GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

Orebody 29/30/35 Significant Amendment

BHP Iron Ore Pty Ltd

Report 1798

1 December 2025

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the Orebody 29/30/35 Significant Amendment proposal by BHP Iron Ore Pty Ltd.

This assessment report is for the Western Australian Minister for Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA thinks fit.

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Chair
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Proposal

The Orebody 29/30/35 proposal is a significant amendment to Ministerial Statement (MS) 963 for expanding mining operations at the Orebody 29/30/35 to sustain existing iron ore operations.

The proposal is located approximately 7 kilometres (km) west-south-west of Newman in the Pilbara region of Western Australia (Figure 1). The proponent for the proposal is BHP Iron Ore Ltd. The proposal is within the Native Title Determination Areas of the Nyiyaparli People.

The significant amendment includes the expansion of operations at Orebody 29 and 30 (above and below the water table), the addition of a ramp at Orebody 35, additional overburden storage areas, construction and operation of a new pipeline to Ophthalmia Dam (surplus water), and an increase to groundwater abstraction and surplus water disposal limits.

Context

The proposal is located on the boundary between the Pilbara and Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) regions. The Hamersley subregion of the Pilbara bioregion dominates the development envelope, with the Augustus subregion of the Gascoyne bioregion occurring across the eastern extent of the pipeline portion of the development envelope. The proposal is located wholly within the Upper Fortescue River catchment (Whaleback Creek and Fortescue regional sub-catchments), which drains to the Fortescue Marsh.

The proposal is an iron ore mine included in the *Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972* (McCamey's State Agreement) tenure (M266SA) and the *Iron Ore (Mount Newman) Agreement Act 1964* (Newman State Agreement) tenure (ML244SA).

The proposal is located wholly within the Nyiyaparli Native Title determination area (WCD2018/008). The proponent has an ongoing relationship with the Nyiyaparli Traditional Owners which is formalised through a Comprehensive Agreement and associated registered Indigenous Land Use Agreement (ILUA).

Environmental Values

Inland waters, subterranean fauna, flora and vegetation, terrestrial fauna, greenhouse gas emissions (GHG) and social surroundings are the key environmental factors that may be impacted by the proposal.

Consultation

The Environmental Protection Authority (EPA) published the proponent's referral information for the proposal on its website for seven days public comment from 12 December 2024 to 18 December 2024 and received one submission. The EPA

considered the comment received during the public consultation period in its assessment. On 24 December 2024, the EPA decided to assess the proposal at the level Referral Information with additional information (no public review period).

Assessment of key environmental factors

The EPA has identified the key environmental factors (listed below) in the course of the assessment. For each factor, the EPA has assessed the residual impacts of the proposal on the environmental values and considered whether the environmental outcomes are likely to be consistent with the EPA environmental factor objectives.

As the proposal is a significant amendment to an existing proposal the EPA's assessment has been undertaken in the context of the existing proposal, having regard to the combined and cumulative effects on the environment. The EPA has also considered whether to inquire into the implementation conditions for the existing proposal.

Flora and Vegetation

Residual impact or risk to environmental value		Assessment finding or Environmental outcome
1.	Clearing of up to 116 ha of native vegetation of which 104 ha of is in 'Good' to 'Excellent' condition within the indicative footprint.	The clearing of 'Good' to 'Excellent' condition vegetation within and immediately adjacent to the Pilbara bioregion is significant in the context of biological diversity and ecological integrity, as it provides habitat for conservation significant flora and fauna species. The EPA advises that subject to limitations on clearing (condition A1-1 and B1-1), and recommended conditions requiring progressive rehabilitation (B6) and offsets (B8), the significant residual impact can be counterbalanced, so that the environmental outcome is likely to be consistent with the EPA's objective for flora and vegetation.
2.	Clearing of up to 1.23 ha of riparian vegetation and potential GDV	The clearing of riparian vegetation within the Pilbara bioregion is significant in the context of biological diversity and ecological integrity, as it provides habitat for conservation significant flora and fauna species. The EPA advises that subject to limitations on clearing, and recommended conditions requiring progressive rehabilitation and offsets, the significant residual impact can be counterbalanced, so that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.

3	The proposal will result in the loss of significant vegetation associations: • 0.16 ha of locally significant vegetation community CY • 2.44 ha of significant vegetation type FP • 0.04 ha of significant vegetation type SP.	The clearing of locally restricted and/or regionally significant vegetation associations CY, FP and SP represent less than 1% of the mapped extent found within the survey area. The clearing of these locally restricted vegetation associations is unlikely to represent a significant residual impact. The EPA advises that subject to limitations on clearing, and recommended conditions requiring progressive rehabilitation and offsets, the significant residual impact can be counterbalanced, so that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.
4.	Indirect impacts associated with the groundwater drawdown	The EPA advises that the potential indirect impacts to GDV beyond the development envelope represents a significant residual impact. The EPA considers that the residual impact requires recommended conditions B1-1(6) to ensure the outcome is likely to be consistent with the EPA's objective for flora and vegetation.

Terrestrial Fauna

Residual impact or risk to environmental value		Assessment finding or Environmental outcome (choose which one to use)
1.	Direct impact to the following habitat types that are of importance to threatened fauna: • 0.01 ha of breakaway/cliff habitat • 0.4 ha of hillcrest and hillslope habitat • 0.17 ha of major drainage line habitat • 0.05 ha of wetland habitat.	The EPA considers the loss of conservation significant fauna habitat is a residual impact. The EPA advises that with limits of clearing fauna habitat types, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna. Offsets are required to counterbalance the significant residual impacts to critical and supporting habitat for conservation significant fauna across the Pilbara bioregion.
2.	Impacts to SRE habitat and potential SREs identified within the indicative footprint.	The EPA considers that the proposal will directly impact on one specimen of a potential SRE, *Indolpium* sp. indet. Distribution of this species is unknown, and it may potentially be restricted to the indicative footprint and/or local area. The EPA advises that with the preparation of an *Indolpium* sp. indet. Research Plan

		and limits of clearing drainage area/floodplain habitat types, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna.

Subterranean Fauna

Residual impact or risk to environmental value		Assessment finding or Environmental outcome (choose which one to use)
1.	Direct loss of individuals or reduction in stygofauna habitat.	The proposal will result in the loss of subterranean fauna habitat as a result of proposal implementation. The EPA considered that the proposal is unlikely to have significant impacts on subterranean fauna from the reduction in habitat through mining and groundwater drawdown. The EPA considers that, subject to recommended condition A1-1 to limit groundwater abstraction, condition B3 to maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer to support the stygofauna habitat of the Ethel Gorge TEC; and no adverse impacts to the stygofauna assemblage in the Area 2 (northeast of OB29), as well as continuing to manage potential impacts in accordance with and updated EPWRMP and Water (PFAS) Management Plan, the environmental outcome is likely to be consistent with the EPA objectives.
2.	Direct loss of individuals or reduction in troglofauna habitat.	The proposal will result in the loss of subterranean fauna habitat as a result of proposal implementation. The EPA advises that due to habitat extending outside the impact areas the environmental outcome is likely to be consistent with the EPA objective for subterranean fauna.

Inland Waters

Residual impact or risk to environmental value		Assessment finding or Environmental outcome (choose which one to use)
1.	Groundwater drawdown abstraction.	The drawdown associated with groundwater abstraction for mine pit dewatering is not expected to impact significant environmental values or other nearby licensed bore users.

		The EPA advises that subject to recommended conditions to limit groundwater abstraction, maintaining groundwater level in Ethel Gorge aquifer and regulation by other DMAs, the environmental outcome is likely to be consistent with the EPA objective for inland waters.
2.	Groundwater Quality (Surplus water discharge to Ophthalmia Dam)	Surplus dewater discharge to Ophthalmia Dam has the potential to cause groundwater quality changes in Ethel Gorge aquifer that supports the Ethel Gorge TEC. The EPA advises that subject to recommended conditions to limit surplus water discharge and maintain water quality in the Ethel Gorge aquifer and Newman Water Reserve PDWSA and regulation by other DMAs, the environmental outcome is likely to be consistent with the EPA objective for inland waters.
3	Mine Pit Lakes (AMD)	The potential residual impacts relate to change to groundwater quality as a result of post-closure mine pit lakes. The EPA considers that, subject to the implementation of the EPA's recommended condition B7, requiring the implementation and revision of the MCP which ensure achievement of maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer and no disturbance to sensitive environmental or cultural heritage receptors from pits and waste rock with acid and/or metalliferous drainage and salinity potential. the proposal can be managed to meet the EPA objectives for the factor of inland waters.

Greenhouse Gas Emissions

Residual impact or risk to environmental value		Assessment finding or Environmental outcome (choose which one to use)
1.	Scope 1 emissions are expected to average 71,538 t CO_2-e per annum (up to a maximum of 156,838 t CO_2-e and reduce to net zero by 2050. There are no scope 2 emissions associated with this proposal.	The proponent has adopted avoidance and mitigation measures to reduce GHG emissions at commencement of the significant amendment. Scope 1 emissions from the significant amendment and combined proposal, except those associated with vegetation clearing, are covered by the Safeguard Mechanism. The EPA recognises that the Commonwealth Safeguard Mechanism

	Scope 3 GHG emissions are estimated to be at 9,787,488 tonnes CO_2-e per annum.	requires the proponent to take actions to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australian emissions reduction targets of 43% below 2005 level by 2030 and net zero by 2050 are achieved. GHG emissions associated with vegetation clearing are well below 100,000 t CO_2-e per annum (annual maximum (peak) of 1,282 t CO_2-e). The EPA notes that offsets are likely to meet trajectory and considers that the proponent has undertaken due diligence and proposed a range of short and long-term offset approaches. The EPA considers that the proponent has implemented measures to reduce scope 3 emissions, however considers that further opportunities are expected to arise. The EPA encourages the proponent to take all reasonable measures to reduce scope 3 emissions. The EPA considers that emissions reductions required under the Safeguard Mechanism represent the best and most practicable way to reduce the combined proposal's scope 1 GHG emissions, and therefore the likely environmental effects of the proposal can be mitigated to achieve consistency with the environmental factor for GHG emissions. The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism.

Social Surroundings

Residual impact or risk to environmental value		Assessment finding or Environmental outcome (choose which one to use)
1.	Direct impacts to Aboriginal cultural heritage values.	The EPA advises there is a risk of residual impacts to Aboriginal cultural heritage values associated with disturbance to heritage sites or features. The EPA advises that this residual impact should be subject to recommended condition B5-1 to ensure impacts to Aboriginal heritage sites are avoided unless consent is granted through another decision-making process in consultation with the Traditional Owners.

		The EPA considers that subject to regulation by other decision-making processes and the recommended conditions, the environmental outcome is likely to be consistent with the EPA objective for social surroundings.
2.	Loss of Aboriginal cultural heritage.	The EPA advises that there is a residual impact to Aboriginal cultural heritage through the loss of plants and animals of cultural significance and restriction of access to use of land and flora and vegetation for traditional activities within the development envelope. The EPA advises that this residual impact should be subject to conditions (recommended condition B5-1) to ensure access to the land and flora and vegetation used for cultural purposes subject to reasonable health and safety requirements. The EPA concludes that implementation of the recommended condition would ensure consistency with the EPA objective for social surroundings.
3.	Visual and landscape impacts to Aboriginal cultural heritage	The proposal would result in permanent changes to the landforms and general landscape. Waste rock landforms, pit voids and pit lakes would remain as permanent changes to the landscape. The EPA recommends condition B5-4 to ensure that final landforms are designed in consultation with the relevant Traditional Owners to minimise impacts to cultural values. The EPA concludes that implementation of the conditions would ensure consistency with the EPA objective for social surroundings.

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment. The EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the significant amendment:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions

- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986*.

The EPA has recommended that the proposal may be implemented subject to conditions recommended in Appendix A.

1 Proposal

The Orebody 29/30/35 Significant Amendment is part of the Mt Whaleback mining operations located 7 kilometres (km) west-south-west of Newman, in the Pilbara region of Western Australia (Figure 1). The proposal is within the Native Title Determination Areas of the Nyiyaparli People.

The proponent's Orebody 29, 30, and 35 Above Water table Mining Operations (approved proposal) was approved under, and are subject to, the *Iron Ore (Mount Newman) Agreement Act 1964*. The Orebody 29 above water table mining operations commenced in 1974 and further development of Orebody 29 was approved under a State Agreement Act Development Proposal in 1988. The Orebody 30 and Orebody 35 above water table mining operations were approved under a State Agreement Act Project Proposal in 1999. The Orebody 35 above water table mining operation was referred to the Environmental Protection Authority (EPA) in 2011 and the level of assessment was set at Not Assessed - Public Advice Given.

The proponent obtained approval to implement the Orebody 29, 30 and 35 Mining Below Water table (approved proposal) under the *Environmental Protection Act 1986* (EP Act) in March 2014. Ministerial Statement (MS) 963, issued on 18 March 2014, approved the extension for mining of the existing approved above water table Orebody 29, 30, and 35 mines, to below the water table and discharging excess dewatering from these three orebodies into Ophthalmia Dam. The approved proposal for the existing operations provides an approved disturbance footprint of 446 hectares (ha).

The proponent for the proposal is BHP Iron Ore Pty Ltd. The proponent referred the proposal to the EPA on 2 December 2024. The EPA published the proponent's referral information for the proposal on its website for seven days public comment from 12 December 2024 to 18 December 2024. On 24 December 2024, the EPA decided to assess the proposal at the level of Referral Information with additional information required.

The significant amendment includes the continuation and expansion of existing iron ore mining operations approved under MS 963 to continue the life of existing iron ore operations. The proposal is a significant amendment to the approved proposal and has been assessed taking into account the existing operations. A new consolidated Ministerial Statement will be published with conditions that supersede, consolidate and modernise the existing operations.

The EPA has assessed the residual impacts of the significant amendment by considering the expansions and changes which are now proposed in the context of the approved proposal. The EPA has also considered the combined impacts of the approved proposal and the significant amendment, and the cumulative impacts other proposals in the region. The EPA has not reassessed the approved proposal.

The elements of the proposal which have been subject to the EPA's assessment are included in Table 1.

Table 1: Proposal content document (BHP 2025a)

Proposal element	Location	Approved proposal	Significant amendment	Combined proposal
Physical elements				
Mine and associated infrastructure	Figure 2	456 ha Development Envelope	Additional of 890 ha	1,346 ha Development Envelope
		N/A[1]	Additional 116 ha	Clearing of up to 116 ha
Operational elements				
Groundwater abstraction for water supply and mine dewatering	Figure 2	Abstraction of up to 8 GL/a of groundwater for dewatering purposes (excluding potable supply).	Additional groundwater abstraction for mine pit dewatering of up to 16.5 GL/a	Abstraction of up to 24.5 GL/a
Surface water discharge - discharge to Ophthalmia Dam (surplus water management)	Figure 2	Surplus water to be discharged of up to 8 GL/a to Ophthalmia Dam.	Additional discharge of up to 12.8 GL/a	Discharge of up to 20.8 GL/a
Mine pits (Voids and Pit Lakes)	Figure 2	Not specified	No change	Option for open voids and formation of pit lakes
Greenhouse Gas Emissions				
Total emissions (t CO_{2-e} p/a	Scope 1 (including on-site electricity generation)		48,649 tCO_2-e per annum (2028)	Up to 119,091 tCO_2-e per annum (2028)
	Scope 3		12,988,954 tCO_2-e per annum (2043)	Up to 24,193,467 tCO_2-e per annum (2030)
Rehabilitation and closure				
Rehabilitate the site to create a safe, stable and non-polluting landscape consistent with the post-mining land use and to maintain environmental and cultural heritage values.				
Rehabilitation and closure activities will be carried out in accordance with approved Mine Closure Plan.				

[1] **Part V EP Act approved (Native Vegetation Clearing Permit (NVCP 5617/6)) authorised clearing of 2,010.3 ha of native vegetation within the NVCP boundary**

Proposal element	Location	Approved proposal	Significant amendment	Combined proposal
Other elements which will affect the extent of effects on the environment				
Proposal time	Maximum project life		Operational phase is estimated at 36 years (not including construction and closure implementation phase)	

Units and abbreviations
ha – hectare
GL/a – gigalitres per annum
m – metres
MAR – managed aquifer recharge

Proposal alternatives

Proposal alternatives were considered by the proponent during the assessment, which are discussed in section 2.4 of the ERD (BHP 2025b).

The proposal will use the proponent's existing and approved mine, transportation and processing elements at the Mt Whaleback mining operations. As a result, this will reduce the extent of proposal's disturbance footprint, with new disturbance required only within the development envelope for the OSAs, ramp and portions of the surplus water pipeline (Figure 2).

The addition of the overburden storage areas (OSAs) south of Orebody 29 will reduce the haul distance from that of the existing Orebody 35 OSA, thereby reducing GHG emissions and indirect impacts from dust emissions.

Furthermore, the proposed surplus water pipeline will be largely located within cleared and/or disturbed areas. In selecting the pipeline route, the proponent considered two potential alignment options for the pipeline route from Orebody 29/30/35 to Ophthalmia Dam. The selected pipeline route allows for the protection of environmental and heritage values, including recently identified heritage sites.

Proposal context

The proposal is located on the boundary between the Pilbara and Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) regions. The Hamersley subregion of the Pilbara bioregion dominates the development envelope, with the Augustus subregion of the Gascoyne bioregion occurring across the eastern extent of the pipeline portion of the development envelope.

The proposal is partially located within the Newman Water Reserve Priority 1 Public Drinking Water Source Area (PDWSA). The proposal is located wholly within the Upper Fortescue River catchment (Whaleback Creek and Fortescue regional sub-catchments), which drains northward into the Fortescue Marsh. Within the development envelope, Whaleback Creek flows in an easterly direction to its confluence with Fortescue River.

The proposal is located approximately 15 km west of Ophthalmia Dam. Ophthalmia Dam was commissioned in 1981 as a managed aquifer recharge (MAR) scheme to

maintain groundwater levels within the Ethel Gorge aquifer and support the Ophthalmia Borefield which provides potable water source for town water supply. The Ophthalmia Dam system maintains groundwater levels within the Ethel Gorge aquifer, maintaining the habitat for the Ethel Gorge threatened ecological community (TEC), as well as providing a location for managed discharge of surplus water from the proponent's operating mine sites, including the proposal, Western and Eastern Ridge, Jimblebar and Orebody 31.

Iron ore mining and pastoral activities are the main industries and land uses in the area surrounding the proposal. The significant amendment is located immediately south and southwest of the existing Mt Whaleback mining operations and north of the approved Western Ridge mine, with the Newman township occurring between the Whaleback and Orebody 29/30/35 operations. The nearest neighbouring third-party iron ore mining operations is Rio Tinto's Hope Downs 4 proposal, located approximately 30 km northwest of the proposal. The nearest national park or conservation reserve is Karijini National Park, located approximately 103 km northwest of the proposal.

The proposal is an iron ore mine on *Newman State Agreement (Iron Ore (Mount Newman) Agreement Act 1964* and *McCamey's State Agreement (Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972* tenure (ML248SA). Elements of the proposal outside the State Agreement tenure are supported by various tenures granted and managed under the *Mining Act 1978* (Mining Act) and *Land Administration Act 1997*.

The proposal is located entirely within the Nyiyaparli Native Title Determination Area (WCD2018/008), represented by the Karlka Nyiyaparli Aboriginal Corporation (KNAC).

The following terminology is used throughout this report:

- **significant amendment:** expansion of operations at Orebody 29 and 30 mine pits (including above and below the water table), construction of a ramp at Orebody 35, additional OSAs, construction and operation of a new pipeline to Ophthalmia Dam (surplus mine dewater discharge), and an increase to groundwater abstraction and surplus water disposal limits.
- **approved proposal;** Orebody 29, 30, and 35 Mining Below Water table mining approved under MS 963 on 18 March 2014 (Figure 3).
- **proposal:** the combination of the significant amendment with the approved proposal.
- **development envelope:** refers to the combined development envelope of the approved proposal and the significant amendment.
- **indicative footprint:** refers to the new areas to be directly disturbed for the significant amendment.

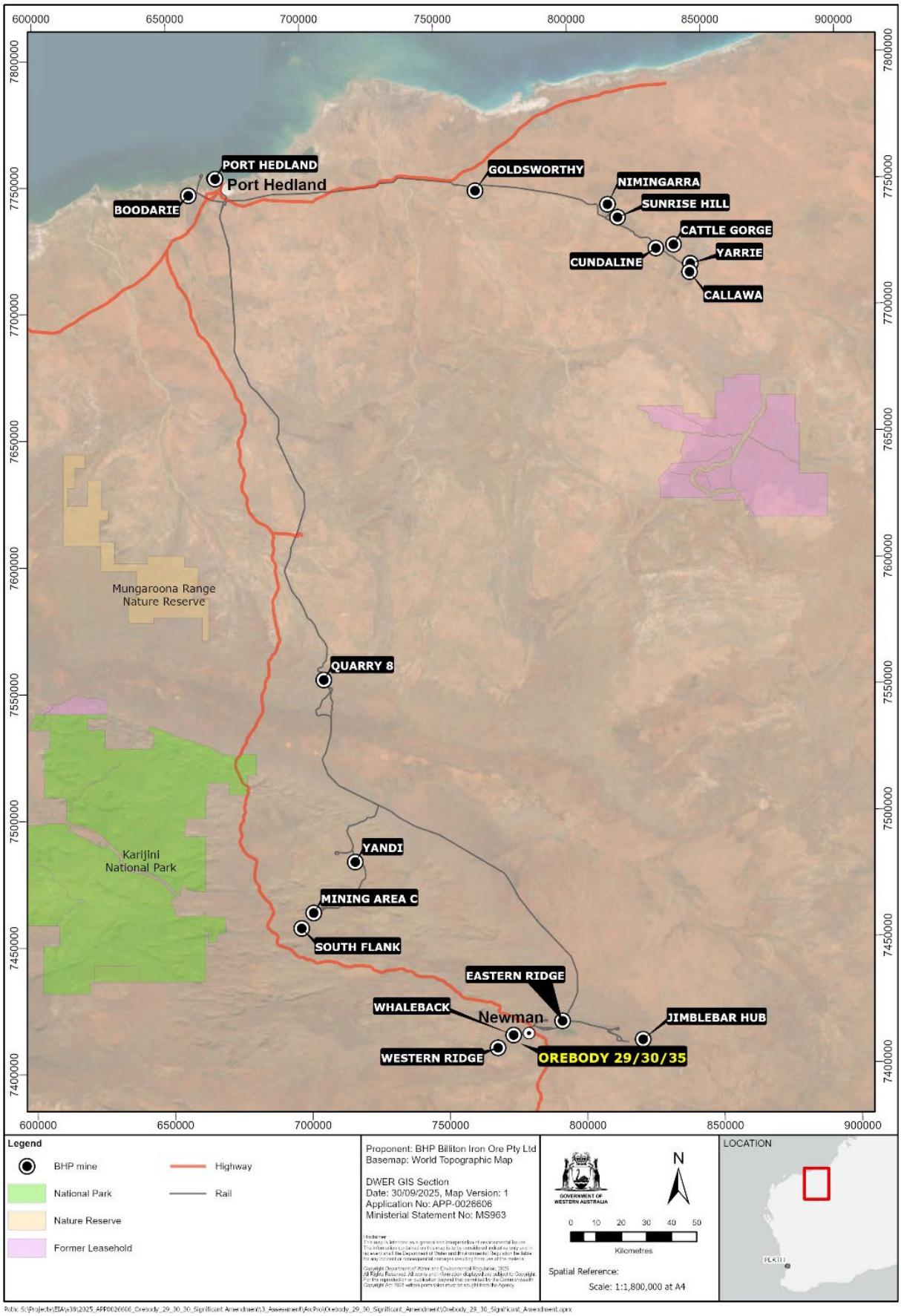

Figure 1: Orebody 29/30/35 project location

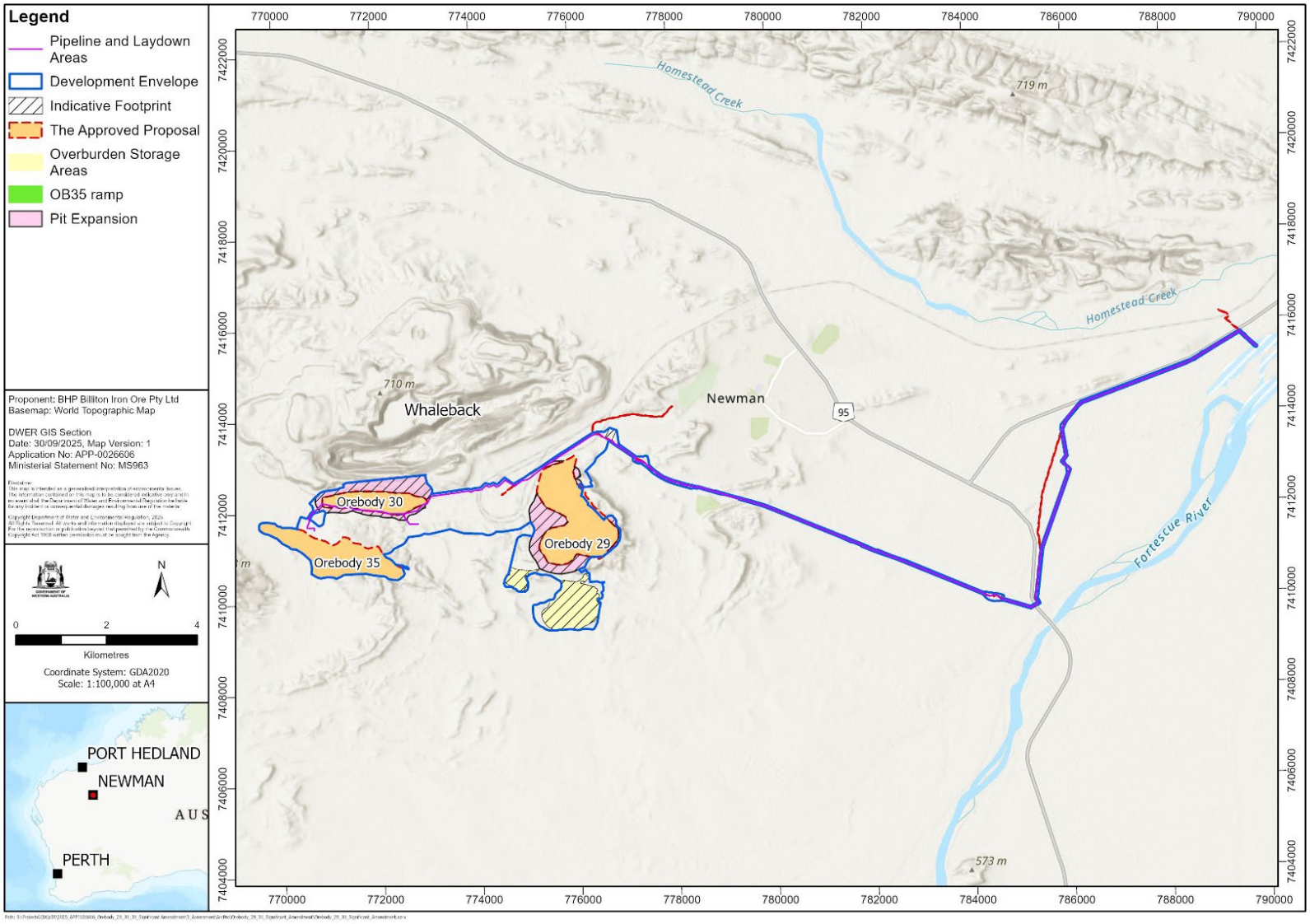

Figure 2: Orebody 29/30/35 Significant Amendment development envelope and indicative footprint

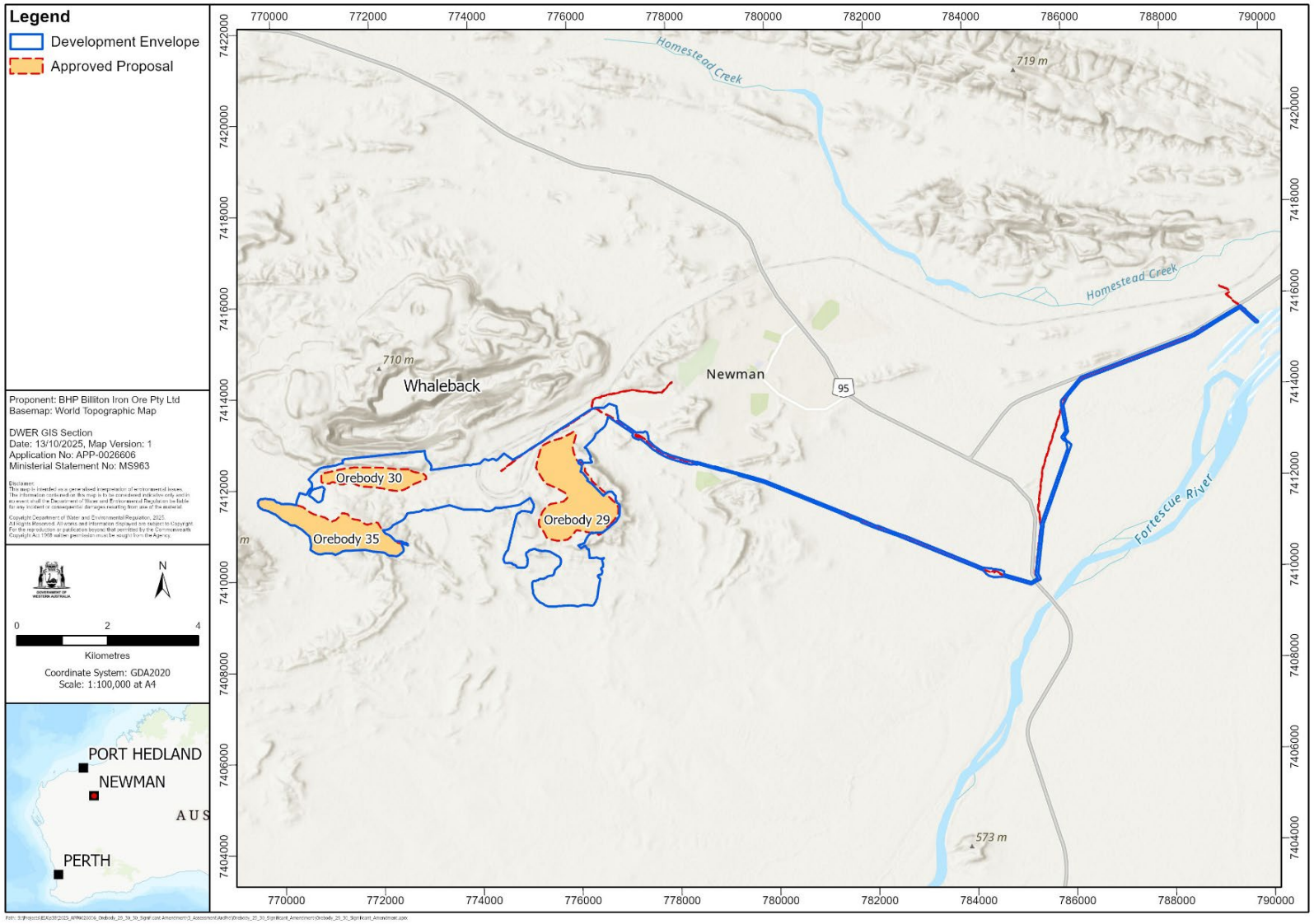

Figure 3: Orebody 29/30/35 – existing approvals within the development envelope

2 Assessment of key environmental factors

This section includes the EPA's assessment of the key environmental factors. The EPA also evaluated the impacts of the significant amendment on other environmental factors and concluded these were not key factors for the assessment. This evaluation is included in Appendix D.

The EPA has assessed the proposal in the context of the approved proposals (MS 963) while having regard to the combined and cumulative effect that the implementation of the approved proposal may have on the following environmental factors.

2.1 Flora and Vegetation

2.1.1 Environmental objective

The EPA environmental objective for flora and vegetation is *to protect flora and vegetation so that biological diversity and ecological integrity are maintained* (EPA 2023c).

2.1.2 Investigations and surveys

The investigations and surveys used to inform the assessment of the potential impacts to flora and vegetation are provided in Appendix E.

The surveys were mostly consistent with the *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016e), however surveys were reconnaissance level surveys with some targeted flora surveys undertaken. The proponent states that "Numerous historical surveys, including detailed surveys, have also been undertaken over portions of the Development Envelope" and "there was an understanding of the flora and vegetation values over a large portion of the undisturbed areas of the Indicative Footprint prior to the Spectrum (2024) reconnaissance survey" (BHP 2025b).

The EPA determined it could proceed with its assessment when considering the information provided in the additional information (BHP 2025b), the revised Environmental Review Document (BHP 2025a) combined with the limited clearing proposed for the significant amendment and historical and current disturbance from mining in the development envelope.

2.1.3 Assessment context – existing environment

Flora and vegetation was not considered a key environmental factor for the approved proposal as it involved the assessment of below water table mining only. The approved proposal (MS 963) does not prescribe an authorised clearing limit for flora and vegetation.

Clearing associated with the approved proposal was assessed and authorised in accordance with Part V of the EP Act Native Vegetation Clearing Permit (NVCP

5617/6). To date, 442.86 ha of native vegetation has been cleared within the approved proposal boundary (BHP 2025c).

Noting the above, clearing of native vegetation approved in accordance with Part V of the EP Act has not been considered in the context of the combined proposal. Where possible, the assessment of cumulative impacts has taken into consideration the significant amendment's proposed clearing of 116 ha, previous historic clearing and clearing associated with third party proposals in the region.

Vegetation

The proposal occurs within the Hamersley and Augustus subregions within the Pilbara and Gascoyne IBRA bioregions, respectively (BHP 2025a). Vegetation condition within the development envelope ranged from 'Excellent' to 'Completely Degraded'. Almost half (127.5 ha, 52%) of the development envelope was classified as in 'Excellent' condition or 'Good (44.31 ha, 3.3%). The remaining (22%, 54.1 ha) was in 'Poor' to 'Completely Degraded' condition. The indicative footprint was reported to support 104.13 ha (~ 90%) of 'Excellent' to 'Good' condition native vegetation.

No threatened ecological communities (TECs) or priority ecological communities (PECs) listed by the *Biodiversity Conservation Act 2016* (BC Act) or TECs listed by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were recorded within the development envelope.

Nine vegetation types were mapped within the survey area, eight of which occur within the development envelope (Spectrum 2024). The dominant vegetation type within the development envelope was *Triodia* hummock grassland with *Eucalyptus* woodland and mixed *Acacia* shrubland occurring on hill crests (Spectrum 2024).

One vegetation type (CY) was found to share characteristics with the Priority 1 Ecological Community (PEC) West Angelas Cracking-Clays (BHP 2025a). The Department of Water and Environmental Regulation (DWER) advise that this community is considered locally significant due to its 'Very Good' to 'Excellent' vegetation condition and potentially restricted distribution due to its occurrence in cracking clay depressions. Vegetation type (CY) was mapped over an area of 80.46 ha within the development envelope (Figure 3).

One vegetation association represents riparian vegetation: MA EvEcAci CcErbTp AsyPlAa (MA), which is associated with Whaleback Creek and tributaries of the Fortescue River. This vegetation association is also considered to represent groundwater dependent vegetation (GDV) due to the presence of potentially facultative phreatophyte tree species (*Eucalyptus camaldulensis* and *Eucalyptus victrix).*

Vegetation associations FP TpCc AmaAsyAb AaHallCh (FP) and SP AsyAteAb Tp HapAaGrst (SP) represent regionally significant vegetation as they occur in association with land systems that have a limited distribution across the Pilbara and Gascoyne bioregions. The mapped extents of riparian and regionally significant vegetation within the development envelope are shown in Figure 4.

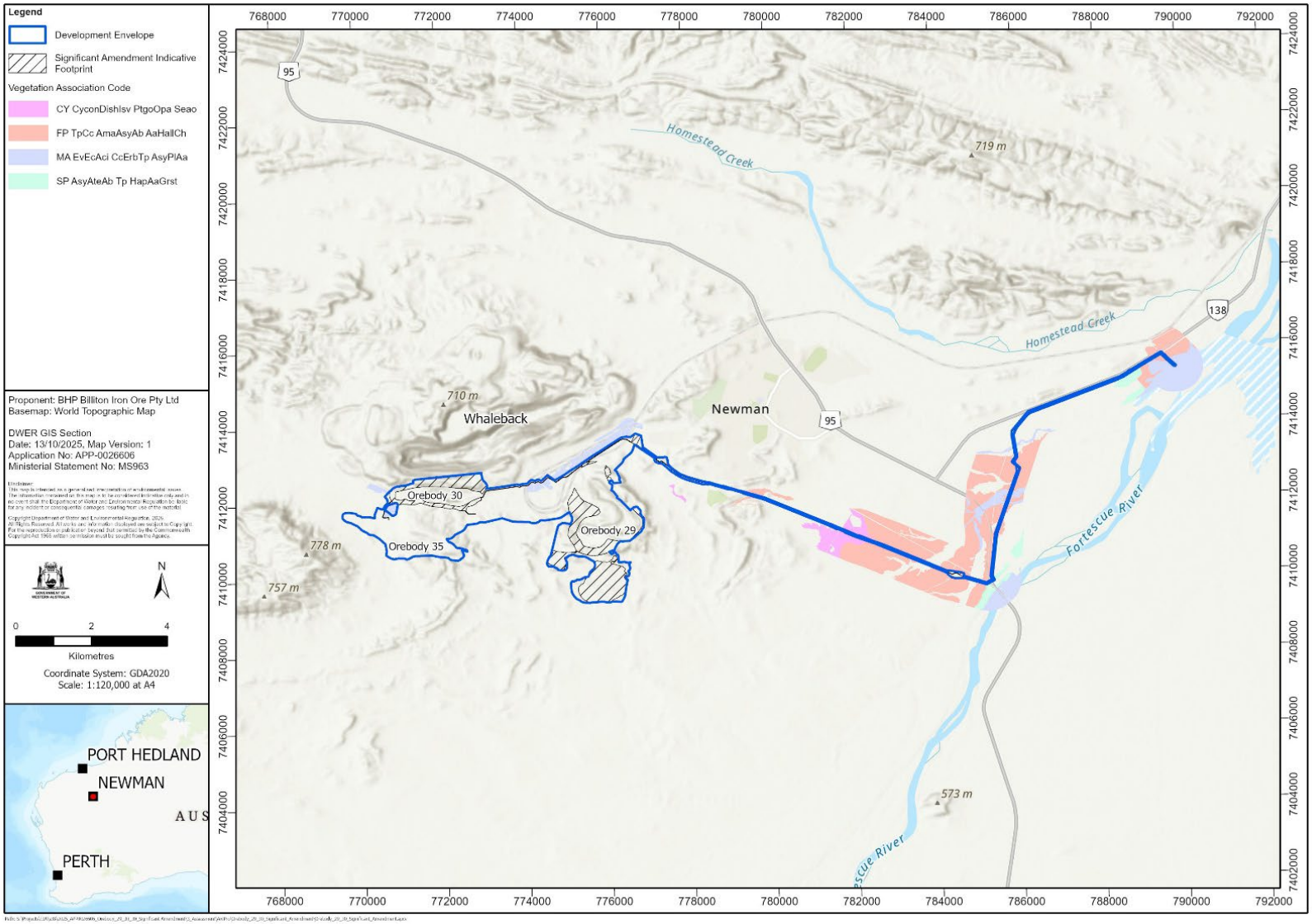

Figure 4: Extents of significant vegetation in the development envelope

Flora

No threatened flora listed under the BC Act or EPBC Act were recorded within the development envelope. Two Priority 3 flora species, as listed by the DBCA, were recorded during surveys more than 200 metres (m) from the development envelope including:

- *Ipomoea racemigera* (P3)
- *Eremophila naaykensii* (P3).

2.1.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the Request for Additional Environmental Information (version 2, dated 23 March 2025) and revised Environmental Review Document (BHP 2025b). Public consultation on the referral of the proposal raised concerns regarding significant impacts to flora and rehabilitation.

The key issues raised during the public consultation on the proposal and how they have been considered in the assessment are described in sections 2.1.5 to 2.1.9.

2.1.5 Potential impacts from the proposal

Direct impacts

Potential impacts to flora and vegetation from:

- clearing of up to the following within the development envelope:
  - 116 ha of native vegetation of which 104 ha is in Good to Excellent condition
  - 1.23 ha of riparian vegetation association MA
  - 0.16 ha of locally significant vegetation community CY
  - 2.44 ha of local and/or regionally significant vegetation type FP
  - 0.04 ha of local and/or regionally significant vegetation type SP.

Indirect impacts

Potential indirect impacts to flora and vegetation from:

- indirect impacts related to changes to GDV from extraction of groundwater
- changes to vegetation from dust deposition, increased risks of bushfire and introduction and spread of weeds.

2.1.6 Avoidance measures

The proponent has designed the significant amendment to avoid impacts to flora and vegetation by:

- locating the surplus water pipeline largely on existing disturbed areas and avoiding potentially regionally significant vegetation association

- indicative footprint is situated in areas that have already been cleared for existing operations.

2.1.7 Minimisation measures (including regulation by other DMAs)

The proponent has proposed measures to minimise impacts to flora and vegetation through:

- utilisation of existing and approved mine, transportation and processing elements at Mt Whaleback, minimising the amount of clearing required to support the proposal
- locating the surplus water pipeline to Ophthalmia Dam in areas predominantly already cleared, minimising disturbance of native vegetation.

Part V, Division 2

The proponent has an existing Part V of the EP Act Clearing Permit (CPS 5617/6) which covers the Mt Whaleback mining operations (Mt Whaleback and Orebody 29/30/35 mines). The current permit authorises clearing of native vegetation for the purpose of mineral production, mineral exploration, construction and maintenance of infrastructure and associated activities subject to conditions to avoid and minimise the impacts of clearing.

2.1.8 Rehabilitation measures

The proponent has proposed the following progressive rehabilitation measures:

- undertaking site specific progressive rehabilitation of disturbed areas in accordance with the Orebody 29/30/35 Mine Closure Plan (BHP 2024b)
- design the revegetation program to establish native vegetation that blends with the surrounding areas
- local provenance native seed and species of ethnobotanical value for rehabilitation, where possible.

2.1.9 Assessment of impacts to environmental values

The EPA considered that the key environmental values for flora and vegetation likely to be impacted by the proposal is vegetation in ‘Good’ to ‘Excellent’ condition and potentially significant vegetation.

The EPA has assessed the proposal in the context of the approved proposals (MS 963) while having regard to the cumulative effect that the implementation of the approved proposal may have on the flora and vegetation factor.

Vegetation

The proponent is currently authorised to disturb up to 456.12 ha of native vegetation within the development envelope authorised in accordance with Part V of the EP Act Native NVCP 5617/6. The authorised clearing undertaken across the approved proposal and mining at Mt Whaleback has resulted in approximately 63% of the indicative footprint situated in areas that have already been cleared for the approved

proposal. The proponent is proposing to remove an additional 116 ha of which approximately 90% (104 ha) is in 'Good' to 'Excellent' condition (BHP 2025b). The proponent has proposed to offset the significant residual impacts to native vegetation through financial contributions to the Pilbara Environmental Offsets Fund (PEOF), which is reflected in recommended condition B7.

Riparian vegetation and locally significant vegetation

One riparian vegetation (MA) and GDV is proposed to be directly impacted by the significant amendment. Up to 1.23 ha of this vegetation type is proposed to be cleared, representing less than 1% of the mapped extent of this vegetation type found within the survey area. The EPA is of the view that the clearing of riparian vegetation for the significant amendment represents a significant residual impact as the vegetation is considered significant in the context of biological diversity and ecological integrity, providing habitat for conservation significant flora and fauna species.

Locally restricted vegetation associations CY, FP and SP, included 0.13 ha, 2.44 ha and 0.04 ha of clearing in the indicative footprint, respectfully. Clearing of these vegetation associations represent less than 1% of the mapped extent found within the survey area. The EPA considers that the clearing of these locally restricted vegetation associations is unlikely to represent a significant residual impact.

Subject to the proposed limits and extents in recommended condition A1, and the environment outcomes in recommended condition B1 (limits on impacts to riparian vegetation and vegetation in 'Good' to 'Excellent' condition, and minimising disturbances to flora and vegetation) and B6 (progressive rehabilitation) and B8 (contributions to PEOF), the residual impacts to vegetation are likely to be consistent with the EPA objective for flora and vegetation.

Groundwater dependent vegetation

Altered hydrological regimes resulting from mine dewatering has the potential to impact riparian vegetation through groundwater drawdown as shown in Figure 8-12 of the ERD. Current depth to groundwater ranges from around 10 to 40 metres below ground level (mbgl) northeast beyond the development envelope. Vegetation surveys did not extend to these areas, therefore the extent to which GDV may be impacted is unknown. Figure 8-12 of the ERD shows one depth to groundwater as being 19 mbgl near a tributary of Whaleback Creek. Potential facultative phreatophytes *Eucalyptus camaldulensis* and *E. victrix* are likely to occur in this tributary and may be impacted by groundwater drawdown as a result of the proposal. Homestead Creek to the north may also comprise facultative phreatophytes, which may also be impacted by groundwater drawdown extents from the proposal.

The EPA is of the view that groundwater drawdown extents north of the development envelope may impact unknown GDV associated with Whaleback and Homestead Creeks. The EPA considers that potential impacts to GDV should be regulated through conditions B1-1(3) to avoid disturbance to potential GDV located in the Whaleback and Homestead Creeks.

Direct impacts to significant flora species

No priority flora were recorded within the development envelope with two priority 3 flora species, *Ipomoea racemigera* and *Eremophila naaykensii* occurring more than 200 m from the development envelope.

The proponent has avoided the clearing of native vegetation through siting the indicative footprint in previously cleared areas, with only 116 ha of clearing proposed for the significant amendment. The EPA is of the view, given the small area of clearing proposed within a highly disturbed area of historical and current mining activities, the risk of significant impacts to priority flora is low. Therefore, the proposal is likely to meet the objective for flora and vegetation.

Cumulative Impact Assessment

The proponent has assessed cumulative impacts by considering this proposal in addition to BHP projects in the Eastern Pilbara region.

The cumulative impact equates to the removal of 2,010.30 ha of native vegetation across Mt Whaleback and Orebody 29/30/35 mines (CPS 5617/6). The extent of this combined effect (2,126.3 ha) is the upper limit of total clearing proposed by the proponent (BHP 2025b) within the development envelope and Mt Whaleback operations area.

There are three vegetation associations (18, 29 and 82) that intersect the proposal. All associations will have greater than 99% of their pre-European extents remaining following the implementation of the proposal. The EPA considers that the vegetation proposed to be impacted represents a relatively small area of the vegetation associations remaining and is therefore not likely to be at a significant threshold for the vegetation associations or result in large-scale irreversible impacts.

Cumulatively, the native vegetation associations being impacted are likely to be limited to a relatively small extent. However, in its advice on the cumulative impacts in the Pilbara (EPA 2014), the EPA considered that, without intervention, the increasing cumulative impacts of development and land use in the Pilbara region would significantly impact biodiversity and environmental values.
The EPA considers that the environmental outcomes are likely to be consistent with the EPA objective for flora and vegetation, subject to the EPA's recommended conditions B1-1 and B8 (offsets).

Rehabilitation and Closure

The EPA considers that during operation and closure of the significant amendment and the approved proposal, measures to improve environmental outcomes for rehabilitation and mine closure are required. The proponent has committed through the implementation of the Orebody 29/30/35 Mine Closure Plan (BHP 2024a) to undertake progressive rehabilitation during the life of the proposal. The EPA notes the MCP includes strategies to be implemented for closure for the existing and proposed operations at Orebody 29/30/35. Further, the completion criteria for

vegetation on rehabilitated land is to be self-sustaining and compatible with the local mining land use.

The proponent's Pilbara Expansion Strategic Proposal Derived Proposal Rehabilitation Report July 2025 (BHP 2025c) reports on rehabilitation undertaken to date for all its Pilbara operations. This report shows a varying degree of progress across different types of landscape. The proponent has reported 649.43 ha of land has been rehabilitated at the Newman Hub (inclusive of Whaleback, Orebody 29/30/35 and Eastern Ridge). Rehabilitation began at Mt Whaleback (Newman hub) in the 1980s and was 'ad hoc' with poor *Triodia* recruitment, limited species diversity and high erosion observed (BHP 2025d).

Whilst the EPA recognises that progressive rehabilitation is difficult for mines with a long operational project life, the EPA is cognisant of the cumulative impacts in this bioregion. Where possible, these impacts should be mitigated through progressive on ground rehabilitation. Over the life of the proposal, the proponent's rehabilitation techniques, practices and outcomes can be improved through research, trials and monitoring programs, to ensure that they are effective, achievable and deliver the expected rehabilitation outcomes.

The EPA notes that 442.86 ha of native vegetation has been cleared within the 456.12 ha development envelope approved under NVCP 5617/6 (BHP 2025b). The significant amendment proposes the expansion of active mine pits and therefore, the rate and timing of rehabilitation for the currently operational Orebody 29/30/35 proposal are unlikely to be expedited, given its ongoing mining activities (mining to be completed by 2069).

The EPA recommends condition B6 which is required to achieve improved rehabilitation outcomes.

2.1.10 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on flora and vegetation environmental values. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 2 .

The EPA has also considered the principles of the *Environmental Protection Act 1986* (see Appendix C) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 2: Summary of assessment for flora and vegetation

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
1.	Clearing of up to 116 ha of native vegetation of which 104 ha of is in 'Good' to 'Excellent' condition within the indicative footprint.	The clearing of 'Good' to 'Excellent' condition vegetation within and immediately adjacent to the Pilbara bioregion is significant in the context of biological diversity and ecological integrity, as it provides habitat for conservation significant flora and fauna species. The EPA advises that subject to limitations on clearing (condition A1-1 and B1-1), and recommended conditions requiring forward planning and appropriate progressive rehabilitation (B6) and offsets (B7), the significant residual impact can be counterbalanced, so that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.	**Condition A1-1 (Limitations and extent)** Disturbance limits to clearing of vegetation in 'Good' to 'Excellent' condition. **Condition B1 (Flora and vegetation)** Disturbance limits to environmental values. **Condition B6 (Rehabilitation)** Requirement to forward plan and undertake progressive rehabilitation where possible for this proposal. **Condition B8 (Offsets)** Contribution to PEOF for the clearing of 'Good' to 'Excellent' condition vegetation within the Pilbara bioregion. Offsets Fund for the clearing of 'Good' to 'Excellent' condition vegetation within the Pilbara bioregion.
2.	Clearing of up to 1.23 ha of riparian vegetation and potential GDV	The clearing of riparian vegetation within the Pilbara bioregion is significant in the context of biological diversity and ecological integrity, as it provides habitat for conservation significant flora and fauna species. The EPA advises that subject to limitations on clearing, and recommended conditions requiring progressive rehabilitation and offsets, the significant residual impact can be counterbalanced, so that	**Condition A1-1 (Limitations and Extent of Proposal)** Disturbance limits to riparian vegetation. **Condition B6 (Rehabilitation)** Requirement to forward plan and undertake progressive rehabilitation where possible for this proposal.

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
		the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.	**Condition B8 (Offsets)** Contribution to the Pilbara Environmental Offsets Fund for impacts to riparian vegetation.
3	The proposal will result in the loss of significant vegetation associations: • 0.16 ha of locally significant vegetation community CY • 2.44 ha of significant vegetation type FP • 0.04 ha of significant vegetation type SP.	The clearing of locally restricted and/or regionally significant vegetation associations CY, FP and SP represent less than 1% of the mapped extent found within the survey area. The clearing of these locally restricted vegetation associations is unlikely to represent a significant residual impact. The EPA advises that subject to limitations on overall clearing, and recommended conditions requiring progressive rehabilitation and offsets, the significant residual impact can be counterbalanced, so that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.	**Condition A1-1 (Limitations and Extent of Proposal)** Disturbance limits to significant vegetation associations **Condition B6 (Rehabilitation)** Requirement to forward plan and undertake progressive rehabilitation where possible for this proposal. **Condition B8 (Offsets)** Contribution to the Pilbara Environmental Offsets Fund for impacts to riparian vegetation.
4.	Indirect impacts associated with the groundwater drawdown	The EPA advises that the potential indirect impacts to GDV beyond the development envelope represents a significant residual impact. The EPA considers that the residual impact requires recommended conditions B1-1(3) to ensure the outcome is likely to be consistent with the EPA objective for flora and vegetation.	**Condition B1 (Flora and Vegetation)** No indirect disturbance to GDVs in groundwater drawdown extent areas beyond the development envelope.

2.2 Terrestrial Fauna

2.2.1 Environmental objective

The EPA environmental objective for terrestrial fauna is *to protect terrestrial fauna so that biological diversity and ecological integrity are maintained* (EPA 2023c).

2.2.2 Investigations and surveys

The investigations and surveys used to inform the assessment of the potential impacts to terrestrial fauna are provided in Appendix E.

The terrestrial fauna surveys were mostly consistent with *EPA Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020) and *EPA Technical Guidance – Sampling of short range endemic invertebrate fauna* (EPA 2016a). DWER advised that no detailed surveys were undertaken within the development envelope, however, targeted surveys were adequate.

The EPA considered that the relevant studies are appropriate to inform the assessment of the potential impacts to the above environmental factor. The EPA also considered relevant fauna recovery plans and conservation advice where applicable.

2.2.3 Assessment context – existing environment

Terrestrial fauna was not considered a key environmental factor for the approved proposal as it involved the assessment of below water table mining only. The approved proposal, authorised under MS 963, does not prescribe an authorised clearing limit for native vegetation and associated fauna habitats.

Clearing associated with the approved proposal was assessed and authorised in accordance with Part V of the EP Act Native Vegetation Clearing Permit (NVCP 5617/6). To date, 442.86 ha of native vegetation has been cleared within the approved proposal boundary (BHP 2025c).

Noting the above, clearing of native vegetation and associated fauna habitats approved in accordance with Part V of the EP Act has not been considered in the context of the combined proposal. Where possible, the assessment of cumulative impacts on terrestrial fauna has taken into consideration the significant amendment's proposed clearing of 116 ha, previous historic clearing and clearing associated with third party proposals in the region.

Fauna habitat

Eleven broad fauna habitat types were mapped within the development envelope (Figure 5), namely undulating low hills (107.68 ha), stony plain (20.69 ha), sandy/stony plain (32.88 ha), major drainage line (8.31 ha), hillcrest/hillslope (5.78 ha), minor drainage line (5.69 ha), mulga woodland (0.61 ha), medium drainage line (0.37 ha), wetland (0.35 ha), drainage area/floodplain (0.55 ha) and breakaway/cliff (0.01 ha).

Significant habitat features such as caves were identified throughout the development envelope, which provide supporting habitat for significant fauna species such as the northern quoll and ghost bat. No surface water features were mapped within the development envelope, except at the eastern end of the proposed surplus water pipeline, which extends into the inundated area of Ophthalmia Dam, mapped as wetland habitat.

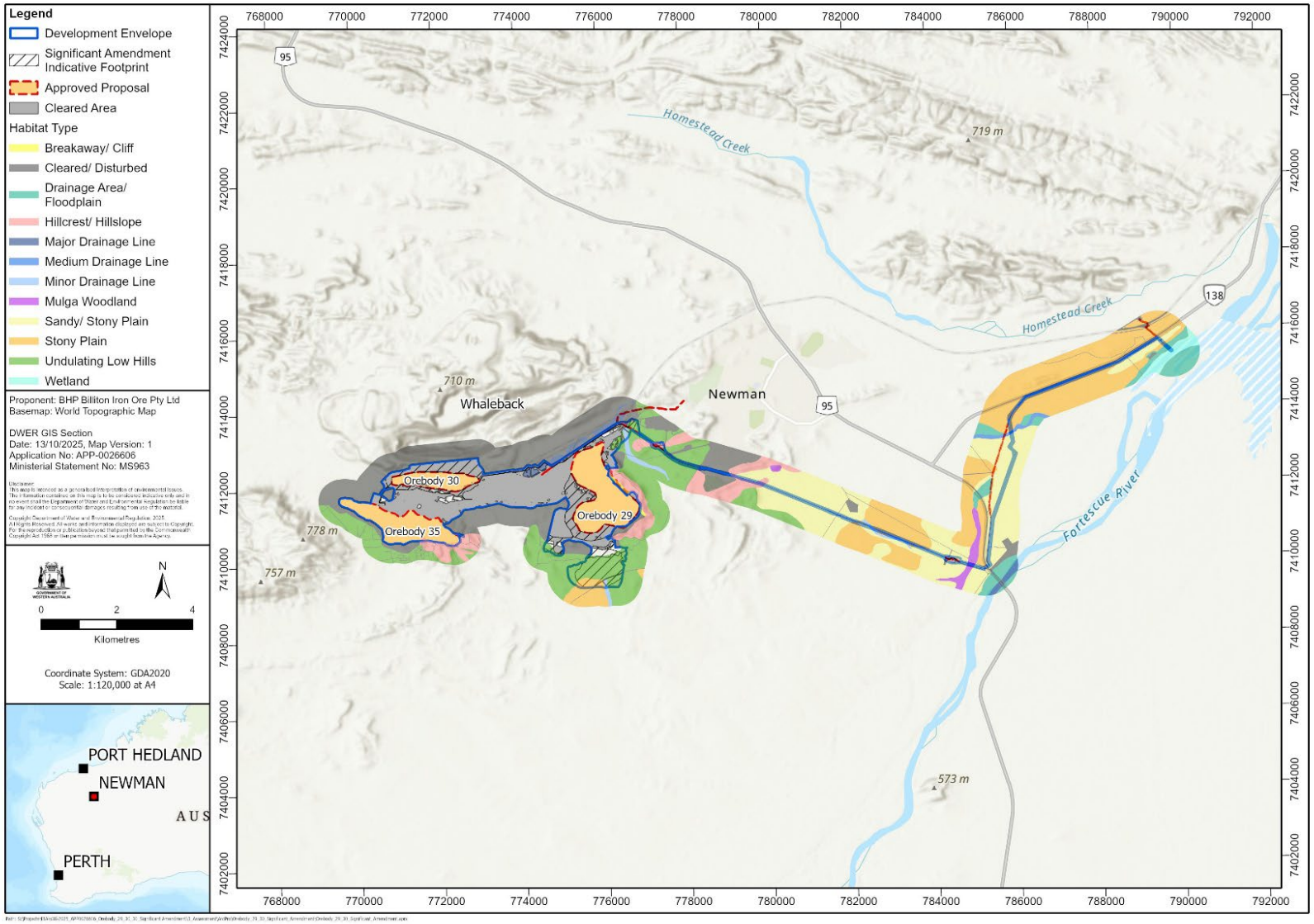

Figure 5: Fauna habitat within the development envelope

Significant fauna

Vertebrate fauna

Species of conservation significance that were recorded in the development envelope include:

- ghost bat (*Macroderma gigas*) (VU)
- western pebble-mound mouse (*Pseudomys chapmani*) (P4)

The threatened and priority fauna species with a likely occurrence include:

- northern quoll (*Dasyurus hallucatus*) (EN)
- Pilbara olive python (*Liasis olivaceus barroni*) (VU)
- Gane's blind-snake (*Anilios ganei*) (P1)
- Pilbara leaf-nosed bat (*Rhinonicteris aurantia*) (VU)
- peregrine falcon (*Falco peregrinus*) (OS).

The Pilbara leaf-nosed bat and peregrine falcon will not be further considered by the EPA as they were not recorded during the past several surveys conducted in the development envelope and they are not expected to be significantly impacted by the significant amendment.

Invertebrate Fauna

No confirmed short range endemic (SRE) invertebrate fauna species are known to occur within the development envelope, however two potential SRE invertebrate fauna species occur within the development envelope being *Buddelundia* sp. 'OBE001' and *Indolpium* sp. indet (Biologic 2024b).

2.2.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the request for additional information (BHP 2025b; c) and revised Environmental Review Document (BHP 2025a).

During the 7-day public comment period on the referral of the proposal, the public raised concerns regarding clearing and impacts to fauna. The key issues raised during the 7-day public comment period on the proposal and how they have been considered in the assessment are described in sections 2.2.6 to 2.2.9.

2.2.5 Potential impacts from the proposal

Potential impacts to terrestrial fauna from:

- clearing of up to:
  - 116 ha of native vegetation comprising terrestrial fauna habitats
  - 14 ha of ghost bat foraging habitat

  - 0.41 ha of critical habitat for northern quoll, Pilbara olive python and Ganes blind snake
  - 0.41 ha of potential SRE habitat
- direct impacts to locations where two potential SRE invertebrate taxa were recorded
- impacts to fauna individuals from mining activities (indirect) and infrastructure (direct)
- impacts to fauna habitats and individuals from dust emissions (indirect)
- interactions with (direct) and changes to (indirect) fauna habitat from introduced species
- changes to fauna habitats from fire (indirect).

The EPA considers that changes in groundwater and hydrological regimes may affect foraging and dispersal habitats of terrestrial fauna. Impacts to inland waters are considered in section 2.4.

2.2.6 Avoidance measures

The proponent has designed the proposal to avoid impacts to terrestrial fauna by:

- redesign of the pipeline alignment to largely be located on existing disturbed areas to avoiding native vegetation as far as practicable
- avoidance of barbed wire fencing to reduce entanglement of bats.

2.2.7 Minimisation measures (including regulation by other DMAs)

The proponent has proposed measures to minimise impacts to terrestrial fauna:

- utilisation of existing infrastructure to minimise the need for vegetation clearing
- implementation of standard management practices to minimise the impacts from feral fauna, including recording observations of feral animals and implementation of control measures in response to observations.

2.2.8 Rehabilitation measures

The proponent has proposed the following progressive rehabilitation measures:

- undertaking progressive rehabilitation in accordance with the Orebody 29/30/35 Mine Closure Plan (BHP 2024a)
- design revegetation program providing habitat and foraging areas for fauna
- diversity of vegetation types to be used in rehabilitation to improve habitat value and encourage colonisation by a range of fauna
- constructing fauna habitats in rehabilitated areas, where practicable.

2.2.9 Assessment of impacts to environmental values

The EPA considered that the key environmental value for fauna likely to be impacted by the significant amendment is conservation significant fauna and potential SREs.

The EPA has assessed the significant amendment in the context of the approved proposal (MS 963) while having regard to the cumulative effect that the implementation of the approved proposal may have on the terrestrial fauna environmental values.

Fauna habitat

The significant amendment comprises clearing of up to approximately 116 ha of fauna habitat, of which 23.75 ha are cleared/disturbed areas (BHP 2025a). The proposed indicative clearing extents for each fauna habitat type within the indicative footprint for the significant amendment, are presented in Table 3, noting that the total loss of habitat is limited to 90.99 ha, not including degraded/cleared areas.

Based on information provided by the proponent, around 36% of fauna habitats will remain within the development envelope. A large portion (82%) of the development envelope has been cleared for the approved proposal under a NVCP (BHP 2025a).

Table 3: Fauna habitats impacted by the significant amendment

Habitat Type	Mapped Extent within BHP consolidated mapping **	Extent mapped within development envelope (ha)*	Indicative extent proposed to be cleared (ha)*	Indicative extent loss within development envelope (%)	Loss within consolidated mapping (%)
Breakaway/ Cliff	2,846.1	<0.01	0.01	100	<0.01
Drainage Area/ Floodplain	66,285.2	0.55	0.41	74	<0.01
Hillcrest/ Hillslope	230,358.6	5.78	0.40	7	<0.01
Major Drainage Line	26,672.2	8.31	0.17	2	<0.01
Medium Drainage Line	1,331.9	0.37	0.07	19	<0.01
Minor Drainage Line	12,040.4	5.69	1.44	3	0.01
Sandy/Stony Plain	14,833.9	32.88	4.05	12	0.03
Stony Plain	89,601.1	20.69	12.63	61	0.01
Undulating Low Hills	10,245.0	107.68	73.04	68	0.71
Wetland	14.1	0.35	0.05	14	0.35
Total		182.3	90.99	91.31	3,017.01

* Data sourced from Table 9-5 of the ERD (BHP 2025a) and additional information (BHP 2025b).

** Based on consolidated data within BHP's database, covering an area of approximately 694,984 ha. Figures sourced from Table 9-5 of the ERD (BHP 2025a).

Ghost bat

The EPA notes that while the ghost bat are likely to visit the development envelope to forage, critical habitat (maternity/diurnal roost caves with regular occupancy) was not present. All the habitat types, except undulating low hills were considered suitable foraging habitat in the development envelope. Known roosting habitat (category 2 caves) are located approximately 0.7 km and 7 km from the development envelope and ghost bat have been recorded from areas adjacent to the development envelope, demonstrating a continued presence of ghost bat in the area (BHP 2025a). Therefore, the clearing of 17.95 ha of foraging habitat in the development envelope is likely to be a significant residual impact to the ghost bat. The proponent has proposed to offset the residual impacts to ghost bat habitat through financial contributions to the PEOF, which is reflected in recommended condition B8.

Three category 4 ghost bat caves were recorded within the development envelope, of which one has been cleared. The two remaining caves (OB35- 04 and OB35-05), occur within the development envelope adjacent to the existing OB35 mine pit. A small access ramp on the eastern end of the pit approximately 1 km from the caves is proposed for the significant amendment. As these caves are adjacent to existing operations, the significant amendment is unlikely to have any additional impact on these caves from impacts from the approved proposal (BHP 2025a).

The proponent has committed to managing light emissions through proposal design to ensure light is directed into operational areas as far as practicable, reducing the potential indirect impacts to significant fauna. The proponent has also committed to not using barbed wire fences within the development envelope unless it is required for legislative reasons (BHP 2025b).

The EPA considers potential indirect impacts to ghost bat can be adequately managed by the proponent. Subject to the recommended conditions above, the environmental outcome for ghost bat is likely to be consistent with the EPA objective for this factor.

Western pebble-mound mouse

The western pebble-mound mouse (P4) is known from a single inactive mound within the indicative footprint of the significant amendment. The western pebble-mound mouse is known to occur within hillcrest/hillslope, undulating low hills and stony plain habitat types (BHP 2024b).

Clearing for the significant amendment will result in a decline of 1% of known records and 4.7% (86.07 ha) of suitable habitat for the western pebble-mound mouse (P4), respectively in the indicative footprint.

The EPA has determined that the Western pebble-mound mouse (P4) is unlikely to be significantly impacted by the significant amendment as they have a relatively broad distribution in the Pilbara and more than 35% of their habitat will persist in the development envelope.

Other Conservation Significant Fauna

The DWER advised that breakaway/cliff areas and hillcrest and hillslope habitats provide critical habitat for the northern quoll and Pilbara olive python. These habitats however are adjacent to existing pits (OB29). The Pilbara olive python was observed in major drainage and wetland habitats northeast of the development envelope, including areas associated with Ophthalmia Dam, which are considered critical habitat for the species. The significant amendment will disturb breakaway/cliff, hillcrest/hillslope areas, wetland and major drainage lines, however, the impact is minimal (0.63 ha) and unlikely to result in significant impacts to the Pilbara olive python.

A northern quoll scat was identified within caves in the Western Ridge proposal area. Major drainage line, medium drainage line, minor drainage line, and wetland habitats were considered as providing 1.73 ha of supporting habitat for the species (BHP 2025b). Given the impact is minimal, the significant amendment, on its own, is unlikely to result in significant impacts to the northern quoll.

The EPA notes breakaway/cliff habitat provides foraging habitat for the Ganes blind snake (P1) however the habitat is adjacent to an active mining area and was considered to provide limited value for the species (Astron 2023). The significant amendment is unlikely to result in any additional impacts on this species beyond those impacts from the approved proposal.

The EPA considers that recommended condition A1-1(clearing limits) will minimise direct impacts to critical habitat for northern quoll and Pilbara olive python. The EPA also advises that the loss of critical and supporting threatened fauna habitats in the Pilbara region are considered a significant residual impact and offsets are required to counterbalance these impacts (condition B8) (see section 4). These conditions will ensure that the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna.

SREs

The significant amendment proposes to impact 7% (0.41 ha) of moderate to high prospective habitats (hillcrest/hillslope and breakaway/cliff habitats) for SRE invertebrate fauna in the development envelope (BHP 2024b).

Of the two potential SRE invertebrate fauna species recorded within the development envelope (*Buddelundia* sp. 'OBE001' and *Indolpium* sp. indet), *Indolpium* sp. indet. was recorded in the indicative footprint in drainage area/floodplain habitat (BHP 2025b). The proponent notes that other records of *Indolpium* sp. indet have been documented across a range of habitat types outside the indicative footprint and development envelope, with several records within approved or proposed project development envelopes (BHP 2025b). The proponent expects that as this species is known from a variety of habitat types and is widely distributed, it is unlikely to be restricted to the development envelope.

The DWER advised the EPA that the *Indolpium* sp. indet. specimen has only been identified to genus level, therefore, it cannot confidently be considered that it also

occurs outside the footprint. Another 311 records of *Indolpium* sp. indet. specimens known within the Pilbara have also not been able to be identified and may represent multiple species, including potential new species.

The EPA notes the species is not a priority listed species and based on the proponent's mapped survey extent and the predicted <0.01% loss of habitat, the species habitat is unlikely to be significantly impacted by the proposal. However, given this specimen's taxonomic uncertainty, the EPA recommends that the proponent undertake taxonomic resolution through genetic analysis, providing higher confidence that the potential SRE will not be significantly impacted, aiding future assessments.

The EPA considers that subject to recommended condition A1-1 to limit clearing and condition B2-1 to resolve the taxonomy of *Indolpium* sp. indet. and confirm the habitat and distribution of the species, the residual impacts can be managed so that the environmental outcome will be consistent with the EPA objective for terrestrial fauna.

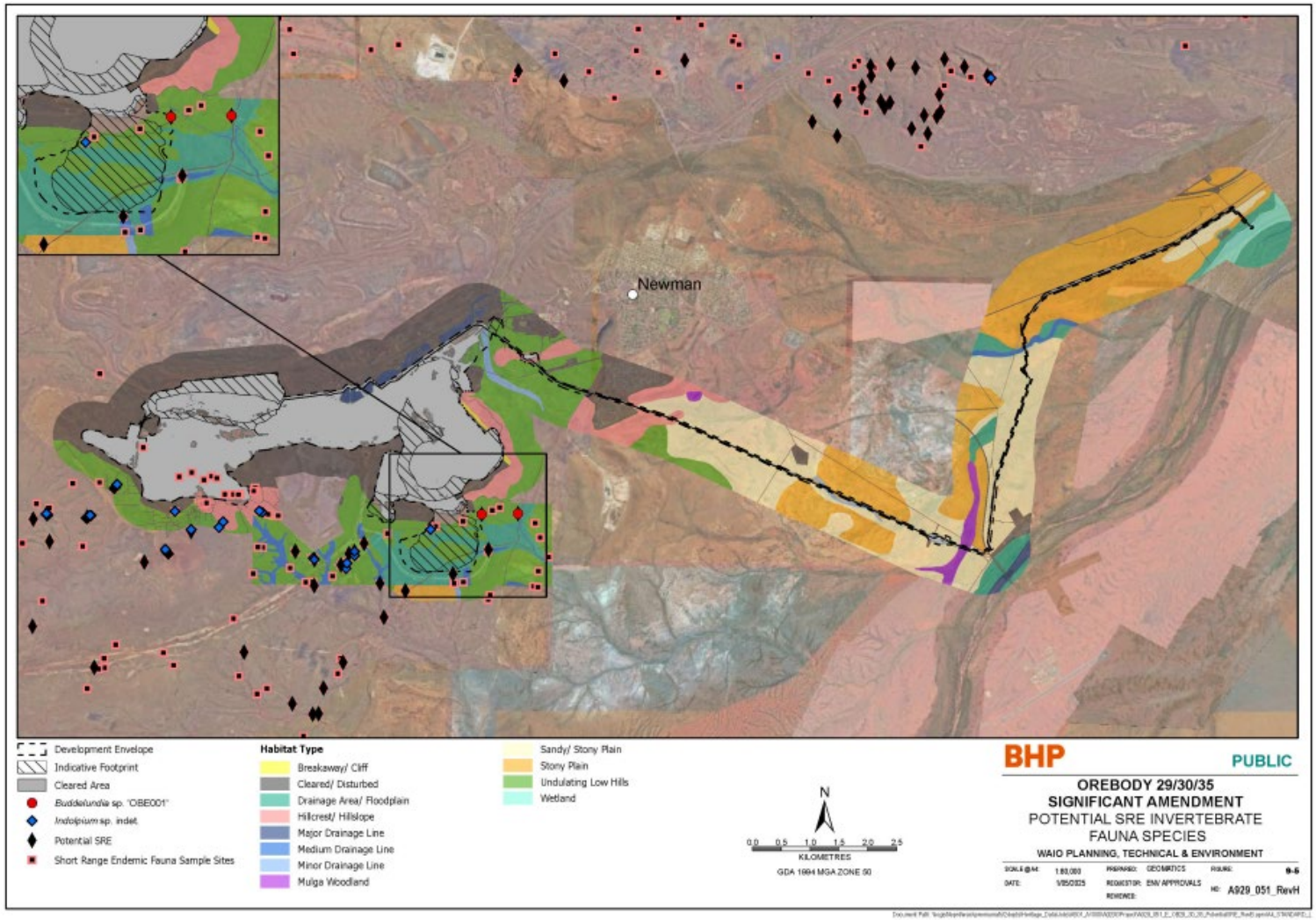

Figure 6: Short range endemics recorded within the development envelope

Cumulative impact assessment

The proponent has assessed the cumulative effects of the proposal by considering impacts of the significant amendment together with approved BHP projects and foreseeable BHP projects in the Eastern Pilbara, including Mt Whaleback (commenced in 1968 and subsequently approved under NVCP; habitats provided here reflect extents within the NVCP 5617), Western Ridge and Orebody 32 Below Water Table (both approved in 2023), and Jimblebar Hub (BHP 2025a).
Three conservation significant fauna (northern quoll, ghost bat, Pilbara olive python) identified within the development envelope have been assessed for their cumulative impact from the proposal and from other nearby proposed/approved projects within BHP projects in the Eastern Pilbara.

The implementation of the proposal is expected to contribute to cumulative impacts to the four remaining conservation significant fauna through the clearing of critical and/or supporting habitat, however, the EPA advises that the proposals contribution is relatively low. The proposal would result in the cumulative impacts of between 0.1% and 2.3% of the total mapped extents of critical and supporting habitats for northern quoll, ghost bat and Pilbara olive python. Of these impacts, less than 1% is attributable to the significant amendment, except for wetland habitat (6.4% attributable to this proposal). The wetland habitat is associated with the inundated area of Ophthalmia Dam which the proponent considers an artificial habitat formed as a result of construction of the dam in the early 1980s. The proponent states that while 0.05 ha of this habitat type occurs in the indicative footprint, the proposed surplus water pipeline route will follow the existing surplus water pipeline route, to the extent practicable (BHP 2025a).

The EPA notes that at a bioregional scale, implementation of this significant amendment would contribute to cumulative impacts to conservation significant fauna, including the ghost bat, northern quoll and Pilbara olive python through habitat loss. Given the context of cumulative impacts and ongoing pressures of current and future mining in the Pilbara, the EPA considers that offsets are necessary to ensure that the cumulative impacts to habitat loss are counterbalanced.

The EPA advises that implementation of this significant amendment should be subject to its recommendation for offsets (B8) (see section 4) as well as disturbance limits to minimise impacts (conditions A1-1). The combination of monetary contributions from this and other proposals in the bioregion, to deliver on-ground projects coordinated through the PEOF, are expected to address cumulative impacts and provide environmental benefits across the Pilbara region.

2.2.10 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on Terrestrial Fauna environmental values. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 4.

The EPA has also considered the principles of the *Environmental Protection Act 1986* (see Appendix C) in assessing whether the residual impacts will be consistent

with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 4: Summary of assessment for terrestrial fauna

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
1.	Direct impact to the following habitat types that are of importance to threatened fauna: • 0.01 ha of breakaway/cliff habitat • 0.4 ha of hillcrest and hillslope habitat • 0.17 ha of major drainage line habitat • 0.05 ha of wetland habitat.	The EPA considers the loss of conservation significant fauna habitat is a residual impact. The EPA advises that with limits of clearing, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna. Offsets are required to counterbalance the significant residual impacts to critical and supporting habitat for conservation significant fauna across the Pilbara bioregion.	**Condition A1 (Limitations and extent of proposal)** Sets limits of disturbance to important fauna habitat types. **Condition B8 (Offsets)** Contribution to the Pilbara Environmental Offsets Fund for clearing conservation significant fauna habitat where required.
2.	Impacts to SRE habitat and potential SREs identified within the indicative footprint.	The EPA considers that the proposal will directly impact on one specimen of a potential SRE, *Indolpium* sp. indet. Distribution of this species is uncertain due it only being identified to genus level.. The EPA advises that with the taxonomic resolution of *Indolpium* sp. indet. to species level and associated habitat and distribution and limits of clearing, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna.	**Condition A1 (Limitations and extent of proposal)** Sets limits of disturbance to clearing **Condition B2 (Terrestrial fauna)** Taxonomic resolution of *Indolpium* sp. indet. to species level and associated habitat and distribution

2.3 Subterranean Fauna

2.3.1 Environmental objective

The EPA environmental objective for subterranean fauna is *to protect subterranean fauna so that biological diversity and ecological integrity are maintained* (EPA 2023c).

2.3.2 Investigations and surveys

The investigations and surveys used to inform the assessment of the potential impacts to subterranean fauna are provided in Appendix E.

The proponent has conducted subterranean fauna sampling in the area between 2009 and 2011, with additional supplementary studies undertaken between 2019 and 2023. The surveys were mostly consistent with the *Technical Guidance – Subterranean fauna surveys for Environmental Impact Assessment* (EPA 2016d 2021).

DWER indicated that the survey work for troglofauna did not meet guidance due to the survey effort across the orebodies being limited and inconsistent, in particular for OB30 which includes new impact areas that have not been assessed previously.

The proponent has acknowledged limitations in recent troglofauna sampling across the Orebody 29/30/35 area, being largely due to historical mining activities dating back to the 1970's. Due to historical above water table mining activities, limited troglofaunal sampling has been undertaken at OB29, and no sampling has been conducted at OB30, as mining commenced before subterranean fauna were considered in environmental impact assessments. As no changes are proposed to the OB35 mine pit for the significant amendment, there has been no sampling in this area. The OB30 area is also highly disturbed due to its proximity to Mt Whaleback and other mining operations.

In noting the above, the EPA has determined that due to the highly disturbed environment and that geologies (habitat) extend outside the pit expansion area the information is adequate to proceed with the assessment of subterranean fauna.

2.3.3 Assessment context: existing environment

The significant amendment is part of the broader Newman hub, which includes the existing Mt Whaleback mining operations. The development envelope is characterised by regional weathered dolomite aquifers of the Paraburdoo Members of the Wittenoom Formation, overlayed by Tertiary Detritals. The Tertiary Detritals occur in excess of 150 m in thickness across the development envelope, with thickest section towards the west of Mt Whaleback and northeast across OB29. The proponent's hydrogeological studies have found that the regional aquifer over much of the development envelopment appear to have both high storage (most likely karstic) and high hydraulic conductivity (BHP 2025b).

Stygofauna habitat and assemblage

OB29/30/35 and much of the surrounding area is considered to have low prospectivity for stygofauna due to the depth to the water table (greater than 60 mbgl) and low number of species being recorded. The area to the north east of OB29, where depth is shallower (20 to 30 mbgl) has an abundant and diverse regional stygofauna community. The Ethel Gorge alluvial and calcrete aquifer, located approximately 15 km northeast of the significant amendment, supports the unique and diverse stygofauna assemblage known as the Ethel Gorge aquifer Stygobiont Community, a Threatened Ecological Community (Ethel Gorge TEC).

Groundwater levels have been altered by abstraction for potable water supply (Newman town) and mine dewatering activities associated with approved proposals, ongoing since the 1970s. Pre-development groundwater levels in the orebody and regional aquifers within the significant amendment area ranged between 519 m and approximately 526 m AHD, with depths to groundwater varying from about 30 m below ground level near OB29 to over 50 m at the western edge of OB35 (BHP 2025b).

Since the commencement of approved operational mine dewatering (up to 8 GL/year) in 2015, groundwater drawdown has reached approximately 35 m at OB29, around 40 m at OB35, and about 20 m at OB30, primarily due to dewatering at OB29 and OB35.

Current groundwater depths in the regional aquifer exceed 90 m below ground level west of OB35 and are shallower northeast of OB29, across the leaky flow barrier north of Newman (approximately 20–24 m below ground level). Groundwater in the Orebody 29/30/35 area is fresh, typically less than 800 mg/L in salinity (BHP 2025b). While the geology and salinity are suitable for stygofauna, the depth of groundwater in the vicinity of the significant amendment area is generally considered too great to support a rich stygofauna community (BHP 2025b).

Recent stygofauna surveys conducted between 2019 and 2020 across the southern portion of the modelled drawdown extent (Area 1) recorded five species from 60 specimens (BHP 2025b). These included earthworms, one bathynellid crustacean species (*Pilbaranella* sp. C) from the superorder Syncarida, and an uncertain number of nematode species. The proponent is of the view that this relatively low diversity of stygofauna is reflective of the depth to groundwater in the area (greater than 90 mbgl), which makes conditions restrictive for stygofauna communities (Bennelongia 2021).

To supplement previous sampling, additional surveys were conducted north of the significant amendment's development envelope (Area 2), recording a more abundant stygofauna community of 16 species from 345 specimens (Bennelongia 2024). Thirteen of the 16 species occur within the northern portion of the 2024 Orebody 29/30/35 drawdown extent. The species collected were consistent with stygofauna communities found elsewhere in the Pilbara region (Bennelongia, 2024). None of the stygofauna species collected from within the 2024 Orebody 29/30/35 drawdown extent are potentially significant, and all are considered widespread or have been collected elsewhere within the Eastern Pilbara region (Figure 7).

Ethel Gorge TEC

Located approximately 15 km the north-east of the development envelope, are the shallow alluvial and calcrete aquifers of Ethel Gorge that support the unique and diverse stygofauna assemblage *Ethel Gorge aquifer Stygobiont community Threatened Ecological Community* (Ethel Gorge TEC). The Ethel Gorge TEC is listed as a Critically Endangered TEC, under the BC Act, due to the diverse assemblage of stygofaunal species present (DBCA 2023a).

Surveys and monitoring in the Ethel Gorge aquifer undertaken to date has recorded approximately 80 stygofauna species and/or adjacent local groundwater in the Newman area, most of which occur within the TEC. Of these species, 50 'core endemic species' are characterised by copepods and ostracods, with oligochaetes, amphipods and bathynellids also prominent (Bennelongia 2023) have been recognised from the Ethel Gorge area from monitoring programs conducted annually since 2009. While copepods and ostracods have been numerically abundant, amphipods and bathynellids have been the most diverse component of the assemblage (Stantec 2022).

Troglofauna habitat and assemblage

Troglofauna most commonly occur within the mineralised Brockman Iron Formation and Marra Mamba Formation in the Ophthalmia area, in which OB29 and OB30 are located. Potentially suitable habitat for troglofauna within the development envelope is characterised by areas of Tertiary Detritals and bedrock geologies (Bennelongia 2021). Habitat modelling has identified areas of folding, faulting, and weathering throughout the survey area, resulting in habitat heterogeneity across the development envelope (BHP 2025b).

A two-phase subterranean fauna survey was conducted between 2009 and 2010 at OB29 and OB35 to support above water table mining at OB35 (Bennelongia, 2011). Additional troglofaunal sampling was undertaken in 2011 at OB35 to support the proposal to mine above water table at OB35. No survey work has been undertaken for the approved OB30 mine pit area or within the proposed OB30 pit expansion area due to above water table mining being approved and implemented prior to subterranean fauna becoming a factor for EIA.

Fourteen troglofaunal species were recorded during the 2009-2010 survey work, of which two (*Atelurinae sp. B09, Lophoturus madecassus, Pauropodidae sp. B09 and Phaeconeura sp. indet. Bennelongia species*) are known from outside the approved OB29 pit and proposed OB29 pit expansion and not restricted to the impact areas (Figure 8). The remaining 10 species are known from the OB35 area, which is not the subject of expansion works or additional disturbance than what has been approved (Bennelongia 2011).

Although no survey work has been undertaken at OB30, the proponent's geological assessment indicates that suitable troglofaunal habitat is considered to extend beyond the proposed pit expansions at OB30, suggesting that troglofauna communities are likely to occur outside the impact areas. The structural geology of

OB29 is relatively simple, with no major modelled faults and good continuity, with the geology extended beyond the proposed pit to the north-east and west through to OB30 (BHP 2025b). OB30 is part of a lower syncline and OB29 with the geology to the east and southeast of OB29 being similar to that around OB30 (as well as OB35). There is a southeast northwest trending fold which is part of the syncline running through OB30, which is also a continuation of the Whaleback and OB29 structure (BHP 2025b).

The EPA notes the absence of troglofauna survey data for OB30, and acknowledges that, similar to OB29, the highly disturbed nature of the OB30 expansion area located within existing operations, may result in similarly low troglofaunal diversity if further sampling were undertaken.

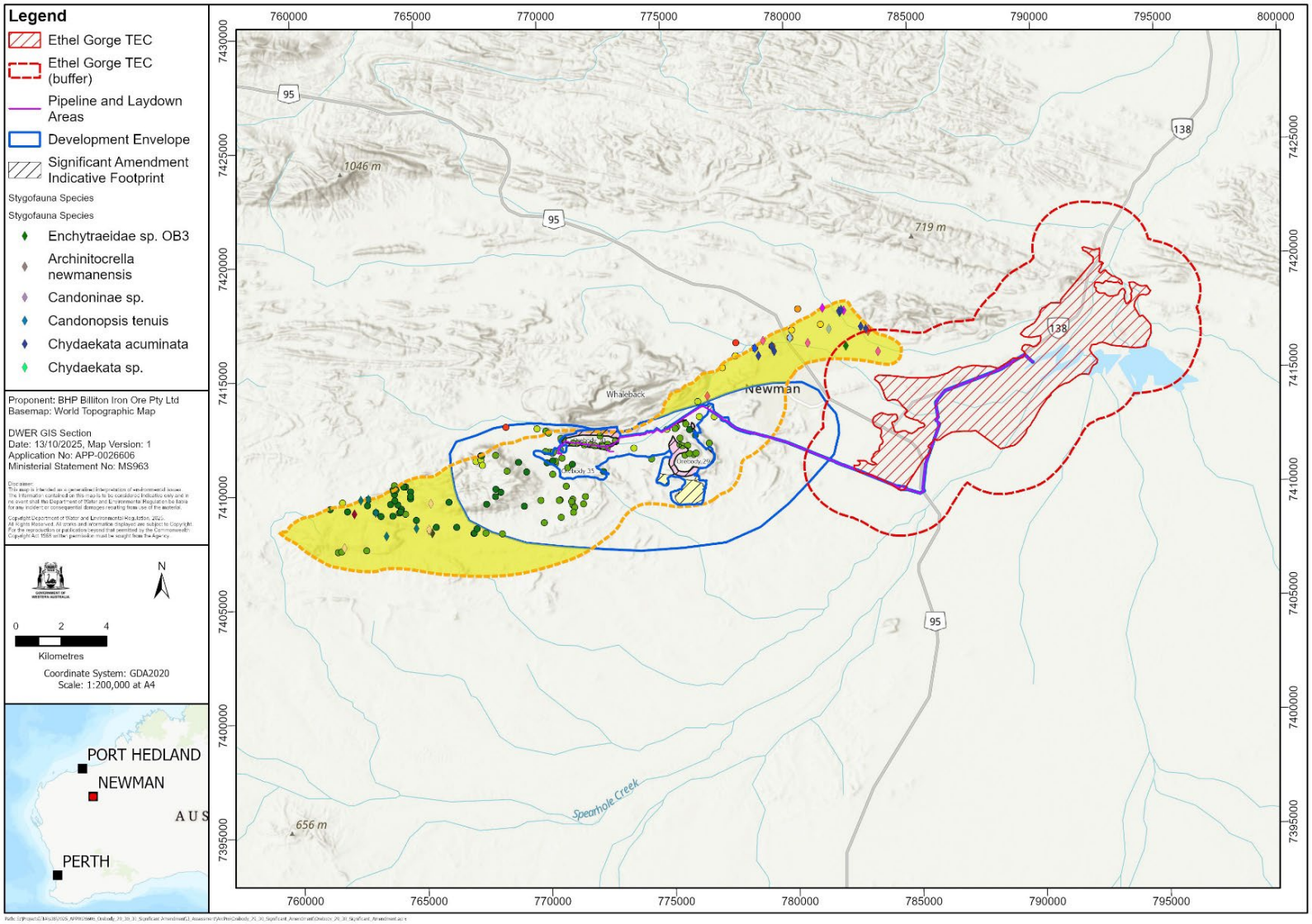

Figure 7: Stygofauna taxa recorded in the development envelope associated with the significant amendment

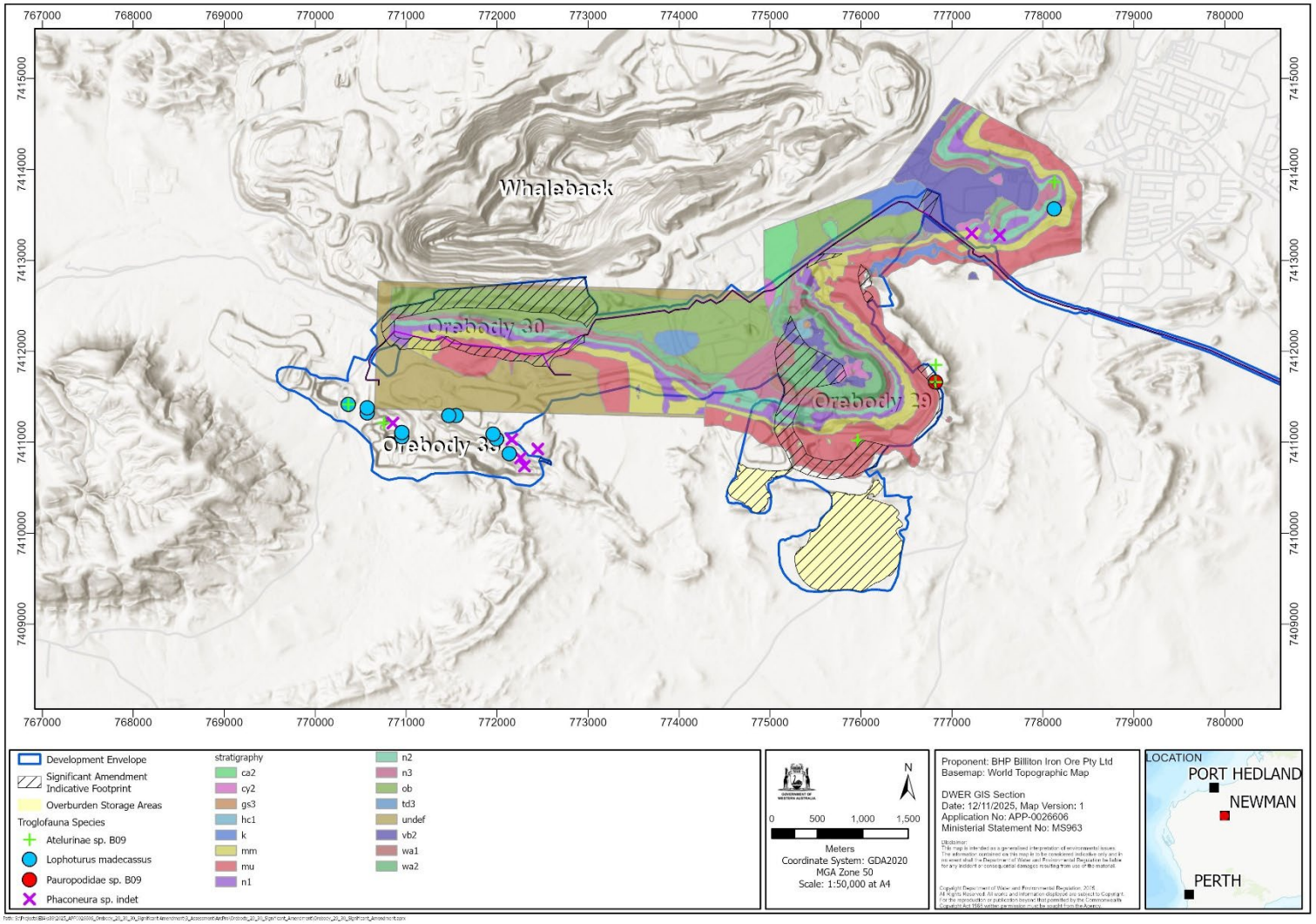

Figure 8: Troglofauna taxa recorded within the development envelope.

2.3.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the *Request for Additional Environmental Information* (dated 23 March 2025) and revised Environmental Review Document (BHP 2025b).

The key issues raised during consultation and how they have been considered in the assessment are described in sections 2.3.5 to 2.3.9.

2.3.5 Potential impacts from the proposal

The proposal has the potential to result in the following direct impacts on subterranean fauna from:

- loss of troglofauna habitat from mine pit excavation (above water table)
- changes to stygofauna habitat and species assemblage from changes to groundwater regimes
- changes to stygofauna habitat and species assemblage from changes to groundwater quality

The EPA considers indirect impacts from hydrocarbon spills and contamination of soil or groundwater on subterranean fauna habitat are likely to be negligible as a result of well-established management practices and regulations for the handling, storage and disposal of hazardous wastes in accordance with requirements of *the Dangerous Goods Safety Act 2004* and Part V of the EP Act.

2.3.6 Avoidance measures

The proponent has not proposed any avoidance measures to reduce the impacts to subterranean fauna.

2.3.7 Minimisation Measures (including regulation by other DMAs)

The proponent has proposed measures to minimise impacts to subterranean fauna through:

- continuing to manage potential impacts to the Ethel Gorge aquifer from surplus water discharge in accordance with the management approach detailed in the EPWRMP
- ongoing monitoring of the Ethel Gorge TEC that also includes sampling of the stygofauna assemblages, to confirm that the indicators (groundwater level and salinity) for maintaining the stygofauna habitat have not been exceeded
- implementation of the Orebody 29/30/35 Water (PFAS) Management Plan (BHP 2024b).

2.3.8 Rehabilitation Measures

The proponent has proposed the following progressive rehabilitation measures:

- rehabilitation, decommissioning and closure will be managed according to the measures in the OB29/30/35 MCP Revision 6 (BHP 2021), which BHP has

amalgamated and updated into the new Orebody 29/30/35 MCP for the combined proposal (BHP 2025b).

2.3.9 Assessment of impacts to environmental values

The EPA considered that the key environmental values for subterranean fauna likely to be impacted by the proposal are the loss of subterranean fauna habitat and taxa.

Stygofauna

The significant amendment includes an increase in approved mine dewatering limits from 8 GL/a to 26.5 GL/a, to allow for expansion of OB29 and OB30 pits. This additional groundwater abstraction has the potential to alter the groundwater regime by extending the lateral and vertical extent of drawdown beyond what was authorised under the approved proposal.

The proponent's updated hydrogeological modelling, undertaken to support the significant amendment, represents the combined effect of up to 26.5 GL/a of predicted drawdown. The predicted drawdown in the orebody aquifer at the end of dewatering is up to 60 m greater than that predicted for the approved proposal. In the regional aquifer, drawdown is similar in the south for the approved proposal but is deeper to the west, north, and east by up to 80 m (BHP 2024).

The predicted lateral extent of drawdown is similar to the approved proposal to the north, east, and south, but extends approximately 6 km further west, away from the Ethel Gorge aquifer (Figure 5). In addition, the predicted drawdown is within that was assessed for the approved Western Ridge proposal, except for the vertical drawdown in the north of OB29 which is approximately 70 m deeper.

Ethel Gorge TEC

The EPA understands that when considering the proponent's modelling predictions, combined with the low transmissivity of the orebody aquifer between OB29 and the Ethel Gorge aquifer, which supports the Ethel Gorge TEC, the combined drawdown is predicted to reduce the water level by approximately 24 m past the leaky flow barrier and will not reach the Ethel Gorge TEC. The EPA further notes that groundwater level monitoring, in accordance with the EPWRMP and the Groundwater Operating Strategy has shown to date that drawdown is largely isolated to the mining areas.

The EPA notes DWER's recommendation regarding the model used by the proponent and has discussed this further in section 2.4.9.

The extent of pit lakes post closure and the degree to which pits are backfilled will depend on the availability of waste rock material. Modelling predicts that groundwater will flow into the pit lakes, which will remain terminal groundwater sinks. As the regional aquifers are conservatively assumed to be continuous from Orebody 29 to the Ethel Gorge aquifer system, the groundwater sinks (pit lakes) may result in the groundwater flowing from the Ethel Gorge aquifer, which supports the Ethel Gorge TEC, to the OB29/30/35 mine voids.

The EPA notes that while the Ophthalmia Dam system continues to operate, groundwater levels in the Ethel Gorge aquifer would likely remain within historical levels. However, as the Ophthalmia Dam system is at least partially reliant on surplus water discharge from mining operations, once surplus water discharge is significantly reduced or ceased, there is the potential for groundwater levels to lower within the Ethel Gorge aquifer.

The EPA notes that the proponent's current backfill strategy, which is subject to change, is for no backfill at OB30, partial backfill of OB29 and partial backfill above the water table at OB35. The EPA considers that the proponent's future investigations and modelling for closure will need to consider whether having groundwater sinks will result in the lowering of groundwater levels in Ethel Gorge aquifer and the associated Ethel Gorge TEC and expects the proponent to implement a backfill strategy that ensures groundwater levels are maintained post closure.

The EPA considers that the Ethel Gorge TEC, based on the model predictions, is unlikely to be impacted by groundwater abstraction associated with dewatering of the pits. The EPA further considers that mine closure will need to be appropriately managed to ensure the water levels and habitat within the Ethel Gorge TEC are maintained. Subject to conditions B3-1, B3-2 and B7-1 to maintain habitat and groundwater levels in the Ethel Gorge aquifer to support the stygofauna habitat of the Ethel Gorge TEC during operation and post closure, the EPA considers the environmental outcome is likely to be consistent with the EPA objective.

Groundwater sampling at Orebody 29/30/35 since 2020 has detected PFAS exceedances of the National Environmental Management Plan (NEMP) human health drinking water quality guideline values at monitoring bores located to the west and north of OB29. These exceedances present a risk that surplus water discharge could cause detrimental changes to groundwater quality within Ophthalmia Dam, which infiltrates into the Ethel Gorge aquifer, potentially impacting the Ethel Gorge TEC. Water quality changes within Ophthalmia Dam, combined within prolonged seepage into the Ethel Gorge aquifer, may adversely affect stygofauna populations within the aquifer habitat.

The DWER raised concerns that chemical composition of surplus mine dewater discharged to Ophthalmia Dam may not be suitable for maintaining the biodiversity of stygofauna populations. The DWER advised that the Orebody 29/30/35 Water (PFAS) Management Plan (BHP 2024b) lacks clarity on how surplus mine dewater will be managed if PFAS concentrations exceed discharge criteria. In response, the proponent advised that it is managed through its internal trigger action response plan (TARP), specifically it will turn down (reducing) or turn off (ceasing operation) the impacted dewatering bore(s) to enable adjustment of the proportions of dewatered groundwater from OB29, OB30 and OB35 to reduce the concentration in the combined discharge to Ophthalmia Dam. i.e. increasing dewatered groundwater from OB30 and OB35 to dilute PFAS concentrations from OB29 before discharging to Ophthalmia Dam; or re-directing water from the impacted dewatering bore(s) for mining re-use so that it no discharged to Ophthalmia Dam. In addition, the EPA notes that the site was classified as 'Contaminated – remediation required' under the *Contaminated Sites Act 2003* in December 2020, and that remediation of the site is

required to mitigate potential risks to human health, the environment and/or any environmental values. Remediation undertaken by the proponent is discussed further under Inland waters in section 2.4.9.

Due to the recognised high biodiversity value of the Ethel Gorge TEC, the shallow aquifer, and its sensitivity to habitat changes from groundwater quality alterations, the EPA has recommended conditions B3-1(1) and B3-3. These conditions require the proponent to maintain stygofauna habitat and water quality in the Ethel Gorge aquifer, and to update and implement the Orebody 29/30/35 Water (PFAS) Management Plan to provide for monitoring criteria (triggers and threshold levels for PFAS) and include management provisions from the TARP. The EPA is of the view that the proponent is able to appropriately manage potential contamination of surplus water and that the environmental outcome is likely to be consistent with the EPA objective for inland waters, subject to implementation of the recommended conditions.

Orebody 29/30/35 mine area

All stygofauna taxa recorded during the proponent's survey work for the significant amendment and approved proposal are considered widespread and not restricted to impact area, with the exception of two new species described as potentially restricted, including:

- *Kruptus* `BAM227` and
- *Billibathynella* `BSY249`.

Both of these species occur in holes that likely reside in detrital layers that extend beyond the development envelope and therefore are unlikely to be restricted within the local area. None of the stygofauna species collected from within the 2024 Orebody 29/30/35 drawdown extent are potentially significant, and all are widespread or have been collected elsewhere within the Eastern Pilbara region (BHP 2025b).

One historically collected species, *Enchytraeidae sp.* OB3, thought to be potentially restricted has been identified by DNA sequencing analysis to occur at Ministers North (BHP 2024a). This increases the species linear range to approximately 281 km, which extends well beyond the survey area and therefore it is considered that this species is not restricted within the local area.

Seven specimens (Nematoda spp., Candoninae sp., Chydaekata sp., Diacyclops sp., Oligochaeta sp., Parastenocaris sp., Pilbaranella sp B) have only been able to be identified to higher order, however it is noted that there are several records known for each of these specimens indicating they likely to be widespread.

The EPA concludes that the stygofauna species recorded in the impact area are either widespread or there is reasonable likelihood of suitable habitat remaining in the surrounding area of their locations. The EPA considers that, subject to recommended condition A1-1 which limits total abstraction volume the environmental outcome is likely to be consistent with the EPA objective for subterranean fauna.

Cumulative Impacts

The proponent's existing mining operations at the Jimblebar and Newman hubs (including from the Jimblebar Hub, OB32 BWT and Western Ridge) are the only projects that exist within the same groundwater and surface water catchments as the significant amendment. The nearest third-party iron ore mining operation is Rio Tinto's Hope Downs 4 operation, located 30 km to the northwest of the proposal in the central Pilbara region.

The proponent manages the Ethel Gorge aquifer (and TEC) at the regional scale through the EPWRMP due to the potential for cumulative impacts from multiple BHP mines. Due to the recognised environmental values of the Ethel Gorge TEC, shallow aquifer and sensitivity to habitat change from changes in groundwater levels and groundwater quality, the proponent will continue to manage the potential cumulative impacts on the Ethel Gorge TEC from its Eastern Pilbara mines in accordance with the EPWRMP. The EPWRMP also includes a comprehensive stygofauna monitoring program, including monitoring of stygofauna assemblage at the Ethel Gorge TEC.

Troglofauna

Direct impact at OB29 and OB30 pit expansion

Direct impacts to troglofauna are associated with the proposed OB29 and OB30 pit expansions, including the removal of troglofaunal habitat as a result of mining. No expansion of the OB35 mine pit is proposed as part of the significant amendment.

As discussed in section 2.3.2, limited troglofaunal sampling has been undertaken at OB29, and no sampling has been conducted at OB30. The level of survey effort presents an elevated level of uncertainty regarding the potential impacts to troglofaunal and ability to undertake a robust cumulative impact assessment to support the assessment. In the absence of adequate sampling effort and level of understanding of the troglofaunal assemblages, particularly at OB30, the EPA considered the habitat connectivity of the project area.

The proponent is of the view that troglofauna species composition and abundance across the development envelope is considered similar to other areas of the Ophthalmia Range and are generally widespread throughout the region (BHP 2024e). The proponent's assessment of suitable troglofauna habitat at OB29 and OB30 suggests that there is connectivity of habitat beyond the proposed pit expansions, and it is considered likely that troglofauna habitat would extend beyond the proposed mining area and not be restricted to the areas of proposed impact (BHP 2025b).

The EPA is of the view that is reasonable to expect that the troglofuana should occur in suitable connected habitats beyond the proposed and approved pits. This is supported by the geological modelling and habitat assessment providing confidence that suitable, well-connected habitats for troglofaunal species will remain intact throughout the project area. This conclusion is also supported by records of *Pauropodidae* sp. B09 being found alongside *Atelurinae* sp. B09, which is known to occur further north, outside pit expansion areas.

Furthermore, the EPA notes that the pit expansions at OB29 and OB30 associated with the significant amendment are considered small in scale and extent (an additional 169 ha of troglofaunal habitat removal) when compared to the approved proposal (456 ha).

The EPA is of the view that due to the small scale and extent of proposed clearing at OB30, high likelihood of habitat connectivity throughout the development envelope and surrounding environment, the significant amendment is unlikely to have a significant residual impact on troglofauna values. The EPA advises that, due to the limitations associated with the survey work and lack of cumulative impact assessments undertaken by the proponent, the proposal should be regulated by recommended condition A1-1 to limit direct disturbance and minimise impacts to the habitat of troglofauna. The EPA considers that if the proposal is implemented subject to these conditions, the environmental outcome is likely to be consistent with the EPA objective for subterranean fauna.

2.3.10 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the significant on subterranean fauna. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 5.

The EPA has also considered the principles of the *Environmental Protection Act 1986* (see Appendix C) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 5: Summary of assessment for subterranean fauna.

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Direct loss of individuals or reduction in stygofauna habitat.	The proposal will result in the loss of subterranean fauna habitat as a result of proposal implementation. The EPA considered that the proposal is unlikely to have significant impacts on subterranean fauna from the reduction in habitat through mining and groundwater drawdown. The EPA considers that, subject to recommended condition A1-1 and B3, as well as continue to manage potential impacts in accordance with the EPWRMP, the environmental outcome is	**Condition A1 (Limitations and extent of proposal)** Limits on groundwater abstraction. **Condition B3 (Inland Waters and Subterranean Fauna)** Maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer to support the stygofauna habitat of the Ethel Gorge TEC. Update and implementation of

Residual impact		Assessment finding	Recommended conditions and DMA regulation
		likely to be consistent with the EPA objectives.	EPWRMP and Water (PFAS) Management Plan to ensure outcomes are achieved. **DMA legislation** DWER can regulate groundwater abstraction under the RiWI Act.
2	Direct loss of individuals or reduction in troglofauna habitat.	The proposal will result in the loss of subterranean fauna habitat as a result of proposal implementation. The EPA advises that due to habitat extending outside the impact areas the environmental outcome is likely to be consistent with the EPA objective for subterranean fauna.	**Condition A1 (Limitations and extent of proposal)** Limits on clearing

2.4 Inland Waters

2.4.1 Environmental objective

The EPA environmental objective for inland waters is *to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected* (EPA 2023c).

2.4.2 Investigations and surveys

The investigations and surveys used to inform the assessment of the potential impacts to inland waters are provided in Appendix E.

Although the DWER highlighted discrepancies regarding the availability of groundwater level data in the ERD, the proponent has subsequently adequately addressed those discrepancies (BHP 2025b; c).

The EPA therefore determined the information provided by the proponent for inland waters was adequate to proceed with its assessment.

2.4.3 Assessment context: existing environment

Groundwater

The significant amendment is part of the broader Newman hub, which includes the existing Mt Whaleback mining operations. The significant amendment is partially located within the Newman Water Reserve Priority 1 Public Drinking Water Source Area (PDSWA). The reserve was proclaimed to protect the Newman town water supply, which is currently sourced from groundwater from the proponent's operated Homestead and Ophthalmia Borefields located approximately 6-9 km north and 15 km northeast of the development envelope, respectively. The mine site is also a registered contaminated site under the *Contaminated Sites Act 2003* and is classified as 'Contaminated – remediation required'.

The hydrogeology is characterised by regional weathered dolomite aquifers of the Paraburdoo Members of the Wittenoom Formation, overlayed by Tertiary Detritals. The Tertiary Detritals occur in excess of 150 m in thickness across the development envelope, with thickest section towards the west of Mt Whaleback and northeast across OB29. The regional aquifer over much of the development envelopment appear to have both high storage (most likely karstic) and high hydraulic conductivity (BHP 2025b).

At the local scale, the groundwater flow is generally west to east with the orebody aquifers being characterised by the Marra Mamba Formation and Brockman Iron Formation which are hydraulically connected to the weathered dolomite aquifer (and some areas of tertiary detritals) (BHP, 2025a). The proponent's hydrogeological studies have shown that the orebody aquifers and the regional dolomite aquifer are bounded by low permeability features existing to the north (Mt Sylvia Formation and Mt McRae Shale) and south (Jeerinah Formation) of the development envelope. The regional aquifer system appears to be interrupted by at least two leaky flow barriers

between Orebody 30 and Orebody 35 and just to the east of Orebody 29 (Figure 9). The western side of the regional aquifer consists of the Jeerinah Formation which is considered very low permeability and presents a no flow boundary (BHP 2025b).

The groundwater regime has been altered by groundwater abstraction for potable water supply (Newman Town) and abstraction for mine dewatering activities for the approved proposals. Pre-development groundwater levels in the orebody and regional aquifers in the significant amendment varied between 519 m and approximately 526 mAHD and depth to groundwater in the regional aquifers ranged from a minimum of about 30 mbgl around OB29 to greater than 50 m at the western edge of OB35 (BHP 2024c).

Since approved operational dewatering (abstraction of up to 8 GL/a) commenced in 2015, groundwater level drawdown at OB29 is approximately 35 m, OB35 have declined by approximately 40 m and groundwater levels at OB30 have declined by approximately 20 m due to dewatering at OB29 and OB35.

Recent hydrogeological studies and investigations supporting the significant amendment has included data collected since 2013 in the Western Ridge area, which indicates that the regional aquifer in the Western Ridge area is connected to the OB35 area and bound by the Whaleback Fault in the north and west and the Jeerinah Formation to the south.

The approved proposal's surplus mine dewater water management includes discharge (up to 8GL/a) to Ophthalmia Dam managed aquifer recharge (MAR) system, located 15 km east of the significant amendment. Surplus water is discharged to the Ophthalmia Dam system via pipelines and water from the dam infiltrates into the Ethel Gorge aquifer. Ophthalmia Dam receives mine dewater discharge from the approved proposal and other approved operational mines, including the proponent's current Eastern Ridge, Jimblebar and OB31 mine sites.

Groundwater quality data indicates that the local aquifers are generally fresh, ranging between 520 and 530 mg/L total dissolved solids (TDS). Sampling indicates that pH is neutral, at 7.7 (BHP 2025b). Groundwater sampling, undertaken since 2020, detected PFAS exceedances of the National Environmental Management Plan (NEMP) human health drinking water quality guideline values at groundwater monitoring bores located to the west and north of OB29. In addition, spatially limited and isolated detections have been recorded above the NEMP ecological freshwater 95% species protection guideline value for Perfluorooctane sulfonate (PFOS) (0.13 µg/L).

PFAS has also been detected at very low levels in the Ethel Gorge aquifer at sites in close proximity to Ophthalmia Dam. The 95% upper confidence level (UCL) average PFOS concentration within the Ethel Gorge TEC is 0.0009 µg/L with a recorded maximum concentration of 0.0046 µg/L, which is above the NEMP 99% species protection guideline value but is well below the NEMP ecological freshwater 95% species protection guideline value.

Ethel Gorge Aquifer

The Ethel Gorge alluvial and calcrete aquifer is approximately 10 km to the east of the significant amendment. The shallow alluvial and calcrete aquifers of Ethel Gorge support the unique and diverse stygofauna assemblage Ethel Gorge aquifer Stygobiont community Threatened Ecological Community (Ethel Gorge TEC). Ophthalmia Dam partially overlies the Ethel Gorge aquifer allowing recharge to the shallow groundwater system through seepage from Ophthalmia Dam and associated infiltration structures as well as direct infiltration from channel flow events. The groundwater levels of the Ethel Gorge aquifer are managed by Ophthalmia Dam through a manager aquifer recharge (MAR) scheme.

The proponent's hydrogeological studies have shown groundwater flow within the regional aquifer is inhibited (i.e. within the low transmissivity area) between the local Western Ridge and Orebody 29/30/35 aquifer compartment in the west and Ethel Gorge aquifer compartment in the east (Figure 7-3 of ERD). The regional Tertiary Detrital and dolomite aquifers are conservatively assumed to be continuous from Orebody 29 to the Ethel Gorge aquifer system (BHP 2024c). The western boundary of this low transmissivity area is formed by the leaky flow barrier that exists just to the east of Orebody 29 and the eastern boundary is formed by the leaky flow barrier that exists southwest of Orebody 25 (BHP 2025b).

Groundwater levels in the Ethel Gorge aquifer currently do not show any response to the groundwater abstraction for the approved proposal. This is mainly due to the infiltration of water from Ophthalmia Dam and the distance of Orebody 29/30/35 from the Ethel Gorge aquifer (greater than 10 km). The depth to groundwater is less than 10 mbgl in the Ethel Gorge aquifer in the TEC (BHP 2025b).

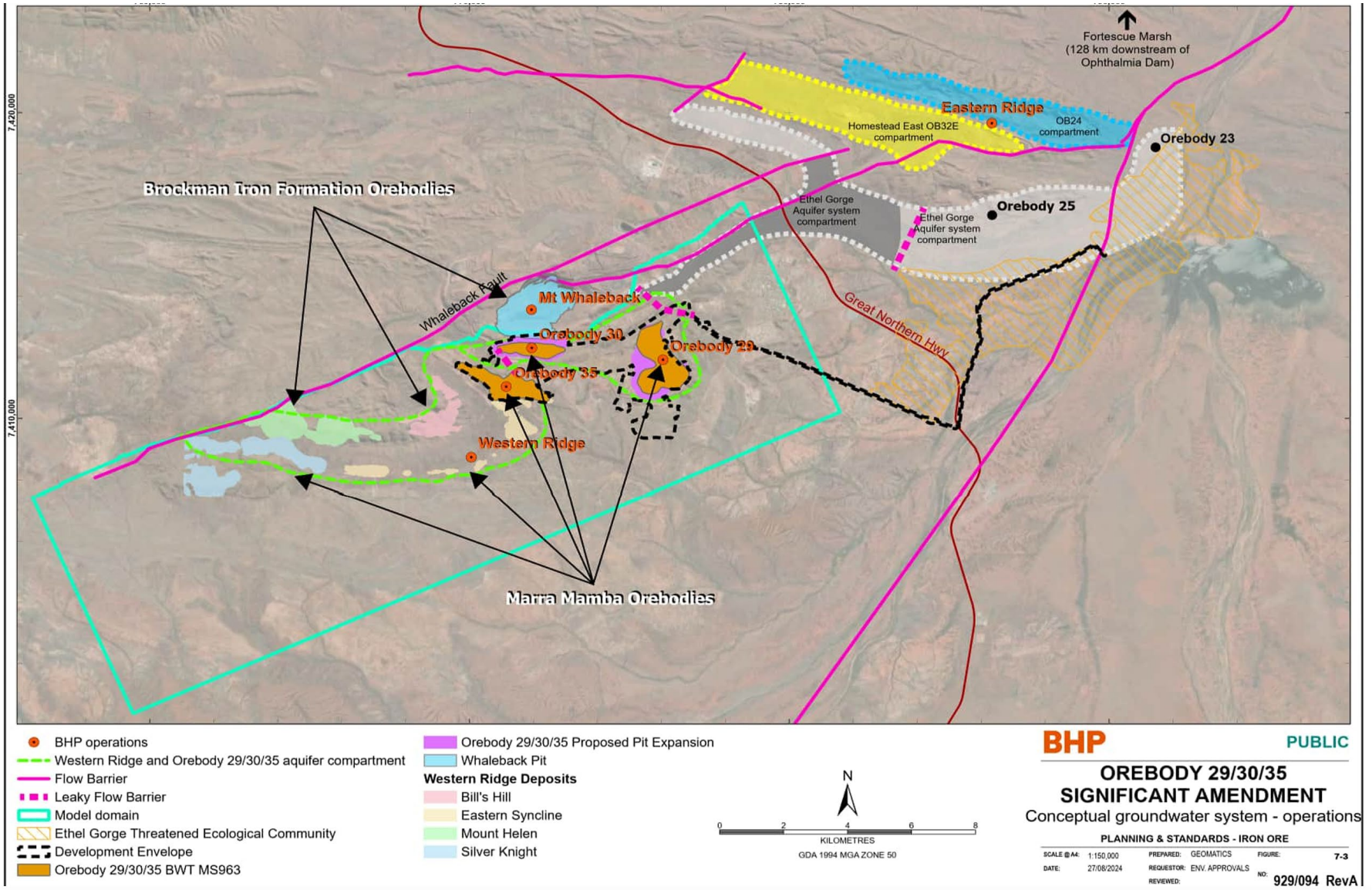

Figure 9: Significant Amendment mine area hydrogeological aspects

Surface Water

The significant amendment is located within the Upper Fortescue River Basin, within both the Whaleback Creek and Fortescue regional sub-catchment areas (Figure 10). At the local scale, the development envelope extends into the Whaleback Creek and Fortescue River at Ophthalmia Dam sub catchments (Figure 10).

Significant surface water features in the vicinity of the significant amendment include the Nankunya (formerly known as Afghan Springs), comprising a number of pools and seeps which is located within the Whaleback Creek catchment on the tributary of Whaleback Creek approximately 2.4 km west of the western boundary of the development envelope (BHP 2024h) (Figure 10).

Hydrological investigations and monitoring demonstrate that Nankunya is supported by shallow groundwater (potential perched aquifer) that is hydraulically disconnected from the orebody aquifers that are currently being dewatered as part of approved proposal and significant amendment (BHP 2025b).

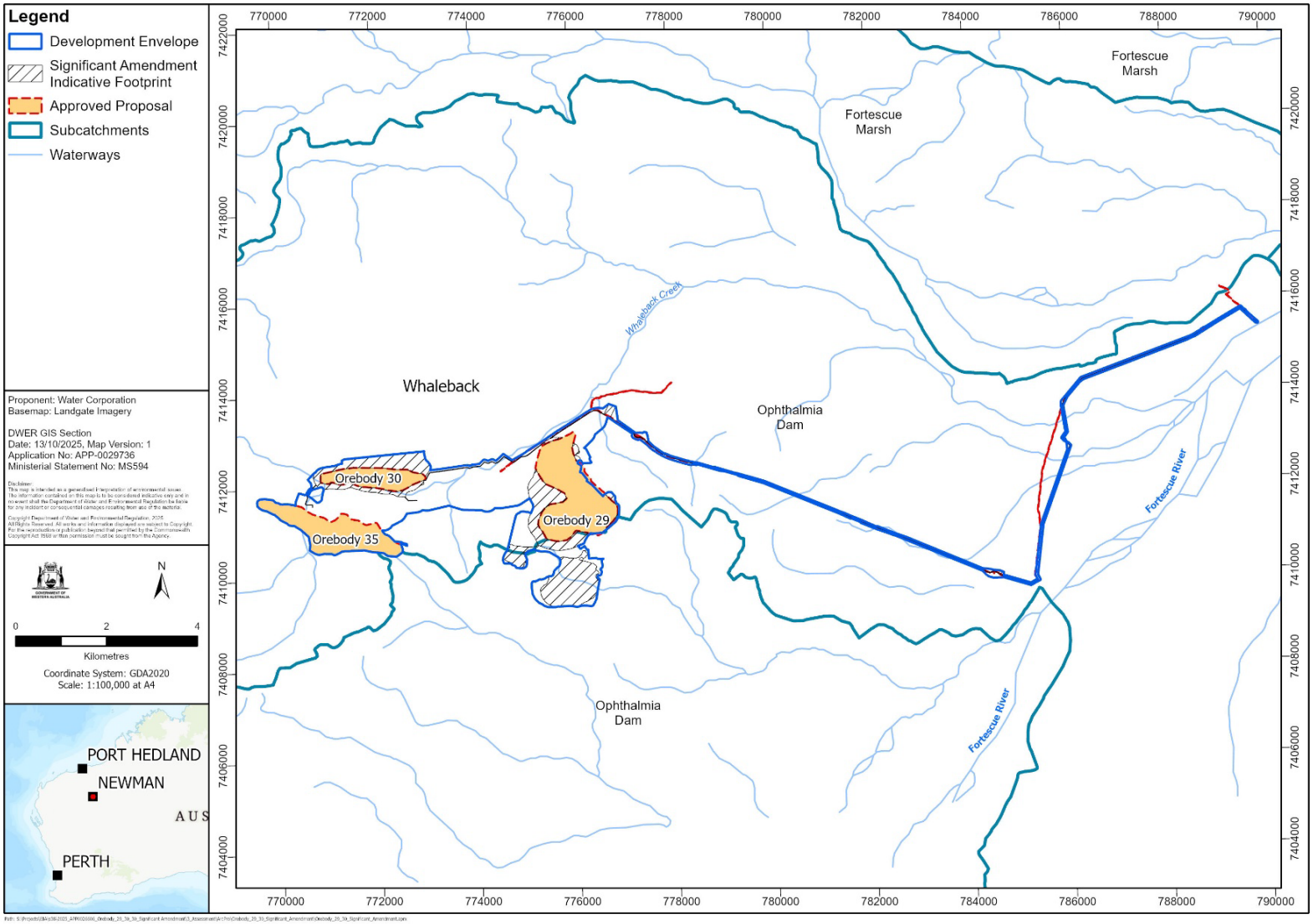

Figure 10: Creeks and surface water within the development envelope

2.4.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the *Request for Additional Environmental Information* (dated 23 March 2025) and revised Environmental Review Document (BHP 2025b).

The key issues raised during consultation and how they have been considered in the assessment are described in sections 2.4.5 to 2.4.9.

2.4.5 Potential impacts from the proposal

The significant amendment has the potential to result in the following direct and indirect impacts on inland waters from:

- alteration to groundwater aquifers due to additional abstraction of up to 16.5GL/a groundwater (combined effect totalling up to 24.5 GL/a).
- impacts to groundwater and surface water quality from an additional discharge of up to 12.8 GL/a surplus mine dewater to Ophthalmia Dam (combined effect totalling up to 20.8 GL/a).
- alteration of surface water regimes due to catchment reduction from pit expansion, OSAs and associated infrastructure.
- impacts to groundwater and surface water quality due to mineral waste management, specifically the construction of OSAs and options for open voids and formation of mine pit lakes post closure.

The potential impacts to groundwater dependent ecosystems and riparian vegetation are discussed further under flora and vegetation in section 2.1 of this report and the potential impacts to the Ethel Gorge TEC are discussed under subterranean fauna in section 2.3 of this report.

2.4.6 Avoidance measures

The proponent is of the view that no specific avoidance measures are required for the significant amendment as no new significant water values have been identified within the development envelope since the assessment of the approved proposal.

The proponent has committed to avoiding the use of chemicals containing PFAS, to avoid the risk of increasing PFAS contamination at the site and potential impacts to groundwater quality.

2.4.7 Minimisation measures (including regulation by other DMAs)

The proponent has proposed the following measures to minimise impacts to Inland Waters:

- implement Eastern Pilbara Water Resource Management Plan (EPWRMP) (BHP 2023a), including provisions for groundwater level and groundwater salinity criteria (triggers and thresholds), to maintain groundwater levels and salinity in the Ethel Gorge aquifer within historical levels of variation.

- implement Water (PFAS) Management Plan to manage PFAS concentrations within surplus discharge water.

Rights in Water and Irrigation Act 1914

Currently, groundwater abstraction within the development envelope is licenced under groundwater licence (GWL 160418(8)) with an approved annual abstraction limit of 8 GL/a for the approved proposal. To increase the approved groundwater abstraction rates associated with the significant amendment (by up to 16.5 GL/a) the proponent would be required to obtain or amend approvals under the RiWI Act.

In accordance with the RiWI Act, a Ground Water Operating Strategy (GWOS) will be required as part of the groundwater licence, which includes monitoring, management and reporting requirements to ensure that the groundwater abstraction and drawdown can be monitored and managed. The proponent will seek an amendment to the proposal's 5C licence to increase the abstraction entitlement from 8 GL/a to 24.5 GL/a and will update the Operating Strategy.

Part V, Division 3 of the EP Act

The proponent has an existing Part V of the EP Act licence (L4503/1975/14), which covers the Mt Whaleback mining operations (Mt Whaleback and Orebody 29/30/35 mines). The current licence authorises surplus water management, including surplus mine dewatering discharge to the Ophthalmia Dam system.

A Works Approval and Licence amendment under Part V of the EP Act will be required to facilitate these additional mine activities, specifically through the amendment to Category 6 of the licence. A water quality management plan can be required under the Part V licence that includes quarterly water quality monitoring at emission point of surplus dewatering water, when discharging or reinjecting.

2.4.8 Rehabilitation measures

The proponent has proposed the following progressive rehabilitation measures:

- Implementation of the revised MCP (BHP 2024b) which has been amended to include the additional aspects of the proposal, addressing how pits and constructed landforms (principally OSAs) will be designed, constructed and rehabilitated, to ensure they are safe, stable and non-polluting.
- The MCP includes potential management strategies and processes for monitoring the risk indicators for surface water and groundwater quality.

2.4.9 Assessment of impacts to environmental values

The EPA has assessed the significant amendment in the context of the approved proposal (MS 963) while having regard to the combined and cumulative effect that the implementation of the significant amendment may have on inland waters.

The EPA advises that the assessment of residual risks to groundwater and surface water have been based on the proponent's investigations and DWER's advice. The EPA has determined that the key environmental values for inland waters are likely to be impacted by:

- additional groundwater abstraction to allow for dewatering mine deposits

- discharge of additional mine surplus water to Ophthalmia Dam
- reduction in catchment
- mineral waste seepage from pits and OSA and increased salinity from pit lakes.

Groundwater drawdown

The key environmental value with potential to be impacted by groundwater drawdown is the Ethel Gorge alluvial and calcrete aquifer. The EPA notes that the development envelope is partially within the Newman Water Reserve PDSWA.

No permanent or ephemeral surface water features are expected to be affected by groundwater drawdown. As discussed in Section 2.4.3, Nankunya (formerly known as Afghan Springs) is hydraulically disconnected from the orebody aquifers currently being dewatered under the approved proposal (BHP 2025b).

The significant amendment includes an increase in approved mine dewatering limits from 8 GL/a to 26.5 GL/a, to allow for expansion of OB29 and OB30 pits. This additional groundwater abstraction has the potential to alter the groundwater regime by extending the lateral and vertical extent of drawdown beyond what was authorised under the approved proposal.

The proponent's updated hydrogeological modelling, undertaken to support the significant amendment, represents the combined effect of up to 26.5 GL/a of predicted drawdown. The predicted drawdown in the orebody aquifer at the end of dewatering is up to 60 m greater than that predicted for the approved proposal. In the regional aquifer, drawdown is similar in the south for the approved proposal but is deeper to the west, north, and east by up to 80 m (BHP 2024d).The predicted lateral extent of drawdown is similar to the approved proposal to the north, east, and south, but extends approximately 6 km further west, away from the Ethel Gorge aquifer (Figure 11). In addition, the predicted drawdown is within that was assessed for the approved Western Ridge proposal, except for the vertical drawdown in the north of OB29 which is approximately 70 m deeper.

The EPA notes that the proponent's model does not include the Ethel Gorge aquifer and the predicted drawdown east of OB29 near the leaky flow barrier has been extrapolated. DWER recommended a new model covering the Ethel gorge area, possibly joining the Eastern boundary of the existing model, be constructed to demonstrate impacts to the Newman Water Reserve PDWSA are not significant. The proponent advised that including Ethel Gorge aquifer in the model was not feasible and that the predictive capability around OB29/30/35 would be compromised. Furthermore, analysis of the data has shown that the characteristics of the regional aquifer between OB29 and Ethel Gorge present a constriction in the flow system and significantly reduce the potential for throughflow from west to east.

The EPA notes that when considering the proponent's modelling predictions, combined with the low transmissivity of the orebody aquifer between OB29 and the Ethel Gorge aquifer, the combined drawdown is predicted to reduce the water level by approximately 24 m past the leaky flow barrier. The EPA further notes that groundwater level monitoring, in accordance with the EPWRMP and the

Groundwater Operating Strategy has shown that drawdown is largely isolated to the mining areas.

Considering the above the EPA is of the view that the Ethel Gorge aquifer and the Newman Reserve PDWSA is unlikely to be impacted by groundwater drawdown associated with the significant amendment and combined proposal. However, due to the potential uncertainty of the predicted drawdown in the Ethel Gorge aquifer, the EPA recommends condition B3-1 to maintain water levels in both the Ethel Gorge aquifer and the Newman Water Reserve PDWSA.

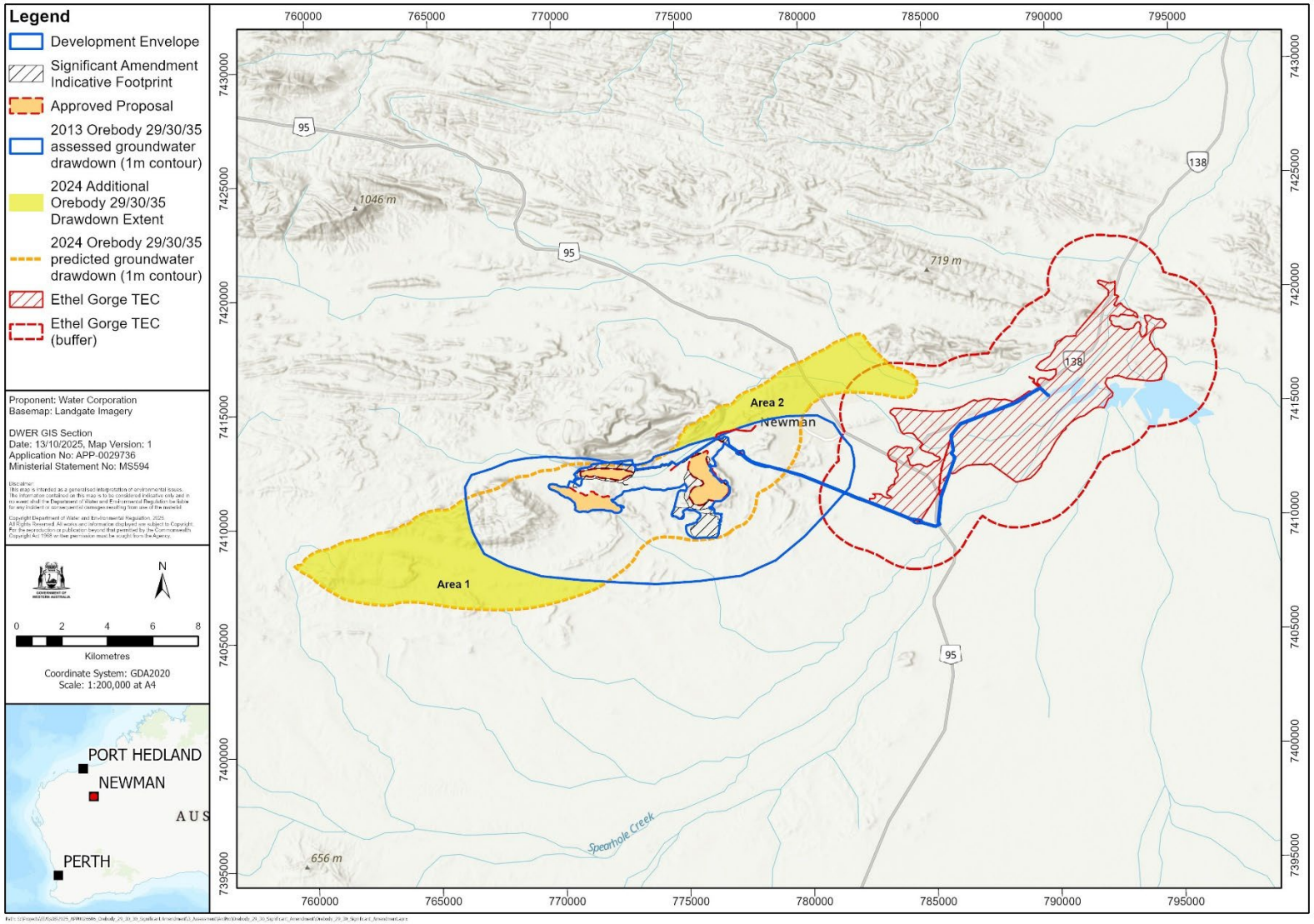

Figure 11: Groundwater Drawdown Contours/Modelled Extent

Mine Pit-lakes and *acid and metalliferous drainage (AMD)*

The significant amendment includes the expansion of the OB29 and OB30 mine pits, and the development of new overburden storage areas (OSAs) south of the OB29 mine area. The proponent's studies and AMD risk assessment for Orebody 29/30/35 have identified a low risk of generating AMD at OB29 and OB35, and a negligible risk at OB30 (BHP 2025b).

To mitigate the potential for erosion, OSAs will be designed to remain outside at least the 100-year floodplain of major drainage lines during operations, and where possible, also outside the 10,000-year floodplain. OSAs will be managed in accordance with internal AMD standards and procedures, and the *Orebody 29/30/35 Mine Closure Plan (MCP)* (BHP 2024b), including bunding and measures to minimise erosion and sedimentation. This design approach aims to ensure that OSAs may be suitable for closure without requiring additional flood protection measures.

During operations, the proponent will undertake additional geochemical testing to refine AMD risk profiles and integrate geochemical characterisation into mining models. Potentially acid-forming (PAF) material will be encapsulated within OSAs or pit voids to minimise oxidation and the potential to generate AMD 2024a).

Groundwater modelling and analysis for the significant amendment predicts the formation of permanent pit lakes in the impact areas of the combined proposal (BHP 2025b). Pit lakes have the potential to contaminate groundwater resources in the aquifer compartment in which they occur. The extent of pit lakes and the degree to which pits are backfilled will depend on the availability of waste rock material.

Modelling predicts that groundwater will flow into the pit lakes, which will remain terminal groundwater sinks. Groundwater will flow into the pit lakes, away from regional aquifers and sensitive receptors. Therefore, saline water or other contaminants are not expected to migrate from the pit lakes into the surrounding groundwater system, and the risk to groundwater quality and the Ethel Gorge aquifer and Newman Water Reserve PDWSA is considered low.

As the regional aquifers are conservatively assumed to be continuous from Orebody 29 to the Ethel Gorge aquifer system, the groundwater sinks (pit lakes) may result in the groundwater flowing from the Ethel Gorge aquifer to the OB29/30/35 mine voids. The EPA notes that while the Ophthalmia Dam system continues to operate, groundwater levels in the Ethel Gorge aquifer would likely remain within historical levels. However, as the Ophthalmia Dam system is at least partially reliant on surplus water discharge from mining operations, once surplus water discharge is significantly reduced or ceased, there is the potential for groundwater levels to lower within the Ethel Gorge aquifer.

The proponent's *Orebody 29/30/35 MCP* (BHP 2024b), includes provisions for the management of pit voids at closure. The proponent has committed to assessing pit lake water quality impacts in future iterations of the MCP, refining the backfill strategy to manage any significant impacts to receptors, and prioritising backfill to

mine voids. Where practicable, mined overburden will be backfilled into mined-out pits at OB29 and OB35 to minimise the cumulative impacts of pit lakes. The EPA considers that the proponent's future investigations and modelling for closure will need to consider whether having groundwater sinks will result in the lowering of groundwater levels in Ethel Gorge aquifer and expects the proponent to implement a backfill strategy that ensures groundwater levels are maintained post closure.

The EPA is of the view that the overall risk of changes to groundwater quality from AMD and other potential contaminants associated with the significant amendment is expected to be low, subject to the application of standard AMD management practices and the revision and implementation of the *Orebody 29/30/35 MCP* to during operations and post-closure.

The EPA advises that the significant amendment's impacts to groundwater quality can be managed through the implementation of condition B7-2, which requires the update and submission of the *Orebody 29/30/35 MCP* (BHP 2024b) to meeting the outcomes in condition B7-1 in accordance with the Department of Mines, Petroleum and Exploration (DMPE) *Guidelines for preparing mine closure plans*, or any subsequent revisions of the guidelines (DEMIRS 2025).

Surplus Water Discharge to Ophthalmia Dam

The significant amendment proposes an additional 12.8 GL/a increase to the approved proposal (8 GL/a) for surplus water discharge to the Ophthalmia Dam system, resulting in a combined total of 20.8 GL/a. Surplus water discharge has the potential to alter groundwater levels (e.g. overtopping) and groundwater quality within Ophthalmia Dam (from increased levels of PFAS), which infiltrates into the Ethel Gorge aquifer and the Newman Water Reserve PDWSA.

DWER raised concerns that the proposed surplus water discharge volume increase may exceed the Dam's capacity, as indicated by the proponent's 2024 discharge forecasts. The proponent's 2024 forecasts suggests the Dam's capacity could be exceeded for several years, resulting in overtopping and/or exceeding the allowable three-month dry season controlled releases to the Fortescue River (BHP 2025b).

In the absence of alternatives to surplus water discharge to the Dam, the proponent has committed to managing operations to avoid overtopping, using measures outlined in the Environmental Protection Water Resource Management Plan (EPWRMP) should the Dam's capacity become at risk. These measures include releasing water during wet season flow events and altering or ceasing discharge from proponent's Eastern mines. While not part of this proposal, the EPA also notes that proponent is also currently exploring alternative surplus water management options, including Managed Aquifer Recharge (MAR) and creek discharge schemes, such as the Caramulla surplus water scheme implemented in 2022. See section 6 Other Advice for further details.

As discussed in Section 2.4.3, groundwater sampling at Orebody 29/30/35 since 2020 has detected PFAS exceedances of the National Environmental Management Plan (NEMP) human health drinking water quality guideline values at monitoring bores located to the west and north of OB29. These exceedances present a risk that

surplus water discharge could cause detrimental changes to groundwater quality within Ophthalmia Dam, which infiltrates into the Ethel Gorge aquifer, potentially impacting the Newman Water Reserve PDWSA.

Given the potential for elevated PFAS levels, DWER expressed the view that the Orebody 29/30/35 Water (PFAS) Management Plan (BHP 2024f) lacks clarity on how surplus mine dewater will be managed if PFAS concentrations exceed discharge criteria for Ophthalmia Dam. In response the proponent has provided additional information on its management approach and internal trigger action response plan (TARP). The EPA notes that the proponent has undertaken a detailed site investigation across Mt Whaleback and groundwater modelling and pump testing. This information has been incorporated into a catchment-wide surface water model to predict future PFAS concentrations within Ophthalmia Dam from stormwater runoff and dewatered groundwater. The proponent also has a monitoring system in place at Newman to prevent exceedance of PFAS for the Newman town water supply, ensuring no unacceptable risks to human health and the environment (BHP 2025e). Where trigger criteria are exceeded, the proponent will adjust dewatering flow rates across the orebodies and divert dewatered water for onsite industrial/commercial re-use, minimising the risk of dewatered groundwater with unacceptable levels of PFAS being discharged into Ophthalmia Dam (BHP 2025e). As a contingency measure, the proponent proposes to reduce PFAS concentrations in dewatering bores through diluting contaminated water.

The EPA further understands that detailed site investigations for PFAS across Mt Whaleback were undertaken along with additional targeted site investigations to support PFAS characterisation. Site management plans are in place, including the Interim PFAS Site Management Plan which has been endorsed by the Contaminated Sites Auditor. The proponent has implemented upgrades and improved management controls to minimise potential for PFAS discharge to the environment. The EPA notes that the Rail Loop Ponds PFAS source has been remediated using low-permeability cap (BHP 2025e).

The EPA is of the view that the proponent's multi-level TARP, additional controls and remediation through site management plans and a revised Water (PFAS) Management Plan provides a comprehensive multi-level approach for monitoring and managing the potential risk of elevated PFAS concentrations in discharge water to Ophthalmia Dam.

To manage the uncertainty and potential risks, the EPA requires the proponent to ensure that the chemical composition of dewatering discharge is, as far as practicable, similar to that of the Ethel Gorge aquifer. The EPA has therefore recommended condition B3-3 that requires the proponent to update and implement the Orebody 29/30/35 Water (PFAS) Management Plan to provide for monitoring criteria (triggers and threshold levels for PFAS) and include management provisions from the TARP that ensure the environmental outcomes of maintaining water quality in condition B3-1 are achieved.

Surface Water Flow Regimes (Catchment Reduction)

The significant amendment has the potential to alter surface water regimes by

disrupting natural surface flows and reducing the availability of downstream surface water (runoff), directly impacting existing water flows and volumes.

The amendment will reduce the catchment area contributing to runoff, primarily due to the footprints of pit expansions and additional overburden storage areas (OSAs), as well as upstream catchment areas intercepted by these features. The proposed surplus water pipeline within the mine area of the development envelope will be above ground, but flows will only be partially restricted, resulting in a negligible impact on catchment areas and surface water availability. Outside the mine area, the proposed pipeline will be below ground and is therefore expected to have no impact on catchment areas or surface water availability.

The amendment would result in a maximum potential reduction of approximately 1.14 % of the Whaleback Creek catchment, which is considered within the natural variation of seasonal runoff. When considering the combined effect, the maximum estimated reduction in surface water availability has been modelled at up to 3.94% for the Whaleback Creek catchment area upstream of the Fortescue River. This is considered to be of similar magnitude to reductions associated with previously approved proposals.

The EPA considers this reduction to be relatively minor in nature and extent, and when considering the generally short, episodic rainfall patterns in the Pilbara region and the short periods of runoff, the significant amendment is unlikely to impact peak creek flows. The EPA also notes the proponent's commitment to design and construct mine infrastructure in accordance with applicable Australian Standards.

The EPA is of the view that the environmental outcome is likely to be consistent with the EPA objective for inland waters, subject to the recommended conditions and the statutory provisions of the *Rights in Water and Irrigation Act 1914* (RiWI Act) and Part V of the *Environmental Protection Act 1986* (EP Act), which provide for monitoring of discharge water quality, including annual reporting of exceedances of trigger values and details of investigations and remedial actions.

Cumulative impacts

The proponent's existing mining operations at the OB31, Jimblebar and Newman hubs (including from the Jimblebar Hub, OB32 BWT and Western Ridge) are the only proposals that are located within the same groundwater and surface water catchments as the combined proposal. The nearest third-party iron ore mining operation is Rio Tinto's Hope Downs 4 operation, located 30 km to the northwest of the significant amendment in the central Pilbara region.

As previously discussed, the potential impacts from the cumulative groundwater from the combined proposal is not predicted to extend further than the cumulative drawdown extent assessed for the Western Ridge approved proposal. However, the vertical drawdown in the regional aquifer near the northeastern and northern boundaries of the model domain is predicted to be deeper by up to 70 m.

It is expected that groundwater levels in the Ethel Gorge aquifer will be maintained within historical levels. Due to the significant environmental value of the Ethel Gorge aquifer, the EPWRMP includes groundwater criteria relating to groundwater level

and water quality decline. As the management in the EPWRMP applies to all proponent's approved eastern mines, the groundwater level and quality criteria will also apply to the combined proposal. Groundwater levels and quality in the Ethel Gorge aquifer will be managed at the regional scale through the existing mitigation in the EPWRMP.

The EPA is of the view that the environmental outcome as a result of cumulative impacts is likely to be consistent with the EPA objective for inland waters, subject to the recommended conditions, which includes an update and implementation of the EPWRMP and the statutory provisions of RiWI Act and Part V of the EP Act.

2.4.10 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on inland waters environmental values. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can mitigate potential inconsistency with the EPA factor objective. The EPA assessment findings are presented in Table 6.

The EPA has also considered the principles of *the Environmental Protection Act 1986* (see Appendix C) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 6: Summary of assessment for inland waters

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Groundwater drawdown abstraction.	The drawdown associated with groundwater abstraction for mine pit dewatering is not expected to impact significant environmental values or other nearby licensed bore users. The EPA advises that subject to recommended conditions and regulation by other DMAs, the environmental outcome is likely to be consistent with the EPA objective for inland waters.	**Condition A1-1 (Limitations and extent of proposal)** Groundwater abstraction limit. **Condition B3 (Inland Waters and Subterranean Fauna)** Maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer. **DMA regulation** Licensing of water abstraction under the RiWI Act.
2.	Groundwater Quality (Surplus water discharge to Ophthalmia Dam)	Surplus dewater discharge to Ophthalmia Dam has the potential to cause groundwater quality changes in Ethel Gorge aquifer.	**Condition A1-1 (Limitations and extent of proposal)**

Residual impact		Assessment finding	Recommended conditions and DMA regulation
		The EPA is of the view that the proponent's multi-level TARP, additional controls and remediation through site management plans and a revised Water (PFAS) Management Plan provides a comprehensive multi-level approach for monitoring and managing the potential risk of elevated PFAS concentrations in discharge water to Ophthalmia Dam. The EPA advises that subject to recommended conditions and regulation by other DMAs, the environmental outcome is likely to be consistent with the EPA objective for inland waters.	Limits to surplus discharge rate from Jimblebar Hub to Ophthalmia Dam **Condition B3 (Inland Waters and Subterranean Fauna)** Maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer. **DMA regulation** Part V EP Act licence that includes quarterly water quality monitoring at emission point of surplus dewatering water, when discharging or reinjecting.
4	Mine Pit Lakes (AMD and salinity)	The potential residual impacts relate to change to groundwater quality as a result of post-closure mine pit lakes. The EPA considers that, subject to the implementation of the EPA's recommended condition B6, requiring the implementation and revision of the MCP, the proposal can be managed to meet the EPA's objectives for the factor of Inland Waters with regard to water quality.	**Condition B7 (Mine Closure)** Requiring the update and implementation of the *Orebody 29/30/35 MCP* which ensure achievement of maintaining habitat, groundwater levels and water quality in the Ethel Gorge aquifer and no disturbance to sensitive environmental or cultural heritage receptors from pits and waste rock with acid and/or metalliferous drainage and salinity potential.

2.5 Greenhouse Gas Emissions

2.5.1 Environmental objective

The EPA environmental objective for greenhouse gas (GHG) emissions is *to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable* (EPA 2023c).

2.5.2 Policy context

The information used to inform the assessment of the proposal's greenhouse gas emissions are provided in Appendix E.

The EPA considers it has adequate information to have due regard to its GHG EFG (EPA 2024) in its assessment of the proposal's greenhouse gas emissions.

2.5.3 Assessment context

GHG emissions from a cumulative range of sources have an impact on WA's environment, even if the specific impact of a particular proposal's emissions may not be known with certainty. This is because there is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will have an impact on WA's environment and environmental values. For example, climate change has already caused a significant drying of the State's south-west, which in turn places significant additional pressures on water resources, flora and fauna, marine environmental quality and social surroundings.

There is also an established correlation between global temperature rise and GHG emissions. The EPA advises that for every 1,000 billion (G) tonnes (t) CO2 emitted by human activity, global surface temperature rises by 0.45°C, as a best estimate, with a likely range from 0.27°C to 0.63°C (IPCC, 2023). The best estimates of the remaining global carbon budgets from the beginning of 2020 are 500 Gt CO2 for a 50% likelihood of limiting global warming to 1.5°C (IPCC, 2023). Remaining carbon budgets from 2020 depend on emissions and emissions mitigation from that time (IPCC 2023).

The EFG GHG (EPA 2024) provides that GHG emissions from a proposal will be considered where they are reasonably likely to exceed 100,000 tonnes (t) of carbon dioxide equivalents (CO_2-e) of scope 1 or scope 2 emissions in any year. This is the same as the (scope 1) threshold criteria for designation of a large facility under the Australian Government's Commonwealth Safeguard Mechanism. The scope 1 emissions provided by the proponent for this proposal exceed this threshold. Scope 3 emissions for the proposal are also expected to exceed 100,000 t CO_2-e per annum.

2.5.4 Potential emissions from the proposal

Scope 1 GHG emissions resulting from the proposal include those from heavy haulage, ancillary and dewatering, electricity generation, transportation via rail to port and land clearing.

There are no scope 2 emissions as all emissions related to the Yarnima Power Station (electricity generation) and emissions associated with BHPIO's rail operations are factored into the scope 1 emissions for this assessment.

Scope 3 emissions include downstream emissions associated with ship loading activities at Port Hedland, shipping of products to customers and customer's processing or iron ore in steelmaking.

The proponent provides estimates of (unmitigated) annual average and peak GHG emissions for both the significant amendment and the combined proposal.

GHG emissions – Significant Amendment

- Scope 1 emissions: annual average of 1,889 t CO_2-e with a maximum (peak) of 76,486 t CO_2-e in 2028.

GHG emissions – Combined Proposal

The proponent estimated GHG emissions associated with the Orebody 29/30/25 proposal (combined proposal) to be:

- Scope 1 emissions: annual average of 71,538 t CO_2-e with a maximum (peak) of 156,838 t CO_2-e in 2028.
- Scope 3 emissions: annual average of 9,787,488 t CO_2-e with a maximum (peak) of 24,193,467 t CO_2-e.

The ministerial statement associated with the approved proposals did not include any conditions relating to greenhouse gas emissions.

Cumulative effects

WA's yearly scope 1 emissions based on 2022 levels were 82.5 million tonnes (Mt) CO_2-e (DCCEEW 2024) and national emissions for 2022 were 432.9 Mt CO_2-e (DCCEEW 2023). The annual average estimated scope 1 GHG emissions from the combined proposal would constitute approximately 0.09% of WA's total emissions and 0.02% of Australia's total reported GHG emissions.

The proponent's Pilbara Regional Greenhouse Gas Management Plan (BHP 2023c) describes the various methodologies that were used to calculate quantities of GHG emissions resulting from the significant amendment and the combined proposal.

The EPA considers that the proponent's estimated GHG emission quantities are a reasonable basis for the assessment.

2.5.5 Consultation

Stakeholder consultation did not raise any concerns relating to GHG.

2.5.6 Avoidance measures and minimisation measures including best practice review and benchmarking

Avoidance and minimisation

The proponent has identified the following measures to avoid and minimise GHG emissions:

- establishment of a new overburden storage area closer to mining activities to reduce haul truck trip time from 31 minutes to 21 minutes
- reduction in vegetation clearing by using existing infrastructure including existing roads and mining processing infrastructure
- as part of the fleet decarbonisation strategy, the proponent is moving towards the electrification of its haul trucks, with prototypes having been developed. Electric haul trucks are expected to be operational at some BHP sites from 2028, with all haul trucks to be electrified by mid-2030s
- development of electric excavators and replacing diesel light vehicles with electric vehicles
- increasing the sources of renewable energy providing power to mining operations.

Best practice review

To gain a better understanding of whether the proposal's Pilbara Regional Greenhouse Gas Management Plan (GHGMP) is consistent with best practice measures, the proponent engaged KPMG to undertake a peer review (KPMG 2024) of the Orebody 29/30/35 GHGMP, which is schedule 3 of the *Pilbara Regional Greenhouse Gas Management Plan* (Appendix 13 of the ERD). This review included an assessment of the proposed emissions reduction measures against industry best practice.

This review acknowledged that the proposal is part of the proponent's integrated iron ore operation in the Pilbara and that decarbonisation initiatives in the proposal are part of wider decarbonisation strategy. The outcome of the review concluded that the following initiatives were consistent with best practice emissions reductions:

- electrification of mining vehicles and other equipment, which offers the best prospect for significant decarbonisation. The proponent is working with vehicle manufacturers to trial and introduce battery electric haul trucks
- provision of power from Yarnima power station. The combined cycle gas-fired electricity generation plant uses what is considered best-practice technology in terms of fossil fuel electricity generation
- the use of high efficiency materials and pumping equipment in dewatering, the connection of some dewatering equipment to the BHP Iron Ore Inland Power Grid, and the location of the overburden storage area to reduce haul cycle times.

Benchmarking

The proponent has benchmarked the combined proposal against similarly sized iron ore operations and the Safeguard Mechanism Iron Ore mining default (BHP 2023). The combined proposal's emissions intensity of 0.0071 t CO_2-e per tonne of iron ore is higher than that of the Safeguard Mechanism Iron Ore mining default of 0.00476 t CO_2-e per tonne of iron ore, and the associated Safeguard Mechanism best practise benchmark of 0.00188 t CO_2-e per tonne of iron ore. This reflects the fact that this proposal is a brownfield site, and depth to ore and distance from processing infrastructure is greater than that at greenfield sites, and therefore more carbon intensive (BHP 2023).

The EPA considers that the proponent has adopted upfront avoidance and minimisation measures, through the inclusion of existing infrastructure, the placement of a new overburden storage area, and the future implementation of electric haul trucks to reduce GHG emissions from the commencement of the significant amendment. Based on the proponent's benchmarking and the findings of the KPMG (2024) review, the environmental outcome is likely to be consistent with the EPA environmental factor objective to reduce greenhouse gas emissions as far as practicable.

2.5.7 Emissions Trajectory to 2050

The proponent's long-term goal for both scope 1 and scope 2 emissions from its operated assets is to achieve net zero operational GHG emissions by 2050 and reduce operational GHG emissions by at least 30% by financial year 2030.

The proponent has adopted an indicative scope 1 emissions reduction trajectory for the combined proposal aligned with the Safeguard Mechanism (Figure 12).

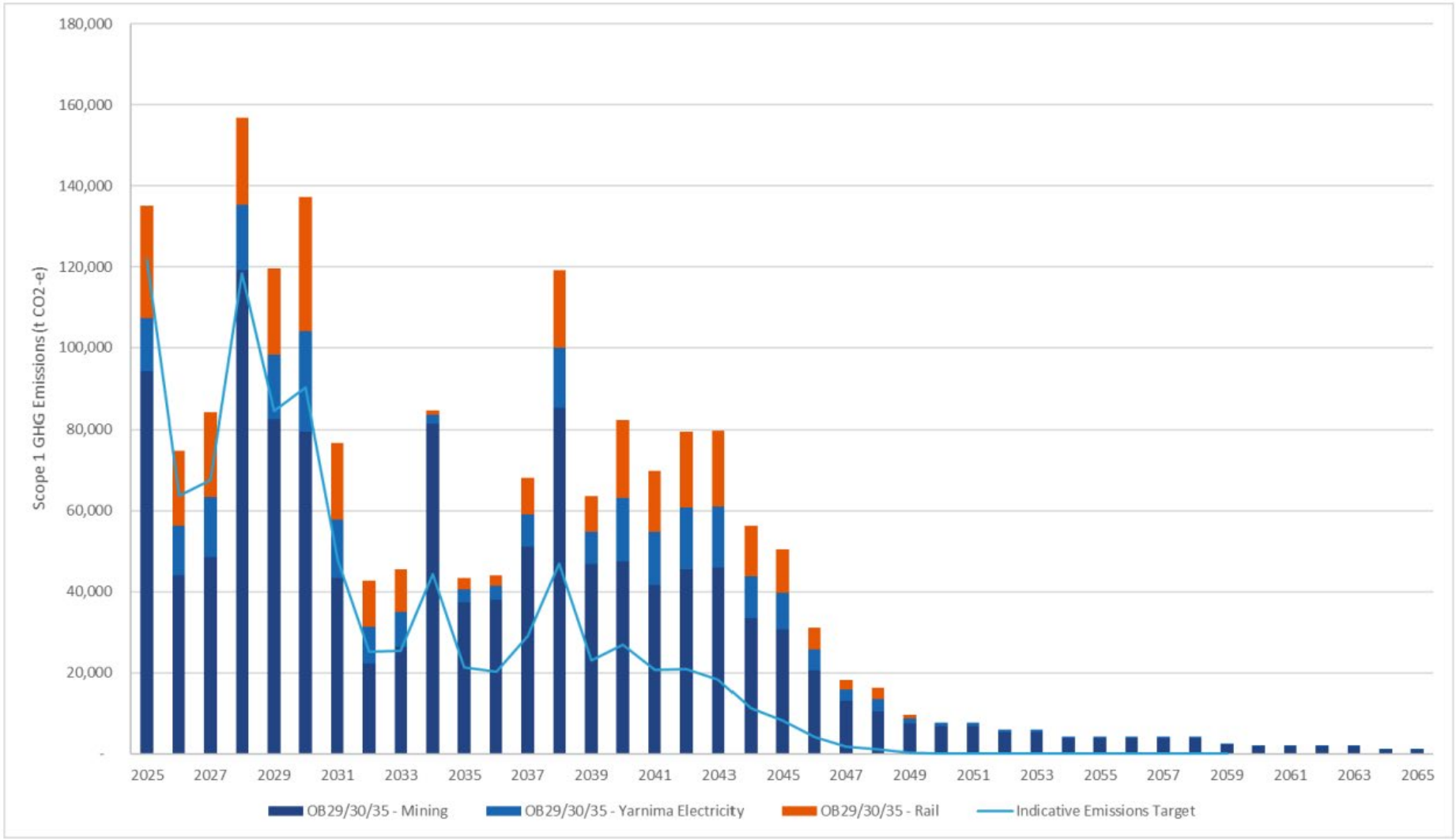

Figure 12: Scope 1 emissions indicative reduction trajectory

The EPA notes that the proponent's indicative emissions trajectory for scope 1 emissions will mitigate approximately 906,329 t CO2-e over the life of the combined proposal, compared to the (unmitigated) base case scenario'.

2.5.8 Scope 3 GHG emissions

Scope 3 emissions relating to this proposal predominantly (>98%) relate to the processing of mined iron ore into steel products and are estimated to be 9,687,364 t CO_2-e (annual average) and 239,884,313 t CO_2-e over the life of the combined proposal.

The EPA notes the proponent's long-term, albeit uncertain, goal of net-zero scope 3 emissions by 2050 and the current measures being undertaken by the proponent with downstream customers and suppliers to reduce scope 3 emissions.

The EPA further notes that some downstream emissions are operational emission of other BHP Iron Ore controlled facilities, such as Port Hedland. The EPA understands reductions in emissions from those operations will be managed through operational decarbonation strategies described in the Pilbara Regional GHGMP which includes the long-term goal and medium-term targets for operational scope 1 and scope 2 GHG emissions.

The EPA encourages the proponent to take all measures it can reasonably take to reduce scope 3 emissions.

2.5.9 Offsets

The proponent prioritises GHG emissions reductions at its operated assets to achieve its scope 1 and scope 2 targets and goals, however acknowledges there is a role for offsets i.e. Australian Carbon Credits Units (ACCU) and Safeguard Mechanism Credits (SMC). Therefore, where structural abatement of emissions reduction trajectory, the proponent will ensure targets are met by using SMC by either using banked SMCs from prior years, transferring SMCs from other BHP facilities and/or retiring eligible, high quality offsets in a temporary or transitional capacity while abatement options are being studied, as well as 'hard to abate' emissions with limited or no current technological solutions, and where access to renewable energy is constrained.

This approach is consistent with the principle that offsets should be a last resort, applied only after all reasonable avoidance and minimisation measures have been implemented.

The EPA considers it likely that the proponent will need to utilise carbon offsets to meet the emissions reduction trajectory. However, the EPA also acknowledges that the proponent's future decarbonisation strategies will contribute to reducing operational GHG emissions from the combined proposal.

The EPA considers that the proponent has undertaken due diligence investigations and its strategy of building a portfolio of offsets, using a variety of short and long-term sourcing approaches, are likely to ensure sufficient offsets are available that satisfy integrity principles.

2.5.10 Other decision-making processes – Commonwealth Safeguard Mechanism

The proponent has identified that the combined proposal will be a designated large facility under the Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act). Proposals regulated under the Safeguard Mechanism are required to take actions to reduce emissions to achieve Australia emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.

As the combined proposal is an existing facility, it will be subject to site specific emissions intensity (0.00463 t CO_2-e/t iron ore) with a gradual transition to industry benchmark emissions intensity values during the period through 2030, which is currently set at 000188 t CO_2-e per tonne of iron ore.

The Safeguard Mechanism will require the proponent to apply a 4.9% annual decline rate for financial years commencing 1 July 2023 to 1 July 2029. From 1 July 2030, the annual decline rate has been notionally set at 3.285%, which represents a linear trajectory to net zero by 2050.

Scope 1 emissions not covered under the Safeguard Mechanism are primarily associated with vegetation clearing and are estimated be 345 t CO_2-e per annum, with a peak of 1,282 t CO_2-e in 2027 and 9,196 t CO_2-e over the life of the combined proposal.

The EPA notes that the proponent has adopted a scope 1 emissions reduction trajectory that aligns with the Safeguard Mechanism.

The EPA understands that annual residual scope 1 emissions not covered by the Safeguard Mechanism are below 100,000 t CO_2-e per annum including the total emissions over the life of the combined proposal which are estimated to be 9,196 t CO_2-e.

The EPA is of the view that emissions reductions required under the Safeguard Mechanism, in conjunction with best practise measures, represents as far as practicable for the reduction of greenhouse gas emissions from the proposal. The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism (recommend condition B4).

2.5.11 Summary of key factor assessment and recommended regulation

The EPA considers that the emissions avoidance, minimisation and offsets proposed by the proponent are generally consistent with the EPA factor objective to minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.

The EPA notes that as a result of the proponent's scope 1 GHG emission reductions measures and operation of the combined proposal to achieve the proposed emission reduction targets, there is expected to be mitigation of approximately 906,329 t CO_2-

e of scope 1 GHG emissions over the life of the proposal compared to baseline emissions.

The EPA recognises that the significantly strengthened Commonwealth Safeguard Mechanism requires the proponent to take action to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australia emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 are achieved. The EPA considers that emissions reductions required under the Safeguard Mechanism represent the best and most practicable way to reduce emissions from the combined proposal. The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism (recommended condition B4).

Scope 3 emissions form a large proportion of (>98%) of the total GHG emissions over the life of the combined proposal and are estimated to be, on average, 9,787,488 t CO_2-e per annum. The EPA notes that the proponent has taken measures to reduce scope 3 emissions and encourages the proponent to take further reasonable opportunities to reduce emissions as they arise through the life of the combined proposal to further reduce scope 3 emissions.

Table 7: Summary of assessment of greenhouse gas emissions

Residual emissions		Assessment finding	Recommended conditions and DMA regulation
1.	Scope 1 emissions are expected to average 71,538 t CO_2-e per annum (up to a maximum of 156,838 t CO_2-e and reduce to net zero by 2050. There are no scope 2 emissions associated with this proposal. Scope 3 GHG emissions are estimated to be at 9,787,488 tonnes CO_2-e per annum.	The proponent has adopted avoidance and mitigation measures to reduce GHG emissions at commencement of the significant amendment. Scope 1 emissions from the significant amendment and combined proposal, except those associated with vegetation clearing, are covered by the Safeguard Mechanism. The EPA recognises that the Commonwealth Safeguard Mechanism requires the proponent to take actions to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australian emissions reduction targets of 43% below 2005 level by 2030 and net zero by 2050 are achieved. GHG emissions associated with vegetation clearing are well below 100,000 t CO_2-e per	**Condition B4: (Greenhouse Gas Emissions)** Reporting if obligations change under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and Safeguard Mechanism (SGM). **DMA regulation** Scope 1 emissions covered under the Safeguard Mechanism.

Residual emissions		Assessment finding	Recommended conditions and DMA regulation
		annum (annual maximum (peak) of 1,282 t CO_2-e). The EPA notes that offsets are likely to meet trajectory and considers that the proponent has undertaken due diligence and proposed a range of short and long-term offset approaches. The EPA considers that the proponent has implemented measures to reduce scope 3 emissions, however considers that further opportunities are expected to arise. The EPA encourages the proponent to take all reasonable measures to reduce scope 3 emissions. The EPA considers that emissions reductions required under the Safeguard Mechanism represent the best and most practicable way to reduce the combined proposal's scope 1 GHG emissions, and therefore the likely environmental effects of the proposal can be mitigated to achieve consistency with the environmental factor for GHG emissions. The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism.	

2.6 Social Surroundings

2.6.1 Environmental objective

The EPA environmental objective for social surroundings is *to protect social surroundings from significant harm* (EPA 2023c).

2.6.2 Investigations and surveys

The proponent's ongoing relationship with the Nyiyaparli Traditional Owners is formalised through a Comprehensive Land Use Agreement (ILUA). BHP and Nyiyaparli representatives have been jointly conducting heritage surveys and consultations within the proposed development envelope since the late 1990s. Work has included baseline surveys to identify and avoid heritage values; and detailed investigations and ethnographic consultations to understand significance, define management strategies, and support approval processes (BHP 2024a).

Noting the ongoing consultation and high level of engagement between the Nyiyaparli representatives and the proponent, the EPA considers that it has sufficient information to assess impacts on social surroundings.

2.6.3 Assessment context: existing environment

The proposal is located immediately south and southwest of the existing Mt Whaleback operations and north of the Western Ridge mine. The town of Newman is located approximately 7 km east-north-east and the nearest third party iron ore mine is Rio Tinto's Hope Downs 4, approximately 30 km northwest of the proposal. The nearest conservation reserve is Karijini National Park, which is approximately 103 km northwest of the proposal.

Aboriginal cultural heritage

The proposal is within the Nyiyaparli Native Title determination area (WCD2018/008), which is represented by the Nyiyaparli People (Figure 13). The proponent's ongoing relationship with the Nyiyaparli Traditional Owners is formalised through an ILUA.

Surveys to date have identified heritage places throughout and in proximity to the proposed development envelope. A number of these sites occur within the development envelope of the approved proposal (BHP 2025a).

Whaleback Creek, which drains into the Upper Fortescue River and Ophthalmia Dam, is if importance to the Nyiyaparli Traditional Owners. The Fortescue River, which is of high cultural and heritage importance to the Nyiyaparli Traditional Owners, is outside the development envelope (BHP 2025a). Nankunya, a series of semi-permanent to permanent surface water pools, located 2.4 km west of the development envelope, are also of significance to the Nyiyaparli Traditional Owners. These pools are not hydraulically connected to the deeper regional aquifer to be dewatered for this proposal.

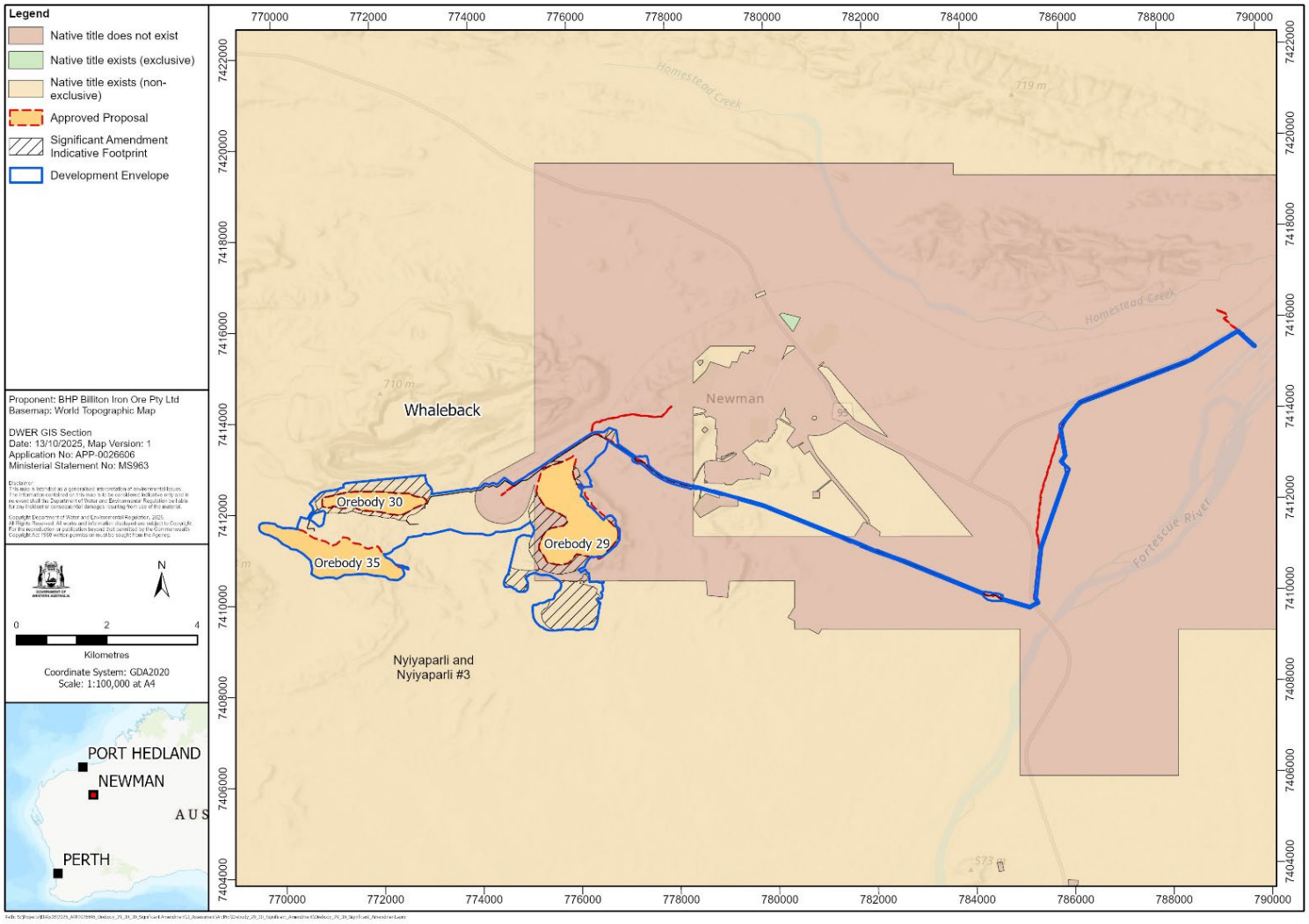

Figure 13: Native Title Determination Areas

2.6.4 Consultation

Stakeholder consultation did not raise any concerns relating to social surroundings.

2.6.5 Potential impacts from the proposal

The significant amendment has identified the potential to impact on social surroundings through:

- disturbance of cultural heritage sites and values (including removal of ethnobotanically significant flora and habitat supporting native fauna of cultural significance)
- impacts to access, landscape and amenity (including impacts from noise and dust)
- degradation of cultural heritage places and values.

2.6.6 Avoidance measures

The proponent has proposed the following avoidance measures:

- proposal design maximises use of existing disturbed areas and avoids direct impact to heritage sites
- a 30 m buffer is maintained between the development envelope and heritage sites with the exception of one buffer located to the east of OB29.

2.6.7 Minimisation measures (including regulation by other DMAs

The proponent outlined the following minimisation measures to reduce both direct and indirect impacts to social surroundings:

- implementation of a Cultural Heritage Management Plan (CHMP)
- engagement of monitors during ground disturbing activities for pipeline construction between Great Northern Highway and Marble Bar Road.

Aboriginal Heritage Act 1972

Approval under the *Aboriginal Heritage Act 1972* is required prior to impact to registered heritage sites. The following Section 18 consents under the *Aboriginal Heritage Act 1972* have been developed over time and granted to enable mining activities within the existing operational areas:

- 1975 – Section 18 relating to OB29 (DAA Ref: RAS 230/74)
- 2012 – Section 18 relating to OB35 (DAA Ref 34-23733).

A CHMP has been developed to provide a framework for how the proponent and Karlka Nyiyaparli Aboriginal Corporation (KNAC) will work in partnership to support the conduct of these proposals and appropriately manage the impact of those activities on Aboriginal cultural heritage.

The EPA notes that the AH Act does not apply to sites outside the development envelope or indirect impacts within the development envelope.

2.6.8 Rehabilitation

The proponent will implement the Orebody 29/30/35 Mine Closure Plan (BHP 2024a) to meet the following objectives:

- ensure that the proposal is decommissioned and rehabilitated to be safe, stable and non-polluting and in an ecologically safe manner
- to include ethnobotanical species in rehabilitation seed mixes and/or the propagation of ethnobotanical species for planting in rehabilitation areas
- undertake rehabilitation in a progressive manner, where practicable.

Nyiyaparli representatives through KNAC have expressed a clear preference for the avoidance of pit lakes at closure. Based on the current backfill strategy, pit lakes would be expected to form in all three pits.

2.6.9 Assessment of impacts to environmental values

The EPA considered that the key social surroundings values likely to be impacted by the proposal are Aboriginal cultural heritage.

The social surroundings factor was not identified as a key environmental factor for the Orebody 29/30/35 Mining Below Watertable, approved under MS963. The approved proposal only relates to below water table mining and Orebody 29/30/35 had previously been disturbed from existing above water table mining (BHP 2025a).

It is noted that impacts to Aboriginal cultural heritage values may occur through impacts to inland waters, and ethnobotanical impacts such as impacts to flora and vegetation, and terrestrial fauna (see sections 2.1, 2.2 and 2.3 of this report).

Direct Impacts to Aboriginal heritage sites

The EPA acknowledges that the proponent has taken reasonable steps to consult with the KNAC about the impacts associated with implementation of the significant amendment and the EPA has used this information to inform its assessment.

The proponent has modified the development envelope to avoid heritage site DAA Ref: RAS 230/74, however impacts occur from the approved proposal within the buffer zone. There will be no changes to the OB35 pit from this proposal, other than the addition of a ramp to the eastern boundary, which does not impact any sites within the wider OB35 area. Existing heritage sites within the approved proposal are avoided, and buffers are maintained around those sites.

The EPA considers that, subject to recommended conditions B5 there is sufficient information available to establish environmental outcomes now to ensure that the EPA objective for social surroundings is likely to be met for Aboriginal cultural heritage values in the proposal.

The potential indirect impacts to values of Aboriginal cultural heritage can be minimised through reasonable conditions as recommended under other environmental factors. For example, recommended condition B3-1(2) to maintain surface water regime to the Fortescue River downstream of Ophthalmia Dam.

Loss or restriction of access to land for cultural purposes

The EPA has considered the potential impacts of the proposal on restricting access to the land by the Nyiyaparli Traditional Owners for cultural purposes. The proponent has advised while access to the proposed development envelope for safety reasons during construction and operation of the mine, the proponent will continue to enable access to the site for Nyiyaparli Traditional Owners as per the BHP and Nyiyaparli Comprehensive Agreement Land Access Protocol Entry.

Visual and landscape impacts to Aboriginal cultural heritage

The EPA considers that the implementation of the proposal will alter the landscape which will impact on the visual amenity of the environment.

The Nyiyaparli Traditional Owners through KNAC have expressed their preference for the post-mining landscape with no pit lakes; pits are to be backfilled to ground level and waste rock landforms are designed to look as natural as possible (BHP 2024a). The proponent advised that pit-lakes will form in all three pits and a portion of OB35 will be backfilled to above the water table, reducing the size of the pit lake (BHP 2024a).

The EPA considers it appropriate to recommend condition B5-4 requiring the proponent to provide the Nyiyaparli Traditional Owners with the opportunity to be consulted on the rehabilitation and final design of the constructed landform.

Dust

There is potential for construction and operation of the mine to generate dust. While the proponent does consider this will have a significant impact on the health of native vegetation, it acknowledges that dust may degrade the condition of plants that have significance to and are used by the Traditional Owners. Dust may also indirectly impact on heritage sites within and outside of the development envelope. The proponent has committed to maintaining 30 m buffers to all but two heritage sites, where 100 m buffers are applied (BHP 2024a).

The proponent has committed to co-developing a CHMP with Nyiyaparli representatives through KNAC to ensure ongoing engagement throughout the life of operation in relation to social, cultural and heritage values and is committed to working with the Nyiyaparli Traditional Owners to incorporate ethnobotanical species in rehabilitation programs (BHP 2024a).

Subject to recommended condition B5-1(2), which requires no interruption of access in conjunction with mitigation measures proposed in the ERD, the EPA considers that the proposal is likely to be consistent with the EPA objective for this factor.

Cumulative impacts

The EPA has considered the potential cumulative impacts to Aboriginal cultural heritage values in the context of the Whaleback and Orebody 29/30/35 mines and Rio Tinto's Hope Downs 4. The cumulative impact of the proposal is not expected to

be significant, and this is expected to be consistent for any cumulative impacts on culturally important flora and water values.

The EPA considers the proponent's cultural heritage governance and potential impact framework, the proponent's commitments to ongoing consultation with Nyiyaparli People, and the avoidance of Aboriginal heritage sites, cumulative impacts from the proposal are unlikely to significantly impact social surroundings at a cumulative scale. Subject to implementation of recommended conditions (B5), the EPA considers the environmental outcome is likely to be consistent with the EPA objective for this factor.

Rehabilitation and closure

The EPA advises that environmental outcomes should be considered during the closure process. The EPA notes that for long-lived mines, there is a specific need to ensure they are closure ready well in advance of decommissioning through appropriate research, field trials and progressive rehabilitation. The EPA considers that during operation and closure of the proposal, measures to improve environmental outcomes for mine closure are required.

The EPA considers the regulatory framework under the Mining Act for mine closure is appropriate for some aspects, such as landform stability. However, there is a need to have specific environment outcomes to ensure rehabilitation and closure is conducted in a manner that minimises impacts to social surroundings. The EPA has therefore recommended condition B5-3 to ensure the Nyiyaparli People are consulted on the achievement of rehabilitation and closure outcomes specified in recommended condition B6.

Summary of key factor assessment and recommended regulation

Table 8: Summary of assessment for social surroundings

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Direct impacts to Aboriginal cultural heritage values.	The EPA advises there is a risk of residual impacts to Aboriginal cultural heritage values associated with disturbance to heritage sites or features. The EPA advises that this residual impact should be subject to recommended condition B5-1 to ensure impacts to Aboriginal heritage sites are avoided unless consent is granted through another decision-making process in consultation with the Traditional Owners. The EPA considers that subject to regulation by other decision-making processes and the recommended conditions, the	**Condition A1 (Limitations and extent of proposal)** **Condition B3 (inland waters)** Maintain habitat, groundwater levels and water quality in the Ethel Gorge **Condition B5 (Social surroundings)** Avoid disturbance of Aboriginal cultural heritage values unless consent is granted or authority is given to disturb that site

Residual impact		Assessment finding	Recommended conditions and DMA regulation
		environmental outcome is likely to be consistent with the EPA objective for social surroundings.	under the AH Act and has involved reasonable steps to consult with the relevant Traditional Owners.
2.	Loss of Aboriginal cultural heritage.	The EPA advises that there is a residual impact to Aboriginal cultural heritage through the loss of plants and animals of cultural significance and restriction of access to use of land and flora and vegetation for traditional activities within the development envelope. The EPA advises that this residual impact should be subject to conditions (recommended condition B5-1) to ensure access to the land and flora and vegetation used for cultural purposes subject to reasonable health and safety requirements. The EPA concludes that implementation of the recommended condition would ensure consistency with the EPA objective for social surroundings.	**Condition B5 (Aboriginal cultural heritage**) Subject to reasonable health and safety requirements, no interruption of ongoing access to land utilised for traditional use or custom by the Nyiyaparli People.
3.	Visual and landscape impacts to Aboriginal cultural heritage	The proposal would result in permanent changes to the landforms and general landscape. Waste rock landforms, pit voids and pit lakes would remain as permanent changes to the landscape. The EPA recommends condition B5-4 to ensure that final landforms are designed in consultation with the relevant Traditional Owners to minimise impacts to cultural values. The EPA concludes that implementation of the conditions would ensure consistency with the EPA objective for social surroundings.	**Condition B5 (Aboriginal cultural heritage)** Requiring consultation with the Nyiyaparli a People on the rehabilitation and final design of constructed landforms to minimise impacts to cultural values.

3 Holistic assessment

While the EPA assessed the impacts of the proposal against the key environmental factors and environmental values individually in the key factor assessments above, given the links between the key environmental factors, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

Flora and vegetation, terrestrial fauna, inland waters, subterranean fauna and social surroundings

Flora and vegetation, terrestrial fauna and subterranean fauna have an integral reliance on inland waters to sustain and maintain growth. Groundwater and surface water catchments also sustain subterranean fauna. The flora and vegetation provide important habitat to fauna, including conservation significant fauna and SREs. Minimising impacts to flora and vegetation and maintaining habitat connectivity will minimise impacts to terrestrial fauna.

The surface water catchments and groundwater aquifers of the proposal area support groundwater-dependent ecosystems such as vegetation and fauna habitat, which are an important environmental and cultural asset. The EPA recognises that there are inherent links between the inland waters factor and other environmental factors. For example, changes to the quality or quantity of inland waters can affect flora and vegetation, and social surroundings. The ecosystem health values related to inland waters generally include the ability to sustain vegetation, aquatic fauna and terrestrial fauna habitat and the ecological processes that support them, including the strong cultural links for the Nyiyaparli People.

The EPA considers that the proposed mitigation and management measures and recommended conditions for managing impacts to flora and vegetation will also mean the interrelated impacts to the health of other factors of the environment including the values associated with inland waters, subterranean fauna, and social surroundings are likely to be consistent with the EPA environmental factor objectives. In addition, the EPA considers that the recommended conditions and the proposed mitigation and management measures for impacts to inland waters will also mean the interrelated impacts to the health of other environmental factors, including the values associated with flora and vegetation, subterranean fauna, and social surroundings are likely to be consistent with the EPA environmental factor objectives.

Greenhouse Gas Emissions

There is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will impact on Western Australia's environment and environmental values.

The EPA considers that the proposed mitigation conditions to regulate GHG emissions will also mean that the impacts to other factors and values of the environment including the values associated with flora and vegetation, terrestrial fauna, inland waters, subterranean fauna and social surroundings are likely to be consistent with the EPA environmental factor objectives.

Social surroundings

Aboriginal cultural associations, including traditional Aboriginal customs, directly link to the physical or biological aspects of the environment. This may include hunting and collecting traditional bush foods and medicine which may be disrupted from impacts to flora and vegetation and fauna.

Water resources are of great importance to the Nyiyaparli People. The impact assessment has considered the strong connections of the Nyiyaparli People to the land, and the potential impacts that restricted access to country, disturbance from the proposal and changes to ground and surface water, flora and vegetation, including riparian vegetation, and terrestrial fauna may have on this connection.

The EPA considers that the proposed mitigation and management measures and recommended conditions for managing impacts to social surroundings will also mean the inter-related impacts to the health of other factors of the environment including the values associated with flora and vegetation, terrestrial fauna, inland waters, subterranean fauna and greenhouse gas emissions are likely to be consistent with the EPA's environmental factor objectives.

Summary of Holistic Assessment

When the separate environmental factors and values affected by the proposal were considered together in a holistic assessment, the EPA formed the view that the impacts from the proposal would not alter its conclusions about consistency with the EPA factor objectives as assessed in Section 2.

The EPA considers that the recommended conditions, in combination with the proponent's proposed mitigation and management measures, are likely to ensure that the environmental outcomes for the proposal are consistent with the EPA objectives for the key environmental factors.

4 Offsets

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual impacts of a proposal.

Consistent with the *WA Environmental Offsets Guidelines* (Government of Western Australia 2014), the EPA may consider the application of environmental offsets to a proposal where it determines that the residual impacts of a proposal are significant, after avoidance, minimisation and rehabilitation have been pursued.

The EPA considers that the clearing of native vegetation and impacts on other associated environmental values in the Pilbara IBRA bioregion is significant where the cumulative impact may reach critical levels if not managed. The Pilbara's unique land tenure hampers the delivery of offsets, and the PEOF has been established to provide a strategic landscape-scale approach that builds on regional programs to deliver environmental offset outcomes greater than can be achieved by individual proposals.

The PEOF's Governance Framework establishes transparent decision-making processes, clarity of roles and responsibilities, and guidance for project delivery. The DWER administers the PEOF with involvement from an Implementation Advisory Group made up of key stakeholders and experts and a Project Recommendation Group made up of representatives from State and Australian governments. The Minister for Environment is the primary decision-maker for the PEOF and approves projects that will address significant residual impacts and receive monies from the PEOF.

Projects currently being delivered or developed through the PEOF include improvement to critical and supporting habitat for six Matters of National Environmental Significance fauna species, ongoing management of landscape scale threatening processes including but not limited to, large feral herbivore management, exclusion fencing, invasive flora and fauna management and integrated riparian management. Together, these programs aim to control threatening processes to improve vegetation condition and habitat for fauna, including threatened fauna. The DBCA is also reviewing and developing management and research priorities for northern quoll, greater bilby, ghost bat, Pilbara leaf-nosed bat and Pilbara olive python to guide future investment in fauna programs (Western Australian Government 2024).

The proposal is located within the Hamersley and Augustus subregions within the Pilbara and Pilbara and Gascoyne IBRA bioregions respectively. The special purpose account statement for the PEOF states that monetary contributions can be accepted in the fund for proposals located wholly or partly within the Pilbara IBRA region.

In the case of this proposal, likely (and potential) significant impacts are:

- flora and vegetation values within the Hamersley subregion
- significant fauna habitat values within the Hamersley subregion.

Environmental offsets are not appropriate in all cases. In this case the EPA considers offsets are appropriate because the proposal would result in significant residual impacts to:

- 'Good' to 'Excellent' condition native vegetation
- riparian vegetation
- critical habitat for northern quoll and Pilbara olive python
- supporting habitat for northern quoll and ghost bat.

The EPA has concluded that the clearing of habitat is a significant residual impact on its own, in the context of the proposal, and in the context of the biological diversity and ecological integrity in the local area, as it provides habitat for threatened fauna species.

Due to the remaining quantity and quality of habitat types in the local area and region, the EPA considers that some of the significant residual impacts could be counterbalanced through a contribution to the PEOF. The EPA considers future PEOF projects are expected to be able to collectively counterbalance the significant impacts from the clearing of native vegetation and critical fauna habitat of the proposal. The EPA notes the PEOF Governance Framework (DWER 2019) states that projects will aim to counterbalance the significant residual impacts that have been identified in Ministerial statements with projects that are designed to deliver enduring and long-term strategic conservation outcomes in the Pilbara. The PEOF Implementation Plans identify the significant residual impacts for which contributions to the Fund have been made and how they will be addressed.

The EPA recommends condition B7 be imposed on the proponent to provide an offset in the form of a contribution to the PEOF, to counterbalance most of the significant residual impacts of the proposal. PEOF has confirmed that it is possible to be able to offset the vegetation and fauna habitat at a landscape level in the Hamersley IBRA subregion, including critical habitat for ghost bat as a result of the proposal's impacts. However, the PEOF is unable to offset specific values required for species survival such as bat caves in specific rock formations. Since the significant amendment is not expected to impact on critical ghost bat or Pilbara leaf-nosed bat caves, an offset for these values is not required.

The EPA recommends that the following offset rates (calculated on the 2024-2025 financial year, subject to annual indexation) should apply in the form of a contribution to the PEOF for landscape scale actions to protect biodiversity in the Pilbara:

- $1,016 AUD (excluding GST) per hectare of 'Good' to 'Excellent' condition native vegetation cleared as a result of the proposal within the Hamersley IBRA subregion
- $2,031 AUD (excluding GST) per hectare of riparian vegetation cleared as a result of the proposal within the Hamersley IBRA subregion
- $2,031 AUD (excluding GST) per hectare of critical habitat in the Hamersley IBRA subregion for northern quoll and Pilbara olive python

- $1,016 AUD (excluding GST) per hectare of supporting habitat in the Hamersley IBRA subregion for northern quoll and ghost bat.

5 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the EP Act.

The EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix A.

6 Other advice

The EPA may, if it sees fit, include other information, advice or recommendations relevant to the environment in its assessment reports, even if that information has not been taken into account by the EPA in its assessment of a proposal.

Rehabilitation

The EPA reiterates its section 16(e) advice to the Minister on the Cumulative environmental impacts of development in the Pilbara region (2014), that mining has occurred in the Pilbara for over 60 years, and limited evidence remains that proponents have successfully rehabilitated any areas that have been subject to large-scale mining.

Relevant to this proposal the EPA recognises that progressive rehabilitation may be more difficult to achieve for mining hubs with a long operational project life, such at Newman Hub.

The EPA understands that 649 ha of land has been rehabilitated at the Newman Hub, inclusive of Whaleback, Orebody 29/30/35 and Eastern Ridge (BHP 2025c). While on ground rehabilitation may be considered minimal compared to the areas cleared, majority of the areas not rehabilitated are under active mining operations.

The EPA acknowledges BHP's Rehabilitation Technology/Innovation proposals, including its collaborative approach with the University of Western Australia and the Department of Biodiversity, Conservation and Attractions on the Restoration Engineering Seed Technology Deployment Program to improve mine-site rehabilitation outcomes. The EPA also looks forward to the outcomes of proposed suite of additional rehabilitation technology and innovation projects to improve the success and outcomes of rehabilitation in the future.

Water management

The EPA is mindful of the potential ongoing pressures on water dependent environmental values, including beneficial use from significant quantities of dewater and surplus disposal occurring in the Pilbara. The EPA notes the proponent's Water Stewardship Strategy, which includes measures prioritising surplus dewatered mine water back into aquifers by 2030, and the establishment of regional water data sharing to support catchment scale planning and management for the Pilbara in collaboration with others by 2026.

It's understood that the proponent's Water Stewardship strategy aims for at least 50% of excess surplus water from mine dewatering to be prioritised for beneficial use (Newman Water Reserve Priority 1 Public Drinking Water Source Area) by 2030. Currently, around 40% of discharged water from the approved proposal infiltrates back into the aquifer and is predicted to increase to 60% by 2030 through a reduction of discharge into Ophthalmia Dam and the development of managed aquifer recharge to the east of Jimblebar. The proponent proposes a staged approached aiming to develop additional creek discharges initially, followed by directing water from OB31 and Jimblebar to reduce reliance on the Dam, then development of the

MAR (BHP 2025f). The EPA is of the view that this provides a considered approach to ongoing and future water management enabling the EPA objective for inland waters to be achieved.

Appendix A: Recommended conditions

Section 44(2)(b) of *Environmental Protection Act 1986* specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This appendix contains the EPA's recommended conditions and procedures.

Recommended Environmental Conditions

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
***(Environmental Protection Act 1986*)**

OREBODY 29/30/35 SIGNIFICANT AMENDMENT

Proposal:	For the expansion of existing BHP Iron Ore Pty Ltd iron ore mining operations at Orebody 29/30/35 (Ministerial Statement 963)
Proponent:	BHP Iron Ore Pty Ltd Australian Company Number 008 700 981
Proponent address:	125 St Georges Terrace PERTH WA 6000
Assessment number:	2491

Report of the Environmental Protection Authority: 1798

Introduction: The proposal is a significant amendment to the following existing proposal:

- Orebody 29/30/35 Mining Below Watertable under Ministerial Statement (MS) 963 (Report 1501, EPA Assessment Number 1982)

Pursuant to section 45 of the *Environmental Protection Act 1986,* it is now agreed that:

1. the significant amendment proposal described and documented in the proponent's Proposal Content Document (November 2024), may be implemented;
2. Ministerial Statement 963 for the above existing proposal is superseded under section 40AA (6) (b) of the *Environmental Protection Act 1986;* and
3. the implementation of the significantly amended proposal (being the existing approved proposal as amended by the significant amendment proposal as shown in Figure 1) is subject to the following implementation conditions and procedures.

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance and other conditions

PART A: PROPOSAL EXTENT

A1 Limitations and Extent of Proposal

A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitations or maximum extents / capacities / ranges are not exceeded:

Proposal element	Location	Maximum extent
Physical elements		
Development envelope	Figure 1	Development envelope of 1,346 ha
Disturbance of native vegetation	Figure 1	Clearing of no more than 116 ha of native vegetation within the development envelope of 1,346 ha. Clearing of no more than 104 ha of native vegetation in a **'Good' or 'Excellent' condition** for the **significant amendment.** Direct disturbance to **riparian vegetation** limited to 1.23 ha for the **significant amendment.**
Operational elements		
Groundwater abstraction - mine pit dewatering and water supply	-	Groundwater abstraction of up to 24.5 GL/a
Surplus water management – discharge to Ophthalmia Dam managed aquifer recharge (MAR) system	Figure 1	Discharge of up to 20.8 GL/a surplus water to the Ophthalmia Dam system
Timing elements		
Project life	-	Approximately 50 years (construction, operation, decommissioning and closure (to rehabilitation execution)) from the date of issue of this statement

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Flora and Vegetation

B1-1 The proponent must ensure the implementation of the **proposal** achieves the following environmental **outcome** for the **significant amendment**:

(1) **disturb** no more than 104 **ha** of **'Good' to 'Excellent' condition native vegetation**; and

(2) **disturb** no more than 1.23 ha of **riparian vegetation**; and

(3) no indirect **disturbance** to **groundwater dependent vegetation** compared to baseline in groundwater drawdown extent areas as shown in Figure 4.

B2 Terrestrial Fauna

B2-1 The proponent must prepare an *Indolpium* sp. indet. Taxonomy and Distribution Report within twelve (12) months of the date of this statement and submit it to the **CEO.** The Report must:

(1) identify the objectives and intended outcomes to resolve the taxonomy of the *Indolpium* sp. indet. recorded within the proponents tenure to species level through molecular analysis and determine the distribution and associated habitat of species within the genus;

(2) specify the deliverables and completion criteria relevant to the outcomes and objectives in condition B2-2(1);

(3) provide an implementation and reporting schedule, including an outline of key activities, all deliverables, stages of implementation, reporting of research results (including any interim results), reporting on implementation status, and milestones towards completion criteria;

(4) identify how a Taxonomy and Distribution Report summary, and the results (including interim results) of the report will be communicated and/or published in an open access format; and

(5) identify the third party to carry out the work required to meet the outcomes of condition B2-2(1), who is satisfactory for the role to the **CEO.** In applying to the **CEO** for endorsement of the selected third parties, the proponent shall provide:

(a) demonstration of the track record, experience, qualifications and competencies of the proposed third party to carry out the work and achieve the outcomes.

B3 Inland Waters and Subterranean Fauna

B3-1 The proponent must implement the **proposal** to achieve the following environmental **outcomes**:

(1) maintain habitat, groundwater levels and water quality in the Ethel Gorge aquifer to support the stygofauna habitat of the Ethel Gorge TEC and the Newman Water Reserve Priority 1 Public Drinking Water Source Area; and

B3-2 The proponent must update the Eastern Pilbara Water Resource Management Plan that satisfies the requirements of condition C4 and demonstrates how achievement of the environmental outcomes in condition B3-1(1) are achieved, monitored and substantiated, and submit to the **CEO**.

B3-3 The proponent must update the Orebody 29/30/35 Water (PFAS) Management Plan that satisfies the requirements of condition C4 and demonstrates how achievement of the environmental outcomes in condition B3-1(1) will be monitored and substantiated and submit to the **CEO**.

B4 Greenhouse Gas Emissions

B4-1 The proponent must notify the CEO in writing within one month of it becoming aware that implementation of the proposal will not be or is not expected to be regulated under the **Safeguard Legislation** as a designated large facility (the **notifiable event**) and such notice must briefly describe the reasons for and expected duration of the **notifiable event.**

B4-2 The proponent must, if requested in writing by the CEO, provide the CEO with a report on the implications for the proposal of any amendment or proposed amendment to the **Safeguard Legislation**, or a decision or proposed decision made under the **Safeguard Legislation** that is specified in the CEO's request.

B4-3 The report required by condition B4-2 must:

(1) be submitted to the CEO within three months of the date of the CEO's request or such longer period as the CEO agrees to in writing; and

(2) explain the implication that the specified amendment or decision has had or is expected to have on:

(a) the obligation to reduce net Scope 1 **greenhouse gas** emissions from implementation of the proposal under the **Safeguard Legislation;** and

(b) the quantity of actual net Scope 1 **greenhouse gas** emissions likely to result from the future implementation of the proposal.

B5 Social Surroundings

B5-1 The proponent must implement the proposal to meet the following environmental outcomes:

(1) no disturbance of the **Aboriginal sites** or to **Aboriginal cultural heritage** in the proposal disturbance footprint other than where consent is granted for the use of the land under the *Aboriginal Heritage Act 1972*; and

(2) subject to reasonable health and safety requirements, no interruption of ongoing access to land utilised for traditional use or custom by the **native title party/ies.**

B5-2 The proponent must implement the **proposal** to meet the following environmental **objective**:

(1) avoid, and where unavoidable, minimise adverse impacts to **Aboriginal cultural heritage** within and surrounding the proposal development envelope.

B5-3 The proponent must undertake ongoing consultation and engagement with the **native title party/ies** about the achievement of the **outcomes** and **objective** in condition B5-1 and condition B5-2 for the life of the **proposal**.

B5-4 The proponent must take **reasonable steps to consult** with the **native title party/ies** about:

(1) the design of **overburden storage areas, integrated waste landforms**, pit voids and land bridges as part of the Mine Closure Plan required under condition B7-2.

B6 Rehabilitation

B6-1 The proponent must ensure the implementation of the **proposal** achieves the following environmental **outcomes**:

(1) flora and vegetation within **rehabilitated** areas are comparable with ecosystem structure and composition within suitable analogue or reference sites;

(2) **rehabilitated** ecosystems are self-sustaining;

(3) **rehabilitated** landforms are stable, do not cause pollution or **environmental harm**; and

(4) **rehabilitated** drainage lines are stable and support ecological processes with no erosion features present that compromise rehabilitated landform stability.

B6-2 The proponent must ensure that the **rehabilitation** of ecosystems to achieve the outcomes in condition B6-1 is undertaken in a **progressive manner** during the rehabilitation planning phase, during operations, and as soon as practicable upon closure.

B6-3 The proponent must commence **rehabilitation** for areas cleared for infrastructure, roads or access within eighteen (18) months of that infrastructure, road or access no longer being required.

B6-4 The proponent must ensure that the process for **rehabilitating** ecosystems to achieve the outcomes in condition B6-1:

(1) uses seed of **local provenance**;

(2) incorporates relevant and contemporary scientific outcomes;

(3) incorporates regeneration or revegetation strategies which may be required for components of communities, including further investigations to determine appropriate regeneration methodologies, if the completion criteria for the community are not being achieved;

(4) develops and implements management and/or mitigation actions to address any failure in achieving the completion criteria;

(5) includes relevant research, investigations, trials and monitoring programs, targeting key issues in **rehabilitation**, to improve **rehabilitation** techniques, practices and outcomes; and

(6) ensures outcomes from previous research, investigations, trials and monitoring programs have been incorporated into **rehabilitation** techniques and practices.

B6-5 The proponent must prepare a Rehabilitation Strategy and submit to the **CEO**. The Rehabilitation Strategy must:

(1) detail the types of ecosystems and total area of **rehabilitation** that the proponent will be required to **rehabilitate** across the development envelope consistent with the outcomes in condition B6-1; and

(2) outline the rehabilitation strategy for the **proposal** that satisfies the requirements of conditions B6-2, B6-3 and B6-4 and demonstrates how achievement of the outcomes in condition B6-1 will be monitored and substantiated;

(3) provide the expected timing and hectares of **rehabilitation** over the life of the **proposal** to demonstrate the achievement of condition B6-2.

B6-6 The proponent must prepare a Rehabilitation Performance Report and submit to the **CEO**. The Rehabilitation Report must:

(1) provide an analysis of the **rehabilitation** processes and outcomes that the proponent has undertaken for the proposal since the commencement of mining, and those required by condition B6-4, and how these processes have been incorporated into past rehabilitation;

(2) provide historical rates of **rehabilitation** for the proposal, an explanation of these rates and an analysis of the demonstrated success of that **rehabilitation** over time against the completion criteria;

(3) provide evidence-based and effective completion criteria that demonstrate the achievement of the outcomes in condition B6-1;

(4) provide annual reporting, commencing no later than the date of this Statement, on:

(a) hectares **rehabilitated**; and

(b) **rehabilitation** outcomes against the completion criteria.

(5) detail the locations and hectares to be **rehabilitated** over the next five (5) years;

(6) discuss the likely success of future **rehabilitation** activities in establishing self-sustaining ecosystems in consideration of:

(a) relevant contemporary scientific evidence and outcomes;

(b) outcomes of research, investigations, trials and monitoring programs; and

(c) the types of ecosystems to be **rehabilitated**,

(7) discuss future **rehabilitation** processes to be implemented to ensure the likely success of future **rehabilitation** activities in establishing self-sustaining ecosystems.

B7 Mine Closure

B7-1 The proponent must ensure the implementation of the **proposal** achieves the following environmental **outcomes**:

(1) Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geotechnically stable, geochemically non-polluting/non-contaminating, and capable of

sustaining an agreed post-mining land use, with consideration for cultural values;

(2) the post-mining profile, for ex pit rehabilitated landforms, will be designed in consideration of visually integrating into the surrounding undisturbed landscape, continuing the surrounding contours of the low hills and slopes;

(3) maintain habitat, groundwater levels and water quality in the Ethel Gorge aquifer to support the stygofauna habitat of the Ethel Gorge TEC and the Newman Water Reserve Priority 1 Public Drinking Water Source Area; and

(4) no **disturbance** to sensitive environmental or cultural heritage receptors from pits and waste rock with acid and/or metalliferous drainage and salinity potential.

B7-2 The proponent must review and update the Mine Closure Plan in accordance with the *Department of Mines, Petroleum and Exploration's Guideline for preparing mine closure plans* March 2025 (or any subsequent revisions of the guidelines) that demonstrates how achievement of the environmental outcomes in condition B7-1 will be monitored and substantiated, and submit to the **CEO**.

B8 Pilbara Environmental Offsets Fund

B8-1 The proponent must contribute funds to the **Pilbara Environmental Offsets Fund** calculated pursuant to condition B8-8(2), to achieve the objective of counterbalancing the significant residual impacts to the following environmental values:

(1) '**Good' to 'Excellent' condition native vegetation**;

(2) **Riparian vegetation**;

(3) **Critical habitat** for northern quoll (*Dasyurus hallucatus*) and Pilbara olive python (*Liasis olivaceus barroni)* subject to any reduction approved by the **CEO** under condition B8-9; and

(4) **Supporting habitat** for northern quoll (*Dasyurus hallucatus*) and ghost bat (*Macroderma gigas*) subject to any reduction approved by the **CEO** under condition B8-9.

B8-2 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** undertaken in each year of the biennial reporting period in accordance with the rates in condition B8-3. The first biennial reporting period

must commence from **ground disturbing activities** of the **environmental value**(s) identified in condition B8-3.

B8-3 Calculated on the 2024-2025 financial year, the contribution rates are:

(1) $1,016 (excluding GST) per hectare of '**Good' to 'Excellent' condition native vegetation** cleared as a result of the **proposal** within the Hamersley **IBRA** subregion;

(2) $2,031 AUD (excluding GST) per hectare of **riparian vegetation** cleared as a result of the **proposal** within the Hamersley **IBRA** subregion;

(3) $1,016 AUD (excluding GST) per hectare of **supporting habitat** for the following values cleared in the Hamersley **IBRA** subregion as a result of the **proposal**:

(a) ghost bat (*Macroderma gigas*) **supporting habitat**; and

(b) northern quoll (*Dasyurus hallucatus*) **supporting habitat.**

(4) $2,031 AUD (excluding GST) per hectare of **critical habitat** for the following values cleared in the Hamersley **IBRA** subregion as a result of the **proposal**:

(c) Pilbara olive phyton (*Liasis olivaceus barroni)* **critical habitat**; and

(d) northern quoll (*Dasyurus hallucatus*) **critical habitat**.

B8-4 The rates in condition B8-3 change annually each subsequent financial year in accordance with the percentage change in the **CPI** applicable to that financial year.

B8-5 To achieve the objective in condition B8-1, the proponent must review and revise the Impact Reconciliation Procedure - Orebody 29/30/35 Impact Reconciliation Procedure (BHP 2024I) and submit to the **CEO** for approval. This procedure must:

(1) spatially define the **environmental values** identified in condition 8-1;

(2) spatially define the areas where offsets required by condition 8-1 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 B8-3;

(4) state that clearing calculation for the first biennial reporting period will commence from **ground disturbing activities** in accordance with

condition B8-2 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**; and

(6) be prepared in accordance with Instructions on how to prepare Environmental Protection Act 1986 Part IV Impact Reconciliation Procedures and Impact Reconciliation Reports (or any subsequent revisions).

B8-6 The proponent must review, revise and submit an Impact Reconciliation Report in accordance with the **confirmed** Impact Reconciliation Procedure in condition B8-5.

B8-7 The Impact Reconciliation Report required pursuant to condition B8-6 must:

(1) provide the location and spatial extent of the clearing undertaken as a result of the proposal during each year of each biennial reporting period; and

(2) include evidence that clearing undertaken in any area was necessary for the commencement of proposal-related activities or operations in that cleared area within six (6) months of the clearing having occurred.

B8-8 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 B8-2 where:

(1) a payment has been made to satisfy a condition of an approval under the Environment Protection and Biodiversity Conservation Act 1999 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.

B8-9 The **CEO** may grant approval to discount the amount payable under condition B8-1(3) if the **CEO** is satisfied that the payment will offset the significant residual impacts of the proposal.

B8-10 Condition C2 applies to the **confirmed** Impact Reconciliation Procedure required by condition B8-5 as if it were an environmental management plan.

B8-11 Failure to implement a **confirmed** Impact Reconciliation Procedure or submit an Impact Reconciliation Report as required by condition B8-6 represents a non-compliance with these conditions.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

C1 Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal

C1-1 The proponent must:

(1) within twelve (12) months of the date of this Statement, or otherwise agreed to by the CEO, revise and submit the Eastern Pilbara Water Resource Management Plan and the Orebody 29/30/35 Water (PFAS) Management Plan required by conditions B3-2 and B3-3 to meet the requirements of those conditions;

(2) within twelve (12) months of the date of this Statement, or otherwise agreed to by the **CEO**, submit the Rehabilitation Strategy required by condition B6-5, that meets the requirements of that condition;

(3) within twelve (12) months of the date of this Statement, or otherwise agreed to by the **CEO**, and five-yearly thereafter, submit the Rehabilitation Performance Report required by condition B6-6, that meets the requirement of that condition;

(4) within twelve (12) months of the date of this Statement and every five years thereafter, or otherwise agreed to by the **CEO**, revise and submit the Mine Closure Plan(s) required by condition B7-2 that meets the requirements of that condition

(5) within (12) twelve months of the date of this Statement revise, submit the Impact Reconciliation Procedure (Offsets) required by condition B8-6 that meets the requirements of that condition; and

(6) within (12) twelve months of the date of this Statement, submit the research plan required by condition B2-2 that meets the requirement of that condition, confirmed by the **CEO**.

C2 Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the **CEO** under condition C1-1(1) in consultation with **DBCA** and receiving notice in writing from the **CEO** under conditions C1-1(2), C1-1(3), C1-1(4), C1-1(5) and C1-1(6) that the environmental management plan(s) required in Part B satisfies the relevant requirements, the proponent must:

(1) implement the most recent version of the **confirmed** environmental management plan; and

(2) continue to implement the **confirmed** environmental management plan referred to in condition C2-1(1), other than for any period which the

CEO confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C2-2 The proponent:

(1) may review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan;

(2) must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO;** and

(3) must revise and submit to the **CEO** the **confirmed** Environmental Management Plan if there is a material risk that the outcomes or objectives it is required to achieve will not be complied with, including but not limited to as a result of a change to the proposal.

C2-3 Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-4 If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:

(1) the revised environmental management plan clearly showing the minor revisions;

(2) an explanation of and justification for the minor revisions; and

(3) an explanation of why the minor revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.

C2-6 **Confirmed** environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C3 Conditions Related to Monitoring

C3-1 The proponent must undertake monitoring capable of:

(1) substantiating whether the proposal limitations and extents in Part A are exceeded; and

(2) **detecting** and substantiating whether the environmental outcomes identified in Part B are achieved (excluding any environmental outcomes in Part B where an environmental management plan is expressly required to monitor achievement of that outcome).

C3-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:

(1) outlines the monitoring that was undertaken during the implementation of the proposal;

(2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;

(3) for any environmental outcomes to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of **detecting** whether the environmental outcomes in Part B are met;

(4) outlines the results of the monitoring;

(5) reports whether the proposal limitations and extents in Part A were exceeded and (for any environmental outcomes to which condition C3-1 (2) applies) whether the environmental outcomes in Part B were achieved, based on analysis of the results of the monitoring; and

(6) reports any actions taken by the proponent to remediate any potential non-compliance.

C4 Environmental Management Plans: Conditions Relating to Monitoring and Adaptive Management for Outcomes Based Conditions

C4-1 The environmental management plans required under condition B3-2 and condition B3-3 must contain provisions which enable the substantiation of whether the relevant outcomes of those conditions are met, and must include:

(1) **threshold criteria** that provide a limit beyond which the environmental outcomes are not achieved;

(2) **trigger criteria** that will provide an early warning that the environmental outcomes are not likely to be met;

(3) monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure **threshold criteria** and **trigger criteria**. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future;

(4) baseline data;

(5) data collection and analysis methodologies;

(6) adaptive management methodology;

(7) **contingency measures** which will be implemented if **threshold criteria** or **trigger criteria** are not met; and

(8) reporting requirements.

C4-2 Without limiting condition C3-1, failure to achieve an environmental outcome, or the exceedance of a **threshold criteria**, regardless of whether threshold **contingency measures** have been or are being implemented, represents a non-compliance with these conditions.

C5 Environmental Management Plans: Conditions Related to Management Actions and Targets for Objective Based Conditions

C5-1 The environmental management plan required under conditions B3-2 and B3-3 must contain provisions which enable the achievement of the relevant objectives of those conditions and substantiation of whether the objectives are reasonably likely to be met, and must include:

(1) management actions;

(2) management targets;

(3) contingency measures if management targets are not met; and

(4) reporting requirements.

C5-2 Without limiting condition C2-1, the failure to achieve an environmental objective, or implement a management action, regardless of whether contingency measures have been or are being implemented, represents a non-compliance with these conditions

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

(1) report this to the **CEO** within seven (7) days;

(2) implement **contingency measures**;

(3) investigate the cause;

(4) investigate environmental impacts;

(5) advise rectification measures to be implemented;

(6) advise any other measures to be implemented to ensure no further impact;

(7) advise timeframe in which contingency, rectification and other measures have and/or will be implemented; and

(8) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

(1) state whether each condition of this Statement has been complied with, including:

(a) exceedance of any proposal limits and extents;

(b) achievement of environmental outcomes;

(c) achievement of environmental objectives;

(d) requirements to implement the content of environmental management plans;

(e) monitoring requirements;

(f) implement **contingency measures**;

(g) requirements to implement adaptive management; and

(h) reporting requirements;

(2) include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, and any outcomes or any objectives are being met;

(3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;

(4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;

(5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and

(6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.

D2-6 The Compliance Assessment Plan must include:

(1) what, when and how information will be collected and recorded to assess compliance;

(2) the methods which will be used to assess compliance;

(3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;

(4) the retention of compliance assessments;

(5) the table of contents of Compliance Assessment Reports, including audit tables; and

(6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Time Limit for Proposal Implementation

D4-1 The proposal must be **substantially commenced** within five (5) years from the date of this Statement.

D4-2 The proponent must provide to the **CEO** documentary evidence demonstrating that they have complied with condition D4-1 no later than thirty (30) days after **substantial commencement**.

D4-3 If the proposal has not been **substantially commenced** within the period specified in condition D4-1, implementation of the proposal must not be commenced or continued after the expiration of that period.

D5 Public Availability of Data

D5-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

D5-2 If:

(1) any data referred to in condition D5-1 contains trade secrets; or

(2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

D5-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D6 Independent Audit

D6-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental outcomes and/or the environmental objectives and/ or environmental performance with the conditions of this statement, as and when directed by the **CEO**.

D6-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D6-1.

D6-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.

D6-4 The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 1: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Adverse impact(s)	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value. **Adverse impacts** can arise from direct or indirect impacts, or other impacts from the **proposal**.
Aboriginal cultural heritage	Means the tangible and intangible elements that are important to the Aboriginal people of the state, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition to the extent they directly affect or are affected by physical or biological surroundings.
Aboriginal site	As defined in section 4 and 5 under the *Aboriginal Heritage Act 1972*.
Approved proposal	Orebody 29/30/35 proposal approved under Ministerial Statement 963.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or the **CEO's** delegate.
Clearing / clearing activities	Has the same meaning as in section 51A of the Environmental Protection Act 1986.
CPI	The All Groups Consumer Price Index numbers for Perth compiled and published by the Australian Bureau of Statistics.
Confirmed	In relation to a plan required to be made and submitted to the **CEO**, means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition. In relation to a plan required to be implemented without the need to be first submitted to the **CEO**, means that plan until it is revised, and then means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition.
Contingency measures	Planned actions for implementation if it is identified that an environmental outcome, environmental objective, threshold criteria, or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance or **adverse impacts** to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold, management target and to ensure that the environmental outcome and/or objective can be met.
Construction	Activities that are associated with the substantial implementation of a proposal including but not limited to, earthmoving, vegetation clearing, grading or construction of right of way. Construction

Acronym or abbreviation	Definition or term
	activities do not include Geotechnical investigations (including potholing for services and the installation of piezometers) and other preconstruction activities where no clearing of vegetation is required.
Critical habitat	Fauna habitat types mapped as breakaway/cliff, major drainage, wetland and hillcrest/hillslope habitats for the Pilbara olive python and breakaway/cliff and hillcrest/hillslope habitats for northern quoll in the report and supporting spatial data in the Orebody 29/30/35 Environmental Review Document (BHP 2025a) (Figure 9-2).
Development envelope	Area in which the new mine and existing areas and associated facilities of the proposal are located. All direct impacts associated with the proposal will be contained within the development envelope.
Detect / detecting	The smallest statistically discernible effect size that can be achieved with a monitoring strategy designed to achieve a statistical power value or measure of at least 0.8 or an alternative value as determined by the CEO.
Disturb / disturbing / disturbance	Means directly has or materially contributes to the disturbance effect on health, diversity or abundance of the receptor/s being impacted or on an environmental value. In relation to flora, vegetation or fauna habitat, includes to result in the death, destruction, removal, severing or doing substantial damage to In relation to fauna, includes to have the effect of altering the natural behaviour of fauna to its detriment.
EMP	Environmental Management Plan.
Environmental value	A beneficial use, or ecosystem health condition.
Environmental harm	Has the meaning provided by section 3A(2) of the *Environmental Protection Act 1986*.
GL/a	Gigalitres per annum
'Good' to 'Excellent' condition native vegetation	Means vegetation that has been rated 'good', 'excellent' or any value between these ratings, in accordance with the Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016) including any revision to this technical guidance.
Greenhouse gas emissions	Greenhouse gas emissions expressed as tonnes of carbon dioxide equivalent (CO2-e) as calculated in accordance with the definition of 'carbon dioxide equivalence in Section 7 of the National Greenhouse and Energy Reporting Act 2007 (Cth) or, if that definition is amended or repealed, the meaning set out in an

Acronym or abbreviation	Definition or term
	Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
Ground disturbing activities	Any activity or activities undertaken in the implementation of the proposal, including any clearing, civil works or construction.
Groundwater dependent vegetation	Terrestrial vegetation that mainly depend on the subsurface presence of groundwater, often accessed via capillary fringe. Not all groundwater dependent vegetation draw on groundwater directly and in many cases the groundwater provides baseflow in rivers that ecosystems depend on.
Ha	Hectare
IBRA	Interim Biogeographic Regionalisation for Australia.
Indicative footprint	Refers to the current indicative layout of the direct **disturbance** footprint of the **proposal**, which includes key elements such as mine pits and waste rock landforms, as well as infrastructure.
Integrated waste landforms	The integrated waste landform is the incorporation of disposal of tailings material within the waste landform resulting in a single landform.
km	kilometre
km/hr	Kilometre(s) per hour.
Local provenance	Refers to the Hamersley and Gascoyne IBRA subregions as delineated by the PIL03 of Interim Biogeographic Regionalisation for Australia, Version 7 (DCCEEW).
m	Metres
Management action	The identified actions implemented with the intent of achieving the environmental objective.
Management target	A type of indicator to evaluate whether an environmental objective is being achieved.
Native title party/ies	As defined in section 18(1AA) under the *Aboriginal Heritage Act 1972.*
Overburden Storage Areas (OSA)	Landform that consists of rocks removed in the mining process to provide access to the ore.
Operations / Commencement of operations	Operation of the plant infrastructure for the proposal and includes pre-commissioning, commissioning, start-up and operation of the plant infrastructure for the proposal.
Outcomes	A proposal-specific result to be achieved when implementing the **proposal.**
Pilbara Environmental Offsets	A special purpose account created pursuant to section 16(1)(d) of the Financial Management Act 2006 by the Department of Water and Environmental Regulation.

Acronym or abbreviation	Definition or term
Pollution	Has the meaning provided by section 3A(1) of the *Environmental Protection Act 1986*.
Reasonable steps to consult	As outlined in the EPA's *Technical Guidance Environmental impact assessment of Social Surroundings – Aboriginal cultural heritage*, as amended from time to time.
Rehabilitation/ Rehabilitate/ Rehabilitated/ Rehabilitating	A process which aims to maximise the return of biodiversity to disturbed land by reinstating self-sustaining and functional ecosystems based on local species.
Riparian vegetation	Vegetation type identified as MA EvEcAci CcErbTp AsyPlAa, in Table 8-3 of the Orebody 29/30/35 Significant Amendment ERD (BHP 2025a).
Safeguard Legislation	The Commonwealth *National Greenhouse and Energy Reporting Act 2007 and associated National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.*
Self-sustaining	Vegetation that can survive without intervention such as water or maintenance. A **self-sustaining** ecosystem has the potential to persist indefinitely under existing environmental conditions, but its composition, structure and function may fluctuate in response to periodic stress or **disturbance**, or may evolve as environmental conditions change (adapted from SER 2004).
Significant amendment	Is the expansion of the **approved proposal** as described and documented in Table 2 of the proponents Proposal Content Document dated 24 November 2024.
Substantially commenced/ Substantial commencement	**Substantial commencement** is more than the preparatory works for a proposal and generally includes ground disturbance activities which are solely attributed to proposal elements described in the proposal content document, and a substantial portion of the total disturbance and infrastructure works physically commenced.
Supporting habitat	Fauna habitat types mapped as breakaway/cliff, major drainage, wetland, hillcrest/hillslope, drainage area/floodplain, medium drainage line, minor drainage line, sandy/stony plain and stony plain habitats for ghost bat; and major drainage line, medium drainage line, minor drainage line, and wetland habitats for northern quoll in the report and supporting spatial data in the Orebody 29/30/35 Environmental Review Document (BHP 2025a) (Figure 9-2).
Trigger criteria	Indicators that have been selected for monitoring to provide a warning that, if exceeded, the environmental outcome may not be achieved. They are intended to forewarn of the approach of the threshold criteria and trigger response actions.

Acronym or abbreviation	Definition or term
Threshold criteria	The indicators that have been selected to represent limits of impact beyond which the environmental outcome is not being met.

Figures (attached)

Figure 1 Orebody 29/320/35 Hub Significant Amendment
Figure 2 Orebody 29/320/35 - approved proposals
Figure 3 Orebody 29/320/35 Proposal Assessment Area
Figure 4 Potential groundwater dependent vegetation impact areas

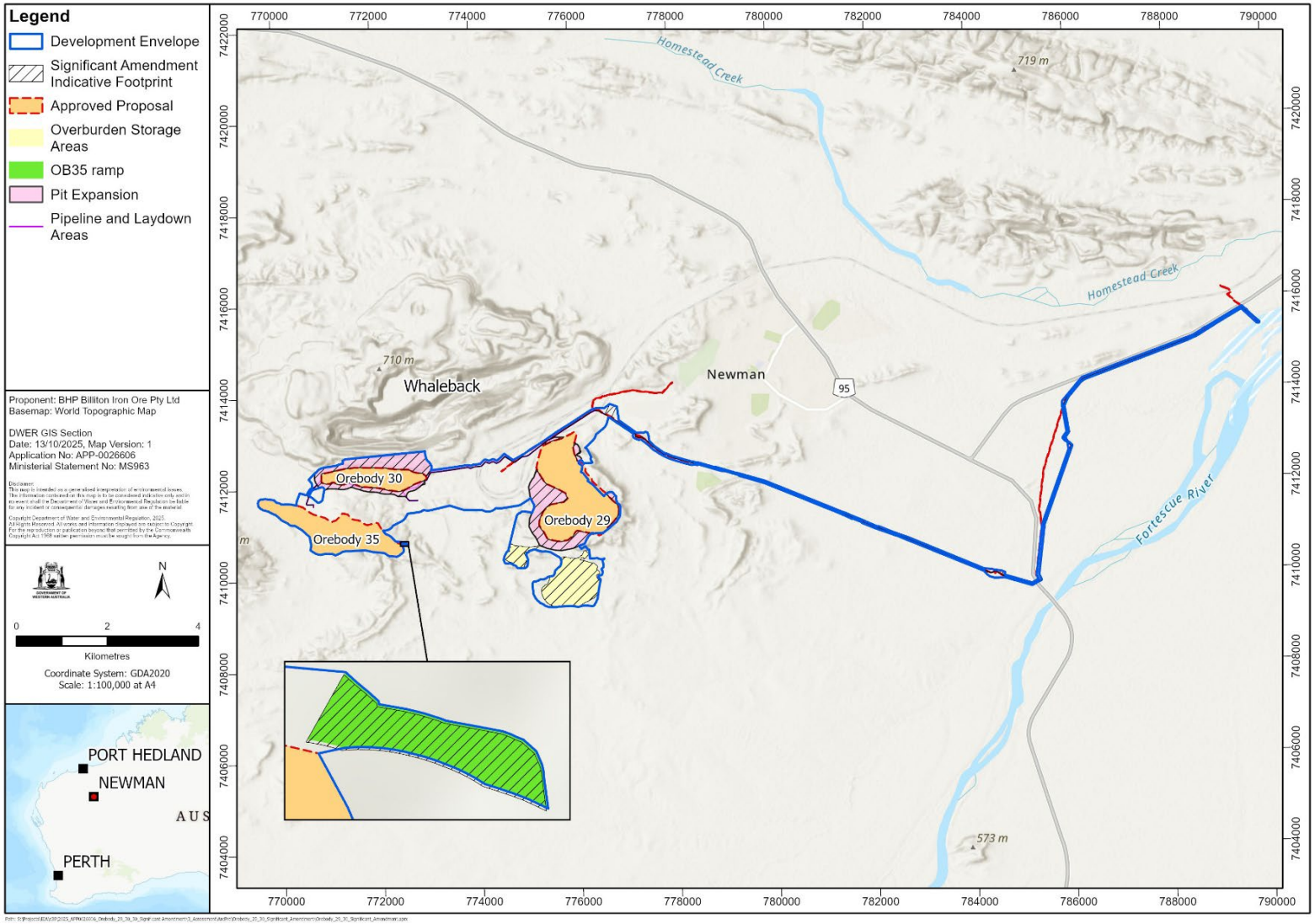

Figure 1 – Orebody 29/30/35 Significant Amendment

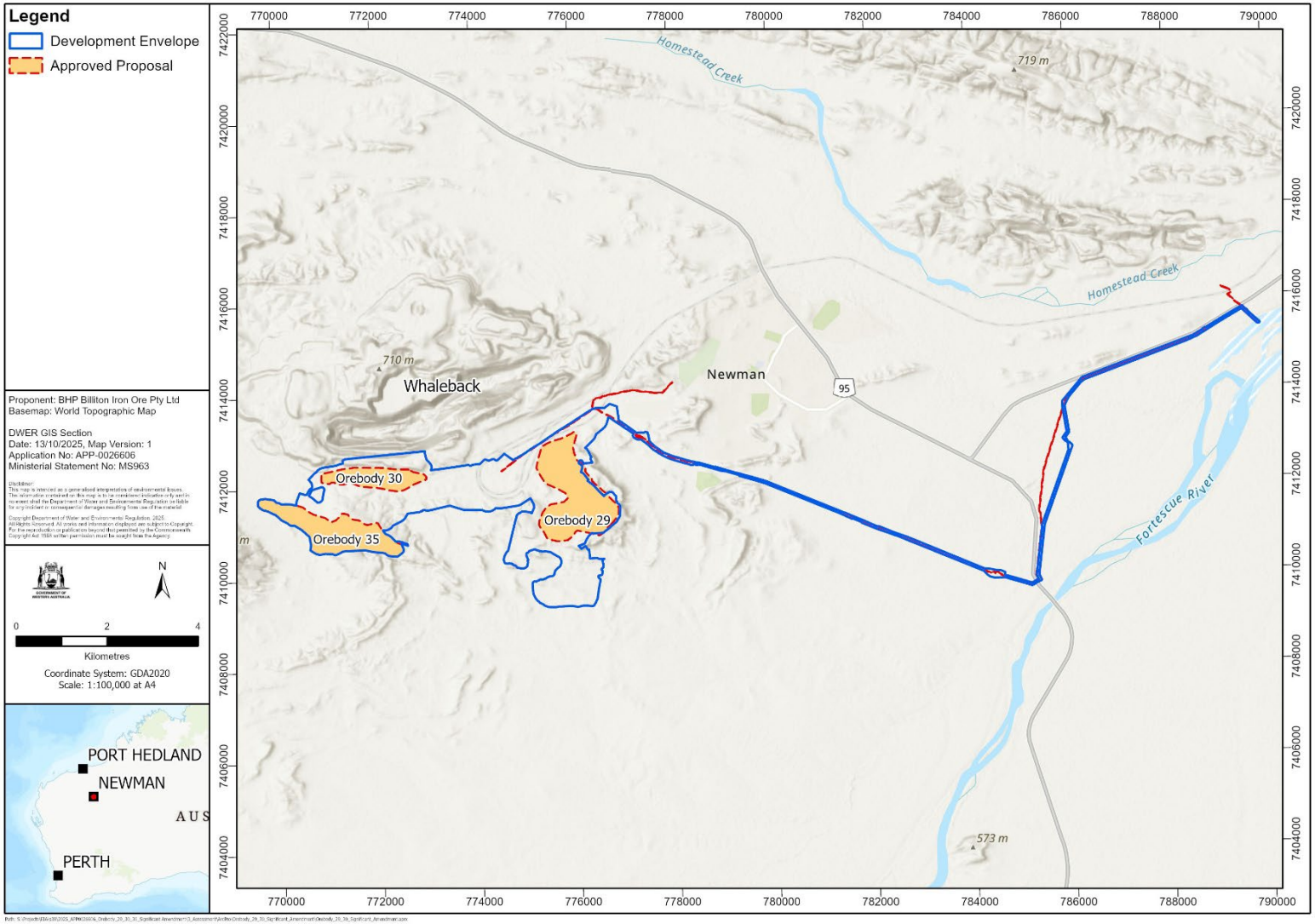

Figure 2 – Orebody 29/30/35 - approved proposal

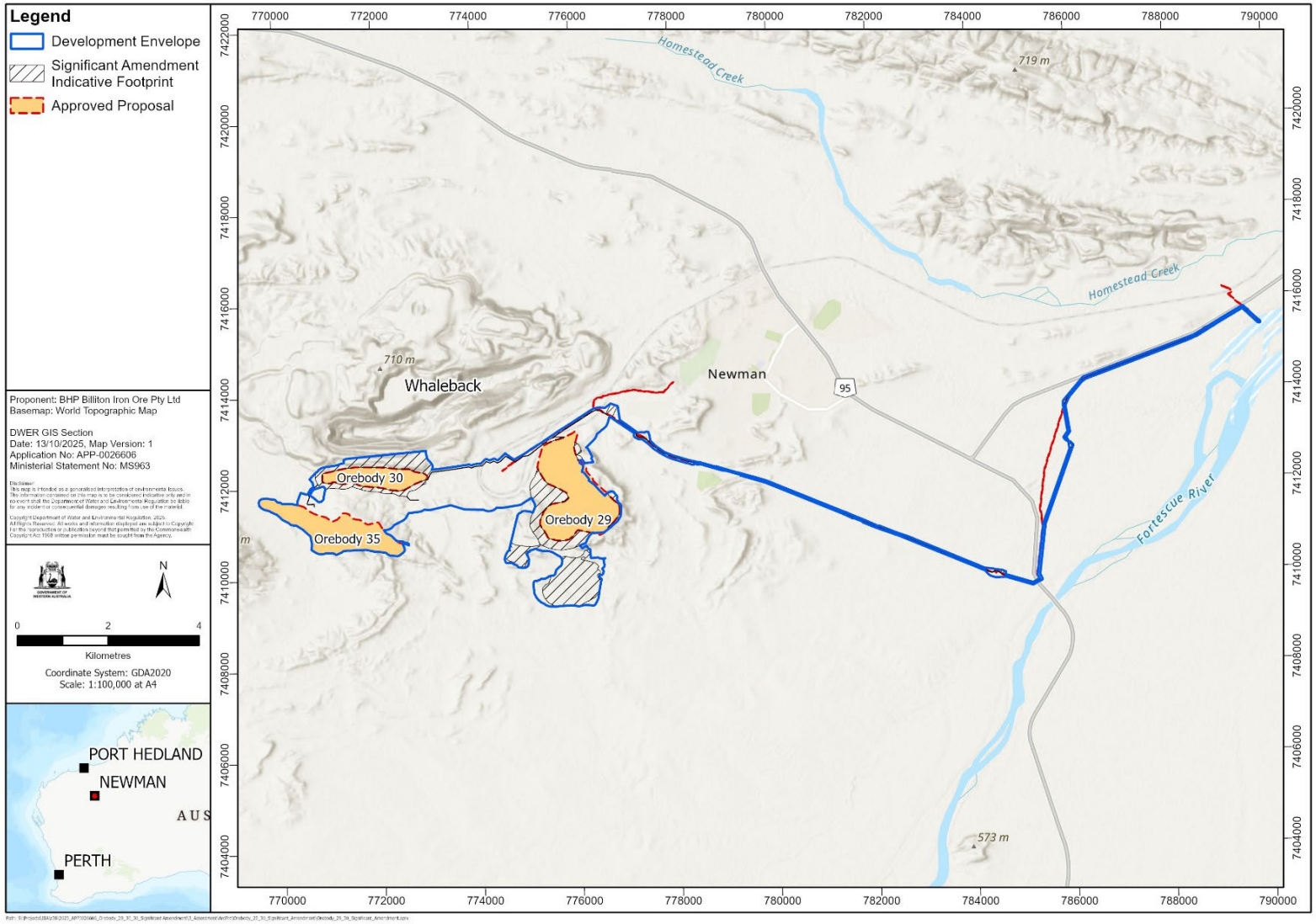

Figure 3 – Orebody 29/30/35 Proposal Assessment Area

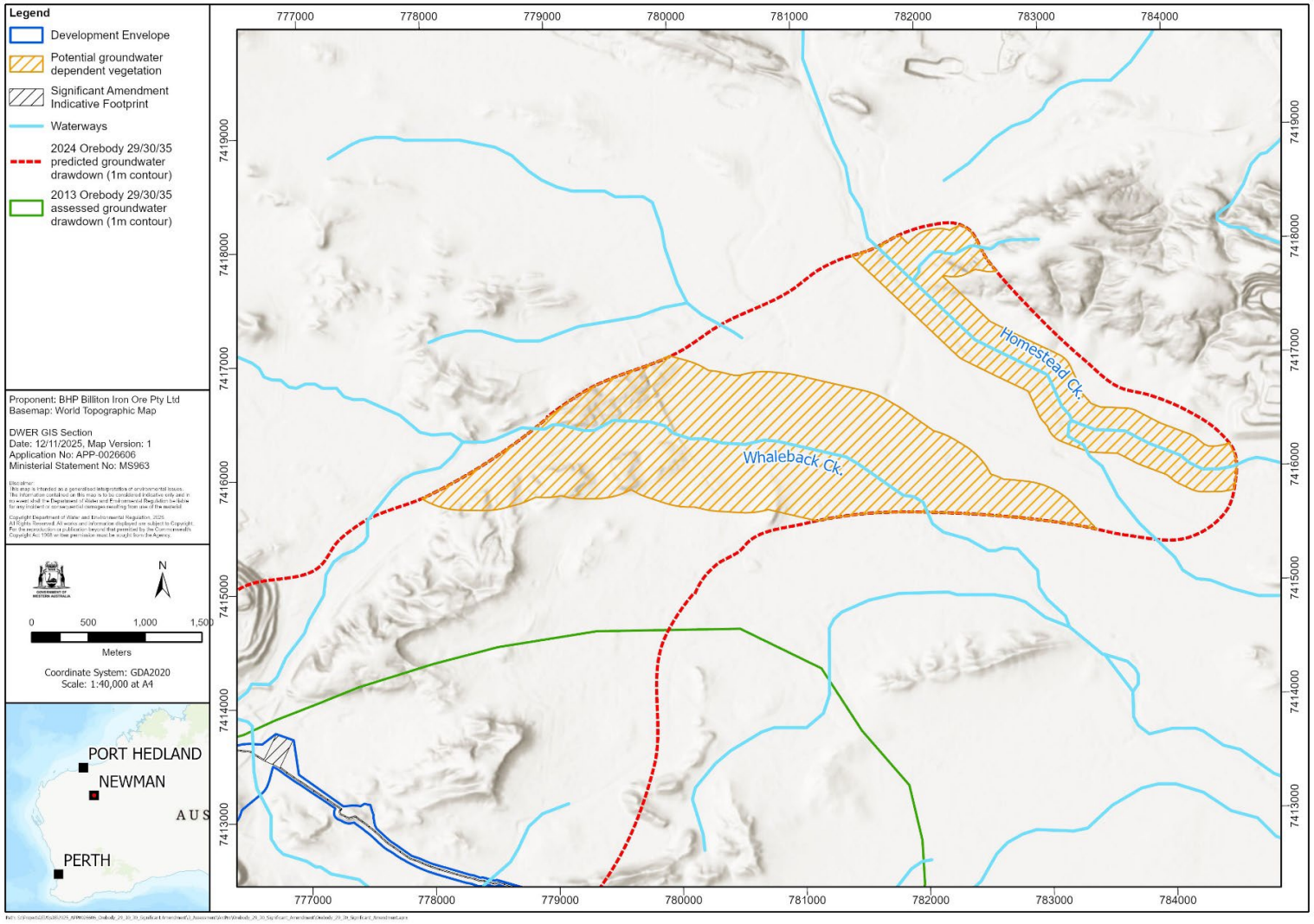

Figure 4 – Potential groundwater dependent vegetation impact areas

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA20).

Spatial data depicting the figures are held by the Department of Water and Environmental regulation. Record no. DWERVT20464

Appendix B: Decision-making authorities

Table B1: Identified relevant decision-making authorities for the proposal.

Decision-Making Authority	Legislation (and approval)
1. Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972* - section 18 consent to impact a registered Aboriginal heritage site)
2. Minister for Environment	*Biodiversity Conservation Act 2016* - section 40 authority to take or disturb threatened species *Contaminated Sites Act 2003* - section 58 disturbance of contaminated sites
3. Minister for Mines and Petroleum	*Mining Act 1978* - granting of mining lease/exploration permits/ general purpose lease
4. Minister for State Development	State Agreement Act *Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972* *Iron Ore (Mount Newman) Agreement Act*
5. Minister for Water	*Rights in Water and Irrigation Act 1914* - section 17 permit to interfere with beds and banks - section 5C licence to take water - groundwater abstraction licence - section 26D licence to construct or alter bores - dewatering licence
6. Chief Executive Officer, Department of Biodiversity, Conservation and Attractions	*Biodiversity Conservation Act 2016* - authority to take flora and fauna (other than threatened species)
7. Chief Dangerous Goods Officer Department of Mines, Petroleum and Exploration	*Dangerous Goods Safety Act 2004* - storage and handling of dangerous goods
8. Executive Director Resource and Environmental Compliance, Department of Mines, Petroleum and Exploration	*Mining Act 1978* - mining proposal
9. Department of Mines, Petroleum and Exploration	*Mining Act 1978* - miscellaneous license
9. State Mining Engineer,	*Work Health and Safety Act 2020*

Decision-Making Authority	Legislation (and approval)
Department of Mines, Petroleum and Exploration	- mine safety - approval to commence mining operations
11. Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986* - part V works approval and licence - part V clearing permit - approval for noise management plans for construction outside of prescribed hours - part IV compliance (Ministerial Statements)
12. Chief Executive Officer Shire of East Pilbara	*Local Government Act 1995* - development approval and scheme amendment *Health Act 1911* - permit for treatment of sewage *Health Act 1911 and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974* *Building Act 2011* - permit for worker accommodation *Planning and Development Act 2005* - building permit for worker accommodation

Appendix C: Environmental Protection Act principles

Table C1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by –* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*	The EPA has considered the precautionary principle in its assessment of all key environmental factors. The EPA considered the proponents avoidance and minimisation measures for conservation of significant flora and vegetation and fauna. Where the EPA considered there was uncertainty due to insufficient surveys and investigations, the EPA has recommended strong conditions requiring the proponent to undertake pre-clearance surveys, investigations, monitoring and avoidance of adverse impacts. Particular factors the precautionary principle has applied to in this assessment were flora and vegetation and subterranean fauna. For flora and vegetation and subterranean fauna, the EPA considered the lack of sufficient survey information for the proposal development envelope. Where the EPA considered there was uncertainty due to insufficient surveys and investigations, the EPA has recommended conditions to ensure that there are no adverse impacts to environmental values. <u>Greenhouse gas emissions</u> The EPA notes that climate change as a result of cumulative GHG emissions has the potential to cause serious damage to WA's environment. The specific impacts of any single proposal's GHG emissions are not able to be known with certainty at this time. However, the EPA has not used this as a reason for postponing assessment of the proposal's contribution to the State's GHG emissions or recommending practicable conditions to reduce emissions in order to minimise the risk of environmental harm associated with climate change.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	The EPA has considered the principle of intergenerational equity in its assessment and has had particular regard to this principle in its assessment of flora and vegetation, GHG emissions, social surroundings and terrestrial fauna. **<u>Flora and vegetation, social surroundings and terrestrial fauna.</u>** The EPA notes the proponent has considered this principle by: • preparing the GHG EMP 2024, that provides emissions targets and a process to reduce emissions over time, consistent with the net-zero by

EP Act principle	Consideration
	2050. Also, providing offsets as a contingency if reduction targets are not met over the life of the mine • working collaboratively with Traditional Owners to allow for the preservation of Indigenous social and cultural heritage values and future enjoyment of the land. • providing offsets for significant residual impacts to vegetation in 'Good' to Excellent' condition and high significant habitat for conservation significant fauna species. The EPA has concluded that the environmental values will be protected, and the health, diversity and productivity of the environment will be maintained for the benefit of future generations. <u>Greenhouse gas emissions</u> The EPA has noted that GHG emissions pose a risk to future generations, however, also notes that the proponent has committed to following a linear trajectory to net zero emissions by 2050 consistent with the Paris Agreement and IPCC 1.5 report, and to use offsets should these targets not be met by continuous improvement. The EPA has recommended conditions to ensure this.
3. The principles of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	The EPA has considered the principle of conservation of biological diversity and ecological integrity in its assessment and has had particular regard to this principle in its assessment of flora and vegetation, and terrestrial fauna. <u>Flora and vegetation and terrestrial fauna</u> The EPA has considered to what extent the potential impacts from the proposal to flora and vegetation and terrestrial fauna can be ameliorated to ensure consistency with the principle of conservation of biological diversity and ecological, including by provision of offsets. The EPA has concluded that given the nature of the impacts (relatively small, though still significant areas of vegetation and habitat for conservation significant fauna species that will be cleared) that the proposed offsets are likely to counter-balance the impacts of the loss of biological diversity and ecological integrity.
4. Principles relating to improved valuation, pricing and incentive mechanisms	In considering this principle, the EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal. The EPA has had particular

EP Act principle	Consideration
(1) *Environmental factors should be included in the valuation of assets and services.* (2) *The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.* (3) *The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.* (4) *Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.*	regard to this principle in considering proposal-related impacts to flora and vegetation, inland waters, terrestrial fauna, subterranean fauna and social surroundings. The EPA notes the proponent has pursued these principles by: • undertaking surveys to identify and confirm environmental values within the development envelope • taking into consideration environmental factors to reduce significant impact when designing the location of mines and infrastructure • implementing procedures to ensure emissions and discharges are minimised as far as practicable The proponent will be responsible for bearing the costs of implementing measures to reduce and offset GHG emissions, including the costs of adopting advances in process management and other measures in the future to further reduce and offset GHG emissions to achieve net zero along a linear trajectory to net zero by 2050.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	The EPA has considered the principle of waste minimisation in its assessment, and has had particular regard to this principle in its assessment of inland waters and GHG emissions. The EPA notes that proponent will minimise waste during construction, operation and closure by adopting the hierarchy of waste controls (avoid, minimise, reuse, recycle and safe disposal). Waste minimisation includes: • implementing the Mine Closure Plan • implementing the Mineral Waste Management Plan and Spontaneous Combustion and Acid Rock Drainage (SCARD) Management Plan • waste to be collected and removed for treatment by licensed contractors. The EPA considers the Safeguard Mechanism is appropriate to achieve this outcome. The EPA recommended condition B6 which requires the proponent to report to the CEO if obligations change under the National Greenhouse and Energy Reporting Act 2007 (NGER Act) and Safeguard Mechanism (SGM).

Appendix D: Other environmental factors

Table D1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Landforms	Potential impacts to landforms include: • aesthetic impacts through visual amenity.	There were no agency comments related to landforms.	Landforms was not identified as a preliminary key environmental factor when the EPA set the level of assessment. The construction and operation of the proposal is not expected to alter visual amenity as the OB29 OSA will be lower than the ridge line to the east of OB29 and would not be visible form Newman townsite. The pipeline to Ophthalmia Dam would be buried and would not impact the visual amenity of Ophthalmia Dam. Accordingly, the EPA did not consider landforms to be a key environmental factor at the conclusion of its assessment.
Terrestrial environmental quality	Terrestrial environmental quality may be impacted by: • Design and management of overburden storage and other landforms including waste storage areas. • Clearing or native vegetation and leaving areas exposed (e.g. gravel roads and laydown areas). • Active mining and closure of pits where there is a potential for metalliferous drainage (AMD). • Design and management of overburden storage areas and other landforms, including waste storage	There were no agency comments relating to terrestrial environmental quality.	In considering the potential impacts to terrestrial environmental quality, the EPA has regard to the following: • An AMD risk assessment was undertaken for Orebody 29/30/35 in 2021 based on the volume of waste rock and pit wall exposure. The AMD risk assessment identified that there was a low risk of generating AMD at OB29 and OB35 and negligible risk at OB30 (BHP 2021b). • Multiple contaminated site investigations and environmental investigations have been undertaken at known and potential PFAS source areas identified at the Mt Whaleback mine site, which partially overlaps the Orebody 29/30/35 Development Envelope. A former fire training ground which contains PFAS residues is located within the OB29 indicative footprint. PFAS containing compounds are no longer used by BHP. • Waste structures (principally OSAs) will be designed to ensure they will be physically safe, geotechnically stable, and geochemically non-polluting and non-contaminating, consistent with the Statutory Guidelines for Mine Closure Plans (DMIRS 2023) • The risk associated with waste structures will be regulated under the *Mining Act*; ensuring the waste structures meet closure objectives so that the

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	areas, where potential acid forming materials are present. • Design and management of tailings storage facilities. • Storage and use of hydrocarbons and chemicals.		environmental outcomes from potential impacts meet the EPA objectives for terrestrial environmental quality • The risk of contamination of soils and groundwater from contaminated stormwater, hydrocarbons and chemicals, seepage of leachates, and tailings discharges can be adequately regulated under Part V of the EP Act. Accordingly, the EPA did not consider terrestrial environmental quality to be a key environmental factor at the conclusion of its assessment.
Air quality			
Air quality	Potential impacts to air quality include: • dust emissions • air emissions from processing.	<u>Public comments</u> • No public responses were received regarding Landforms. <u>Agency comments</u> • DWER advised modelling provided shows little change in dust concentrations resulting from the amendment.	Air quality was identified as a preliminary key environmental factor when the EPA set the level of assessment. Mining is an existing prevalent land use in the area, with Newman town built around the Mt Whaleback mine. Mt Whaleback mining operations (incorporating Mt Whaleback mine and Orebody 29/30/35) is located approximately 2 km west of Newman and Eastern Ridge operations (incorporating OB32, OB24 and OB25) is located approximately 4.5 km northeast of Newman. The proponent has an existing ambient air quality monitoring network in and around Newman town, to measure background dust concentrations, potential impacts of dust at sensitive receptors and to improve dust management in the region. Air quality performance of existing approved Newman operations is reported in the Annual Environmental Report. The EPA considers that risks associated with human health from airborne contaminants can be adequately regulated under the Work Health and Safety Act 2020. While dust impacts are considered for other environmental factors (for example, flora and vegetation, terrestrial fauna and social surroundings), the EPA considers that air quality and dust impacts can be suitably regulated under Part V of the EP Act. Accordingly, the EPA did not consider air quality to be a key environmental factor at the conclusion of its assessment.

Appendix E: Survey, studies and investigations

The EPA advises the following survey, studies and investigations have been used to inform the assessment of the potential impacts to the following environmental factors:

Flora and Vegetation

Appendix 9 of the ERD

- OB29, 30 and 35 Expansion and Newman Surplus Water Reconnaissance Flora and Vegetation Survey (Spectrum 2024)
- Western Ridge Pipeline Reconnaissance Flora and Vegetation Survey (Biologic 2022a)
- Western Ridge Paddy Bore Area Reconnaissance Flora and Vegetation Survey (Biologic 2022b).

Terrestrial Fauna

Appendix 11 of the ERD

- OB29, 30 and 35 Expansion and Newman Surplus Water Targeted Significant Fauna Survey (Astron 2024)
- Western Ridge Pipelines Vertebrate Fauna Survey (Biologic 2022c)
- Western Ridge Project Paddy Bore Area Vertebrate Fauna Assessment (Biologic 2022d)
- OB29, 30, 35 Expansion Short-range Endemic Invertebrate Fauna Survey (Biologic 2024a)

Inland Waters

Appendix 4 of the ERD

- Orebody 29/30/35 Significant Amendment: Surface Water Impact Assessment (BHP 2024b)
- Orebody 29, 30 and 35 Detailed Hydrogeological Assessment (BHP 2024c)
- Orebody 29/30/35 Significant Amendment: Groundwater Impact Assessment (BHP 2024d)
- Orebody 29/30/35/WR dewatering and per- and polyfluoroalkyl substances mixing assessment (WSP Golder 2023)
- OB29 Hydraulic Test 2023-2024: Hydraulic test analysis and per- and polyfluoroalkyl substances (PFAS) mixing assessment (WSP 2024)
- Eastern Pilbara Hub Water Balance – 2024 Forecast Surplus Discharge Assessment (EMM 2024)

- Orebody 29/30/35 Significant Amendment: Ophthalmia Dam surplus water impact assessment (BHP 2024e).

Subterranean Fauna

Appendix 12 of the ERD

- Orebody 29, 30, 35 Expansion Stygofauna Desktop Assessment and Survey (Bennelongia 2024)
- Orebody 29/30/35 Significant Amendment: troglofauna supplementary information (BHP 2024j)
- Ethel Gorge TEC Stygofauna Monitoring 2022/2023 (Stantec 2024)
- Eastern Ridge and Jimblebar Stygofauna Monitoring 2021/2022 (Stantec 2022)
- Western Ridge Subterranean Fauna Survey and Habitat Assessment (Bennelongia 2021).

Greenhouse Gas Emissions

Appendix 13 of the ERD

- Pilbara Regional Greenhouse Gas Management Plan (BHP 2023c)
- Schedule 3 of the Pilbara Regional Greenhouse Gas Management Plan: Orebody 29/30/35 (BHP 2023c).

Appendix 14 of the ERD

- Review of the OB 29/30/35 Greenhouse Gas Management Plan (KPMG 2024).

Appendix F: List of submitters

Organisations and public

- 1 public submission was received from an individual.

Government agencies

- Department of Water and Environmental Regulation
- Department of Biodiversity, Conservation and Attractions

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
24 December 2024	EPA decided to assess – level of assessment set	
23 March 2025	EPA requested additional information	12
19 September 2025	EPA received additional information	25
24 September 2025	EPA received final information for assessment	1
16 October 2025	EPA completed its assessment	3
26 November 2025	EPA provided report to the Minister for Environment	5
1 December 2025	EPA report published	3 days
22 December 2025	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

Appendix H: Relevant policy, guidance, procedures and references

AQB 2025, *Air Quality Branch Technical Advice - Orebody 29/30/35 Significant Amendment - Draft ERD*, Department of Water and Environmental Regulation Air Quality Branch, Perth, WA.

Astron 2024, *OB29, 30 and 35 Expansion and Newman Surplus Water Targeted Significant Fauna Survey*, Astron Environmental Services, Perth, WA.

Beard 1975, *The Vegetation Survey of Western Australia. Vegetation*, 30(3), 179-187. http://www.jstor.org/stable/20036867

Bennelongia 2011, *Troglofauna Assessment at OB35, Mount Whaleback*, Bennelongia Environmental Consultants, Perth, WA.

Bennelongia 2021, *East Jimblebar Baseline Subterranean Fauna Survey*, Bennelongia Environmental Consultants, Perth, WA.

Bennelongia, 2021, *Western Ridge Subterranean Fauna Survey and Habitat Assessment*, Bennelongia Environmental Consultants, Perth, WA.

Bennelongia 2023, *East Jimblebar Baseline Subterranean Fauna Survey*, Bennelongia Environmental Consultants, Perth, WA.

Bennelongia 2024, *Orebody 29, 30, 35 Expansion Stygofauna Desktop Assessment and Survey Report* prepared for BHP Iron Ore, Bennelongia Environmental Consultants, Perth, WA.

BHP 2013, *Mount Whaleback Strategic NVCP Application to Clear Native Vegetation (Purpose) Permit under the Environmental Protection Act 1986*, Perth, Western Australia

BHP 2016, *Public Environmental Review Strategic Proposal*, BHP Billiton Iron Ore, Perth WA.

BHP 2018, *Vegetation and Flora Survey Procedure* [Version 2.0], BHP Iron Ore Ltd, Perth, WA.

BHP 2021, *Orebody 29/30/35 Mine Closure Plan*, Revision 6.0, November 2021, BHP Iron Ore Ltd, Perth, WA.

BHP 2022a, *Short-range Endemic Invertebrate Fauna Assessment Methods Procedure*, BHP Iron Ore Ltd, Perth, WA

BHP 2022b, *Western Ridge and OB29/30/35 Detailed Hydrogeological Assessment*, BHP Iron Ore Ltd, Perth, WA.

BHP 2023a, *Eastern Pilbara Water Resource Management Plan*, BHP Iron Ore Ltd, Perth, WA.

BHP 2023b, *Guidance for Terrestrial Vertebrate Fauna Surveys in the Pilbara* (Version 12.0 ed.), BHP Iron Ore Ltd, Perth, WA.

BHP 2023c, *Pilbara Regional Greenhouse Gas Management Plan*, BHP Iron Ore Ltd, Perth, WA.

BHP 2024a, *Orebody 29, 30 and 35 Detailed Hydrogeological Assessment,* Version 1.0, BHP Iron Ore Ltd, Perth, WA.

BHP 2024b, *Orebody 29/30/35 Mine Closure Plan*, Revision 7 - December 2024, BHP Iron Ore, Perth, WA

BHP 2024c, *Orebody 29/30/35 Significant Amendment Environmental Review document – referral supplementary report*, prepared by BHP Iron Ore Ltd.

BHP 2024d, *Orebody 29/30/35 Significant Amendment: Groundwater Impact Assessment*, Version 1, BHP Iron Ore Ltd, Perth, WA.

BHP 2024e, *Orebody 29/30/35 Significant Amendment: troglofauna supplementary information memorandum*, BHP Iron Ore Ltd, Perth, WA.

BHP 2024f, *Orebody 29/30/35 Water (PFAS) Management Plan*, BHP Iron Ore Ltd, Perth, WA.

BHP 2024g, *SEA Annual Environmental Report July 2023 - June 2024,* BHP Iron Ore Ltd, Perth, WA.

BHP 2024h, *Western Ridge: Nankunya (Afghan Springs) Monitoring Program*, BHP Iron Ore Ltd, Perth, WA.

BHP 2025a, *Orebody 29/30/35 Significant Amendment Environmental Review Document – referral supplementary report* (V2), BHP Iron Ore Ltd, Perth, WA.

BHP 2025b, *Orebody 29/30/35 Significant Amendment: Required additional information*, March 2025, BHP Iron Ore Ltd, Perth, WA.

BHP 2025c, *Orebody 29/30/35 Significant Amendment: Required additional information*, September 2025, BHP Iron Ore Ltd, Perth, WA.

BHP 2025d, *BHP Pilbara Expansion Strategic Proposal Derived Proposal Rehabilitation Report*, July 2025, BHP Iron Ore Ltd, Perth, WA.

BHP 2025e, *PFAS Remediation Plan/Strategy–additional information to support the assessment of Orebody 29/30/35 Significant Amendment* [PowerPoint presentation]. October 2025, BHP Iron Ore Ltd, Perth, WA.

BHP 2025f, *BHP Water Stewardship Strategy – to support the assessment of Orebody 29/30/35 significant amendment Part IV referral* [paper]. October 2025, BHP Iron Ore Ltd, Perth, WA.

DBCA 2023a, *Ethel Gorge aquifer stygobiont community: Threatened Ecological Community Fact Sheet*, Department of Biodiversity Conservation and Attractions, Goverment of Western Australia, Perth, WA.

DBCA 2023b, *Priority Ecological Communities for Western Australia Version 35 - Species and Communities Program*, Department of Biodiversity, Conservation and Attractions, Perth, WA.

DCCEEW 2022, *Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2022*, Department of Climate Change, Energy, the Environment and Water, Canberra, ACT.

DCCEEW 2023, *National Light Pollution Guidelines for Wildlife*, Department of Climate Change, Energy, the Environment and Water, Canberra, ACT.

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Appendix I: Contemporising of Ministerial Statement 963

The recommended conditions for the significant amendment of the proposal (Orebody 29/30/35 Significant Amendment) were developed in accordance with section 40AA(3) of the EP Act and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual* (EPA 2021) and includes a review of the following implementation conditions of the approved proposals (Orebody 29/30/35 Mining Below Watertable) which are considered further in Table I1:

Ministerial Statement 963: Orebody 29/30/35 Mining Below Watertable was issued on 18 March 2014 which allowed the extension of mining of the existing approved above watertable Orebody 29, 30, and 35 mines to below the watertable and discharge any excess dewatering from these three orebodies into Ophthalmia Dam.

Table I1: Consideration of Ministerial Statement 963

Ministerial Statement number	Ministerial Statement condition	Environmental Factor	Proposed Changes	Comments including assessment and evaluation of proposed changes where relevant to ensure the proposal can be implemented consistently with EPA objectives
963	Condition 1	N/A (Proposal Implementation)	Delete condition and replace with consolidated contemporary style condition A1.	This condition has been replaced by condition A1 which sets out the scope of the proposal that may be implemented consistent with the EPA's contemporary approach to condition setting.
	Condition 2	N/A (Contact Details)	Delete condition and replace with consolidated contemporary style condition D3.	Notification of a change in contact details is addressed through a new contemporary condition.
	Condition 3	N/A (Time Limit for Proposal Implementation)	Delete condition and replace with consolidated contemporary style condition D3.	Notification of a change in contact details is addressed through a new contemporary condition.
	Condition 4	N/A (Compliance Reporting)	Delete condition and replace with consolidated contemporary style conditions D1, D2, D5 and D6.	This condition has been replaced by conditions D1, D2, D5 and D6 which reflect the EPA's contemporary approach to condition setting for compliance reporting.
	Condition 5	N/A (Public Availability of Data)	Delete condition and replace with consolidated contemporary style conditions D5.	This condition has been replaced by conditions D5 which reflect the EPA's contemporary approach to condition setting for the public availability of data.
	Condition 6	Rehabilitation and Decommissioning	Delete condition and replace with new conditions B6 and B7.	The EPA has assessed the significant amendment proposal and the approved proposal with regards to mine closure and included a new condition B6 and B7 that sets out requirements for closure and rehabilitation for the remaining life of the proposal.