 as if it were an environmental management plan.
B6-11	Failure to implement a confirmed Impact Reconciliation Procedure or submit an Impact Reconciliation Report as required by condition B6-6 represents a non-compliance with these conditions.
B6-12	The clearing of 4,050 ha of native vegetation previously authorised under Ministerial Statements 679 prior to 22 October 2015 is exempt from the requirement to offset under condition B6-1.

Appendix 2 Baseline spatial data associated with the environmental value requiring offset

Flora, vegetation and vertebrate fauna surveying of the Development Envelope was undertaken in accordance with the EPA Technical Guidance relevant at the time of surveying (EPA 2016, 2020). The flora and vegetation surveying included the assessment and mapping of vegetation condition. The condition of vegetation was mapped using the Vegetation Condition Scale for the Eremaean and Northern Botanical Provinces as per Table 2 in the EPA Technical Guidance (EPA 2016). The vertebrate fauna survey included the identification and mapping of fauna habitats, and an assessment of their importance to threatened fauna species that are known to occur in the Development Envelope.

All baseline environmental survey data captured during the surveys was supplied to BHP in accordance with BHP Data Standards (document SPR-IEN-EMS-015) (BHP 2020). The BHP Data Standards ensure a consistent and repeatable method of capturing environmental survey data. The survey data is stored on BHP's internal database system following review for technical and spatial accuracy.

This baseline environmental survey data and existing land disturbance data is considered to form the pre-clearing extent and baseline state (of vegetation condition and fauna habitats) for this IRP.

The following spatial data is provided to support this IRP, as per the Instructions:

- **boundary:** the Amended Proposal Development Envelope
- **baseline:** vegetation condition mapping (baseline survey data), fauna habitat mapping (baseline survey data), clearing/ land disturbance up to the date of the approval of the Amended Proposal, and IBRA subregions
- **imagery:** aerial imagery for the extent of the Development Envelope.

All spatial data is provided in a format that complies with the requirements of the Instructions, and as per the following parameters:

- **data type:** closed polygons for boundary and baseline data attributes as per Table 6 of the Instructions
- **format:** shapefiles or Environmental Systems Research Institution (ESRI) geodatabase format
- **coordinate system:** Geocentric Datum of Australia 2020 (GDA2020) datum, projected into the appropriate Map Grid of Australia zone
- **imagery:** Enhanced Compressed Wavelet (ECW) format or Geographic Tagged Image File Format (GeoTIFF), at a minimum 1 m resolution.