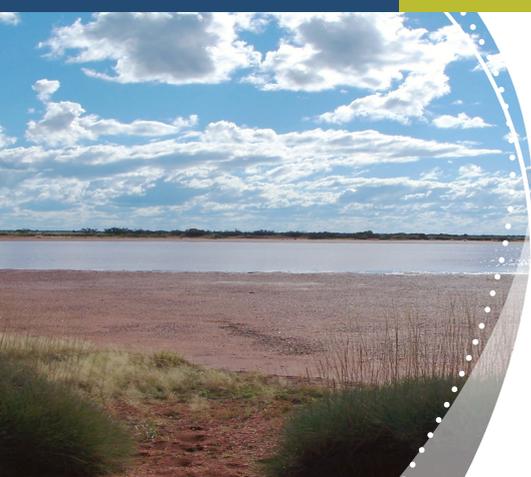




Report and recommendations of the Environmental Protection Authority



Eastern Ridge Iron Ore Proposal - Extension to Orebodies 24, 25 and 32

BHP Billiton Iron Ore Pty Ltd

Report 1571

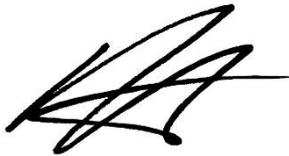
July 2016

Assessment on Proponent Information Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
21/03/16	Level of assessment set	
16/05/16	Proponent's final Environmental Referral Document received	8
19/05/16	EPA meeting	1
20/07/16	EPA report provided to the Minister for Environment	9
25/07/16	Publication of EPA report (3 working days after report provided to the Minister)	3 days
08/08/16	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the project and are usually agreed with the proponent soon after the level of assessment is determined.

In this case, the Environmental Protection Authority met its timeline objective in the completion of the assessment and provision of a report to the Minister.



Dr Tom Hatton
Chairman

20 July 2016

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1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of its environmental impact assessment of proposed changes by BHP Billiton Iron Ore Pty Ltd to its approved iron ore proposals in the Eastern Ridge area. BHP Billiton Iron Ore Pty Ltd was nominated as the proponent responsible for the proposal.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires that the EPA prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- the key environmental factors identified by the EPA in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation of the proposal should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The aims of environmental impact assessment and the principles of environmental impact assessment considered by the EPA in its assessment of this proposal are set out in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012*.

The proponent has submitted an Environmental Referral Document and supporting documents (including technical studies). These documents describe the proposal, outcomes of consultation, environmental studies undertaken, and the proponent's assessment of impacts on environmental factors and application of the mitigation hierarchy to manage those impacts (Appendix 6). The proponent referred the proposal to the EPA on 12 January 2016. On 21 March 2016 the EPA set the level of assessment at Assessment on Proponent Information – Category A (API-A).

This report provides the EPA advice and recommendations in accordance with section 44 of the EP Act.

2. The proposal

2.1 Proposal summary

The proponent, BHP Billiton Iron Ore Pty Ltd, proposes a change (referred to in this Report as the proposal) to its approved iron ore proposals in the Eastern Ridge area, located approximately three kilometres north-east of Newman (Figure 1).

The proponent's approved iron ore proposals for the Eastern Ridge area (Figure 2) are:

- Orebody 25 Extension Project (Ministerial Statement 712, 28 October 2009) for an open cut above and below the water table mine for Pits 1 and 3;
- Orebody 24/25 Upgrade Project (Ministerial Statement 834, 8 July 2010) for an open cut mine above the water table and associated infrastructure; and
- Orebody 32 Above Water Table Iron Ore Mine Project (Ministerial Statement 1018, 15 October 2015) for an open cut mine above the water table and associated infrastructure.

The proposal is constituted by the following additional activities (Figure 2):

- extensions to the pit areas for Orebody 24, Orebody 25 and Orebody 32;
- mining below the water table at Orebody 24;
- development of a new deposit, Orebody 25 West, which would be mined below the water table; and
- additional overburden storage areas.

The changes, if approved, would result in the following total likely impacts:

- total clearing of up to 3,820 hectares (ha) (additional clearing of up to 1,560 ha) within the proposed Eastern Ridge Development Envelope of 4,267 ha. The additional clearing is required for the expansion of existing pits, development of an additional pit and associated overburden storage areas;
- total abstraction of up to 24 gigalitres per annum (GL/a) of groundwater for dewatering of mine pits (additional abstraction of up to 14.58 GL/a); and
- total discharge of up to 19 GL/a of surplus dewater to Ophthalmia Dam (additional discharge of up to 5.1 GL/a).

The key characteristics of the revised proposal (i.e. the amalgamation of the existing approved proposals and this proposal) are summarised in Tables 1 and 2 consistent with Environmental Assessment Guideline No. 1 (EAG 14) *Defining the Key Characteristics of a Proposal*. A detailed description of the proposal in relation to the existing approved proposals is provided in the

proponent's Environmental Referral Document (BHP Billiton, 2016) which is attached as Appendix 6.

Table 1: Summary of revised key proposal characteristics

Proposal Title	Eastern Ridge Iron Ore Revised Proposal
Proponent name	BHP Billiton Iron Ore Pty Ltd
Short Description	<p>The proposal is to undertake mining and associated activities at Eastern Ridge, located approximately 3 km north-east of Newman.</p> <p>The proposal involves open-pit mining above the water table at Orebody 32 and below the water table at Orebody 24, Orebody 25, and Orebody 25 West. The proposal includes pit dewatering, discharge of surplus dewater into Ophthalmia Dam and the construction and operation of associated mine infrastructure.</p>

Table 2: Revised proposal elements

Element	Location	Existing approvals	Proposed changes (This assessment)	Proposed Extent (Revised proposal)
Mine and associated infrastructure	Figure 2	Total clearing of up to 2,260 ha: <ul style="list-style-type: none"> • 800 ha (MS712) • 1,110 ha (MS834) • 350 ha (MS1018) 	Additional clearing of up to 1,560 ha	Clearing of no more than 3,820 ha within the Eastern Ridge Development Envelope of 4,267 ha.
Dewatering	Figure 2	Abstraction of up to 9.42 GL/a of groundwater (RiWi licence)	Additional abstraction of up to 14.58 GL/a of groundwater.	Abstraction of up to 24 GL/a of groundwater.
Surplus dewater management	Figure 2	Discharge of up to 13.9 GL/a into Ophthalmia Dam (MS712).	Additional discharge of up to 5.1 GL/a of surplus dewater into Ophthalmia Dam.	Discharge of up to 19 GL/a surplus dewater into Ophthalmia Dam.
Backfilling of mine pits	Figure 2	N/A	Orebody 25 Pit 1 and Pit 3 to be backfilled to a level which will not allow the formation of permanent pit lakes.	Orebody 25 Pit 1 and Pit 3 to be backfilled to a level which will not allow the formation of permanent pit lakes.

The potential impacts of the proposal on the environment identified by the proponent and their proposed management are summarised in Section 5 of the Environmental Referral Document (Appendix 6, BHP Billiton 2016).

In assessing this proposal, the EPA notes that the proponent has sought to avoid, minimise, and rehabilitate environmental impacts associated with the proposal by:

- designing the mining operations to utilise existing disturbed areas;
- avoiding habitat known to contain conservation significant fauna species;
- the ongoing monitoring and management of groundwater drawdown and surplus dewater discharge; and
- progressively rehabilitating available disturbed areas.

2.2 Consultation

During the preparation of the Environmental Referral Document, the proponent consulted with government agencies and key stakeholders. The agencies and stakeholders consulted, the issues raised and proponent's response are detailed in Table 3 (pages 10-24) of the proponent's Environmental Referral Document (see Appendix 6, BHP Billiton 2016).

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

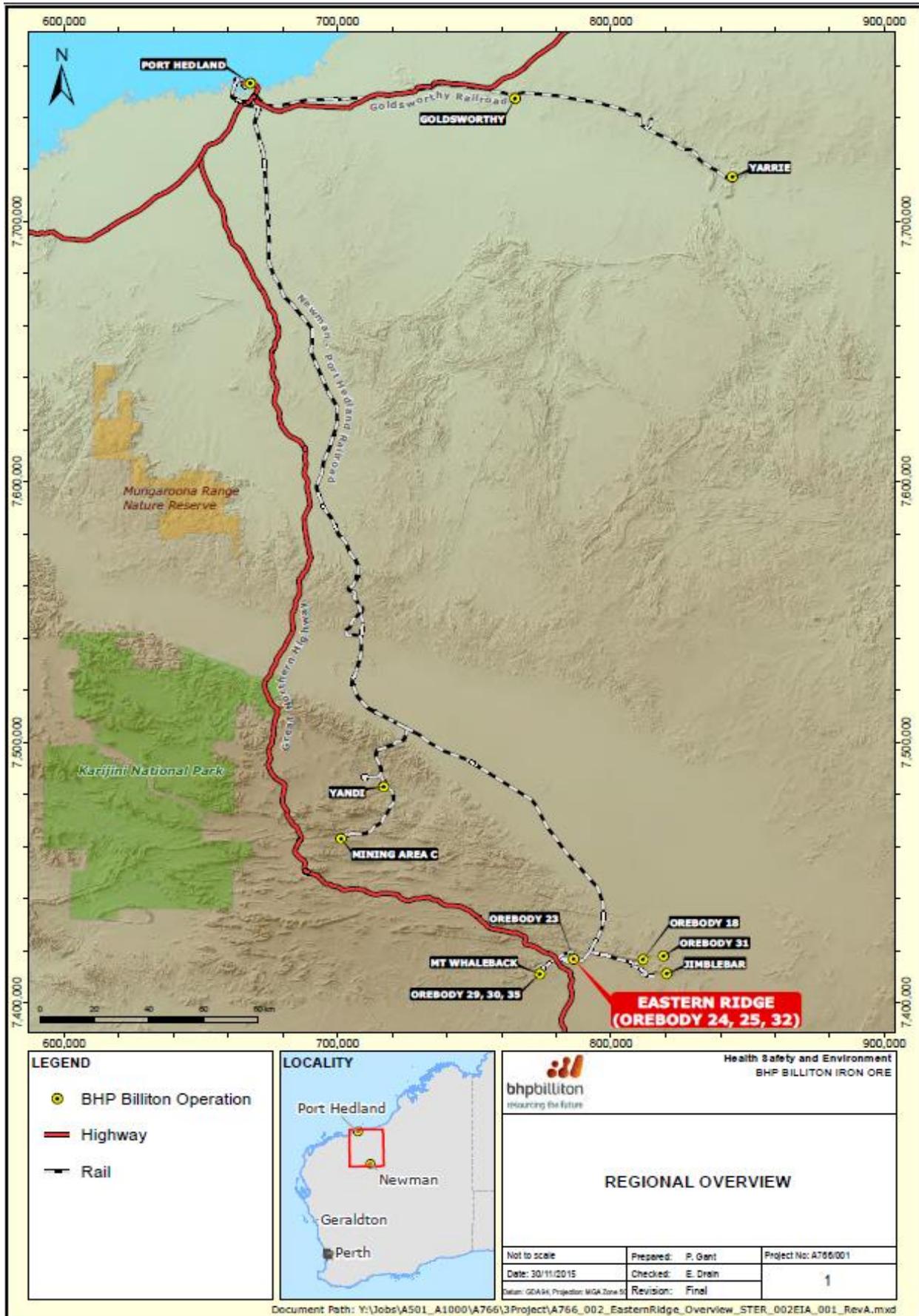


Figure 1: Proposal location

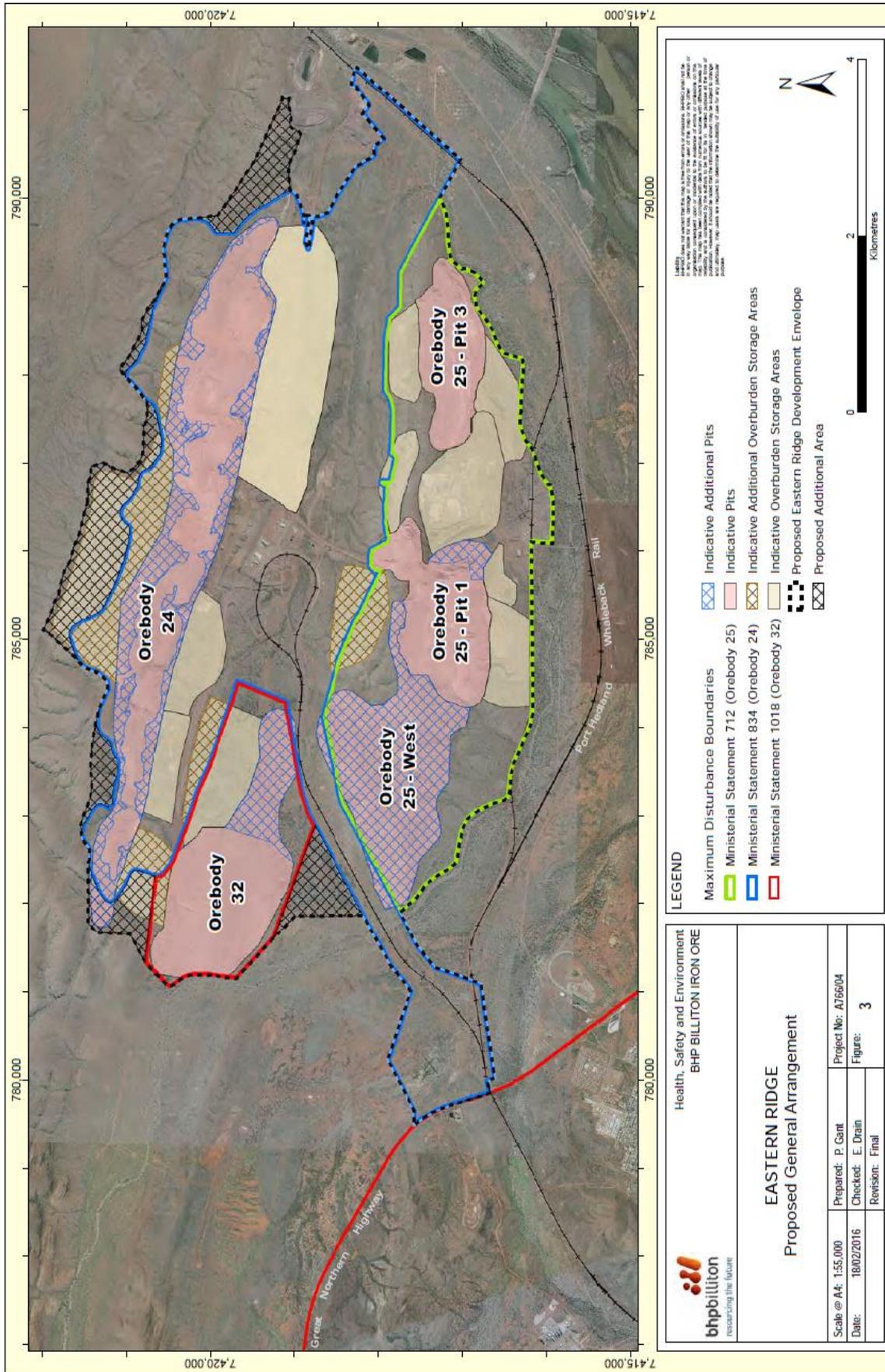


Figure 2: Eastern Ridge Development Envelope and indicative additional footprint of the proposal

3. Key environmental factors

In undertaking its assessment of this proposal and preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the EP Act to the extent relevant to the particular matter being considered. Appendix 2 provides a summary of the principles and how the EPA considered these principles in its assessment.

Having regard to:

- the proponent's referral information;
- public comments on referral information;
- consultation undertaken by the proponent and presented in the referral information;
- Environmental Assessment Guideline No. 8 *Environmental Principles, Factors and Objectives* (EPA, 2015a); and
- Environmental Assessment Guideline No. 9 *Application of a Significance Framework in the Environmental Impact Assessment Process* (EPA, 2015b),

the EPA identified the following key environmental factors during its assessment:

1. **Flora and Vegetation** – direct impacts from the additional clearing of flora and vegetation and potential impacts to riparian vegetation within the Homestead Creek drainage system from groundwater drawdown at and alterations to surface water flow;
2. **Hydrological Processes and Inland Waters Environmental Quality** – potential impacts to aquifers from the increase in groundwater abstraction for dewatering and increase in disposal of surplus dewater; and
3. **Subterranean Fauna** – potential impacts on stygofauna habitat and species within the Ethel Gorge Aquifer Stygobiont Community from mine dewatering groundwater drawdown and changes in water quality due to the discharge of surplus water into Ophthalmia Dam.

The EPA also identified the following integrating factors during its assessment:

4. **Rehabilitation and Decommissioning** – the proposal is located within Mineral Lease 244SA and is subject to the *Iron Ore (Mount Newman) Agreement Act 1964* and would not be subject to *Mining Act 1978* mine closure requirements; and
5. **Offsets** – to counterbalance the significant residual impacts to native vegetation in 'Good to Excellent' condition.

Other environmental factors relevant to the proposal which the EPA determined not to be key environmental factors are discussed in the proponent's Environmental Referral Document (Appendix 6, BHP Billiton 2016).

Appendix 2 contains the environmental factors identified through the course of the assessment and the EPA's evaluation of whether an environmental factor is a key environmental factor for the proposal.

The EPA's assessment of the proposal's impacts on the key environmental factors, integrating factors, and a discussion of the application of relevant policy and guidance, is detailed in Table 3, consistent with *Environmental Assessment Guideline for Preparation of an API – Category A Environmental Review Document* (EAG 14) (EPA, 2015c). This table outlines the EPA's conclusions as to whether or not the proposal can be managed to meet the EPA's objective for a particular factor and, if so, the recommended conditions and procedures that should apply if the proposal is implemented.

In assessing this proposal, the EPA has also considered relevant published EPA policies and guidelines. Appendix 3 lists the relevant policies and guidance documents for each of the key environmental factors and integrating factors for this assessment and identifies the relevant matters discussed in, and principles derived from, each policy and guidance document.

The EPA notes that there were no changes to EPA policy and guidance since the proposal was referred in January 2016. The EPA considered current policy and guidance in its assessment.

The EPA notes that other published policies and guidelines were considered.

Table 3: Assessment of key environmental factors and integrating factors

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>3.1 Flora and Vegetation</p> <p><i>To maintain representation, diversity, viability and ecological function at the species, population and community level.</i></p>				
<p><u>Context</u></p> <p>The proposal falls within the Hamersley IBRA subregion. In its advice <i>Cumulative environmental impacts of development in the Pilbara region – Advice of the Environmental Protection Authority to the Minister for Environment under Section 16(e) of the Environmental Protection Act</i>, the EPA raised concerns that this area is under pressure as a result of cumulative development impacts (EPA, 2014a).</p> <p>The proposed change includes the clearing of an additional 1,560 ha of vegetation in ‘Good to Excellent’ condition.</p> <p><u>Policy and guidance</u></p> <p>The EPA policy and guidance applicable to Flora and Vegetation for this assessment and relevant</p>	<p>Clearing of an additional 1,560 ha of vegetation.</p> <p>Dewatering of Orebody 25 West pit.</p>	<p>In line with Position Statement No. 3, the proponent has demonstrated the application of the mitigation hierarchy in the proposal design.</p> <p><u>Avoid</u></p> <p>The proponent will avoid known locations of <i>Eremophila magnifica</i> subsp. <i>velutina</i> will be avoided where practicable (i.e. outside of indicative pit and Overburden Storage Area boundaries). The proponent has revised the design of waste storage areas to avoid two dense populations of the species.</p> <p><u>Minimise</u></p>	<p>The extent of clearing authorised in the implementation of the proposal would be no more than 1,560 ha – see Schedule 1 of Recommended Environmental Conditions (Appendix 5).</p> <p>Condition 6 recommends that the proponent prepare, submit and implement a management plan to continue to manage impacts to priority flora and riparian vegetation along Homestead Creek.</p> <p>Condition 9 recommends that the</p>	<p>Having particular regard to the:</p> <ul style="list-style-type: none"> • relevant EPA policy and guidance pertaining to flora and vegetation; • absence of DRF, TECs and PECs in the areas surveyed; • minimal impacts to Priority 2 and Priority 3 species; • minimal impacts to riparian vegetation; • proponent’s mitigation measures; and • the EPA’s assessment that significant residual impact, resulting from the of the clearing of up to 1,560 ha of ‘Good to Excellent’ condition native vegetation in the Hamersley IBRA

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>matters discussed in the policy and guidance are outlined in Appendix 3. The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:</p> <ul style="list-style-type: none"> Guidance Statement No. 51 – <i>Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in WA</i> (EPA, 2004); Position Statement No. 2 – <i>Environmental Protection of Native Vegetation in WA</i> (EPA, 2000); and Position Statement No. 3 – <i>Terrestrial Biological Surveys as an Element of Biodiversity Protection</i> (EPA, 2002). <p>It is the EPA's view that the proponent has carried out flora and vegetation surveys in accordance with Guidance Statement No. 51 and Position Statement No. 3. The proposal is also consistent with the relevant matters in Position Statement No. 2.</p>		<p>Existing infrastructure and facilities will be used to reduce the amount of clearing required.</p> <p><u>Rehabilitate</u></p> <p>Progressive rehabilitation would be implemented which would include the use of <i>Eremophila magnifica</i> subsp. <i>velutina</i> material. To date, 137 ha has been rehabilitated under Ministerial Statements 712 (Orebody 25) and 834 (Orebody 24).</p> <p><u>Offset</u></p> <p>The EPA has determined, consistent with its approach for impact assessment in the Pilbara, that clearing within the Hamersley IBRA subregion requires an offset to counterbalance the significant residual impact of the clearing of native vegetation in 'Good to Excellent' condition. (see 3.5 Offsets).</p>	<p>proponent prepare a Mine Closure Plan for the revised proposal that is consistent with <i>DMP/EPA Guidelines for Preparing Mine Closure Plans</i>. The plan would address rehabilitation.</p> <p>An offset condition (condition 10) is recommended which requires the proponent to offset the additional clearing of up to 1,560 ha of 'Good to Excellent' native vegetation.</p>	<p>subregion, is acceptable and can be offset, the EPA considers that the proposal can be managed to meet the EPA's objective for Flora and Vegetation provided there is:</p> <ul style="list-style-type: none"> restriction of clearing within the Eastern Ridge Development Envelope (Schedule 1 of Recommended Environmental Conditions in Appendix 5); continued implementation of the measures to minimise impacts to priority flora and potential impacts to riparian vegetation through the preparation, submission and implementation of an environmental management plan, (condition 6); continued implementation of the rehabilitation measures through the preparation, submission

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p><u>Key (Survey) Findings</u></p> <ul style="list-style-type: none"> No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) or plant species listed as Declared Rare Flora (DRF) under <i>Wildlife Conservation Act 1950</i> were identified within the Eastern Ridge Development Envelope. Four Priority flora species were recorded within the Eastern Ridge Development Envelope. Two Priority flora species were recorded within the additional indicative areas of disturbance, <i>Isotropis parviflora</i> (Priority 2) and <i>Eremophila magnifica</i> subsp. <i>velutina</i> (Priority 3). One individual of <i>Isotropis parviflora</i> was recorded during 2004 surveys and has not been recorded in more recent surveys. <i>Eremophila magnifica</i> subsp. <i>velutina</i> is recorded from a wide range across the central Pilbara. It occurs from south of Newman across a linear extent of 300 km 				<p>and implementation of a Mine Closure Plan (condition 9); and</p> <ul style="list-style-type: none"> an offset being applied to counterbalance the significant residual impact of the clearing of up to 1,560 ha of 'Good to Excellent' condition vegetation (condition 10).

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>to north east of Tom Price. There are 37 recorded populations, of which BHP Billiton Iron Ore has recorded 3. These include the two at Eastern Ridge and one at boundary ridge near Mining Area C. Five populations have been recorded from within Karijini National Park.</p> <p><u>Impacts</u></p> <ul style="list-style-type: none"> • Direct impacts from the additional clearing of 1,560 ha of flora and vegetation within the Development Envelope. • The proposal would disturb less than 1% of the mapped extent of nine of the twelve vegetation associations, and less than 5% of the remaining three. • The proposal would disturb up to 1.9% of <i>Isotropis parviflora</i>, based on BHP Billiton Iron Ore's records only. • The percentage of disturbance to <i>Eremophila magnifica</i> subsp. <i>velutina</i> is difficult to calculate as the exact number of individuals 				

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>from each record is not known. The proponent has committed to avoid two large populations of the species (1,726 individuals in total).</p> <ul style="list-style-type: none"> There are potential impacts to <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i> and <i>Eucalyptus victrix</i> within the Homestead Creek drainage system from groundwater drawdown from Orebody 25 West. 				
<p>3.2 Hydrological Processes and Inland Waters Environmental Quality</p> <p><i>To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.</i></p> <p><i>To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.</i></p>				
<p><u>Context</u> The proposal is located within a Public Drinking Water Source Area (Newman Water Reserve) and is adjacent to the Homestead and Ophthalmia borefields which are the potable water supply for the town of Newman, operated by BHP Billiton Iron Ore. The Ethel Gorge Aquifer Stygobiont Community which is</p>	<p>Additional abstraction of up to 14.58 GL/a of groundwater for dewatering.</p> <p>Additional discharge of up to 5.1 GL/a of surplus dewater</p>	<p><u>Minimise</u> Surplus water generated by dewatering will be managed in accordance with the Eastern Pilbara Water Resource Management Plan. The water use hierarchy is as follows:</p>	<p>The Department of Water (the DoW) regulates groundwater abstraction under the <i>Rights in Water Irrigation Act 1914</i>. The proponent would need to apply for an increase to the existing licence</p>	<p>Having particular regard to the:</p> <ul style="list-style-type: none"> minimal changes to groundwater levels and quality predicted; the proponent's existing management approach (including no change to

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>listed as an Endangered Threatened Ecological Community (TEC) is located east of the Eastern Ridge Development Envelope.</p> <p><u>Policy and guidance</u> There is no EPA policy or guidance considered by the EPA to be relevant to this factor for this assessment (Appendix 3).</p> <p><u>Key Findings</u> The change in local and regional groundwater levels resulting from the additional dewatering is expected to be localised to the mining area as the orebody aquifers at Orebody 24 and Orebody 25 West are generally in contact with lower permeability units.</p> <p>The drawdown at the Ethel Gorge aquifer as a result of below water table mining at Orebody 24 and Orebody 25 West is similar to levels predicted in 2008.</p> <p>The cumulative effects of changes resulting from the existing and proposed operations on</p>	<p>to Ophthalmia Dam.</p>	<ul style="list-style-type: none"> • re-used on-site in mining operations; • transferred to other nearby operations for use onsite; and • discharged into Ophthalmia Dam or the associated infiltration basins and recharge ponds. <p>The proponent will continue to monitor groundwater levels and quality during operations and continue to manage groundwater levels and quality through the trigger and threshold framework outlined in the Eastern Pilbara Water Resource Management Plan (BHP Billiton 2016, Appendix I).</p> <p>Although there is an increase in abstraction for dewatering and an increase in discharge, the proposed groundwater level and quality criteria in the</p>	<p>for the increase in abstraction.</p> <p>The Department of Environment Regulation regulates the discharge of surplus dewater under Part V of the <i>Environmental Protection Act 1986</i>. The proponent would need to apply for an increase to the existing licence for the increase in discharge.</p> <p>Condition 8 recommends that the proponent prepare, submit and implement a management plan to continue to manage potential impacts to the habitat of the Ethel Gorge Aquifer Stygobiont Community from changes to water levels. The criteria for this plan would also be used to manage the</p>	<p>the existing groundwater level and quality criteria), the EPA considers that the proposal can be managed to meet the EPA's objective for Hydrological Processes provided there is:</p> <ul style="list-style-type: none"> • continued implementation of the measures to minimise impacts to groundwater levels and quality, through the preparation, submission and implementation of an environmental management plan (condition 8).

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>groundwater levels in Ethel Gorge habitat is consistent with the original impact assessment for Eastern Ridge and remain within natural variance during operational periods owing to the Ophthalmia Dam recharge system maintaining water levels within the Ethel Gorge aquifer. This is supported by the groundwater modelling undertaken for Eastern Ridge, informed by historical monitoring data, which shows drawdown of the local and regional groundwater within the Ethel Gorge aquifer is likely to be limited due to direct infiltration through Ophthalmia Dam, adjoining infiltration ponds and natural infiltration at Homestead Creek and Shovelanna Creek.</p> <p>The groundwater across the proposal and adjacent Ophthalmia Dam area is generally fresh with Total Dissolved Solids (TDS) values typically below 2,000 mg/L.</p> <p><u>Impacts</u> Changes in groundwater levels from the additional dewatering and</p>		<p>Eastern Pilbara Water Resource Management Plan remain the same.</p> <p>The potable drinking water source protection objectives can be achieved through triggers and thresholds for Ethel Gorge (see 3.3 Subterranean Fauna).</p> <p>If trigger levels are exceeded, the proponent would implement management options such discharge to recharge ponds, infiltration basins and controlled abstraction from Ophthalmia Dam borefield.</p>	<p>potential impacts to other aquifers.</p>	

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>discharge could impact the water supply borefields, Homestead Creek and the Ethel Gorge Aquifer Stygobiont Community.</p> <p>Seepage of groundwater with an elevated TDS into the shallow groundwater could impact the Ethel Gorge Aquifer Stygobiont Community further downstream. However, 35 years of historical monitoring has not demonstrated an increase to the TDS in the shallow aquifer of Ethel Gorge.</p>				
<p>3.3 Subterranean Fauna</p> <p><i>To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.</i></p>				
<p><u>Context</u></p> <p>Groundwater dewatering and surplus water discharge from mining activities have the potential to impact the Ethel Gorge Aquifer Stygobiont Community adjacent to the proposal, which is listed as an Endangered Threatened Ecological Community (TEC).</p> <p><u>Policy and guidance</u></p>	<p>Additional abstraction of up to 14.58 GL/a of groundwater for dewatering.</p> <p>Additional discharge of up to 5.1 GL/a of surplus dewater</p>	<p>Monitoring of the Ethel Gorge Aquifer Stygobiont Community since 2005 has indicated that there is no decline in the community due to groundwater dewatering from current operations within the Eastern Ridge Development Envelope</p> <p><u>Avoid</u></p>	<p>Condition 8 recommends that the proponent prepare, submit and implement a management plan to continue to manage potential impacts to the Ethel Gorge Aquifer Stygobiont Community.</p>	<p>Having particular regard to the:</p> <ul style="list-style-type: none"> • relevant EPA policy and guidance pertaining to Subterranean Fauna; • minimal changes to groundwater levels predicted; • the extent and connectivity of suitable habitat outside the

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>The EPA policy and guidance applicable to Subterranean Fauna for this assessment and relevant matters discussed in the policy and guidance are outlined in Appendix 3. The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:</p> <ul style="list-style-type: none"> • Environmental Assessment Guideline 12 – <i>Consideration of subterranean fauna in EIA in WA</i> (EPA, 2013b); and • Guidance Statement 54a – <i>Sampling methods and survey considerations for subterranean fauna in Western Australia</i>, August 2007. <p>It is the EPA's view that the proponent has carried out subterranean fauna studies in accordance with Environmental Assessment Guideline 12 and Guidance Statement 54a.</p> <p><u>Key (Survey) Findings</u></p>	<p>to Ophthalmia Dam.</p>	<p>The proposal has been designed to avoid direct impacts to the Ethel Gorge Aquifer Stygobiont Community (TEC).</p> <p><u>Minimise</u></p> <p>The proponent would continue to monitor groundwater levels and quality during operations and continue to manage groundwater levels and quality through the trigger and threshold framework outlined in the Eastern Pilbara Water Resource Management Plan (BHP Billiton 2016, Appendix I) to minimise potential impacts to the TEC.</p> <p>If trigger levels are exceeded, the proponent would implement management options such as discharge to recharge ponds, infiltration basins and controlled abstraction</p>		<p>Eastern Ridge Development Envelope;</p> <ul style="list-style-type: none"> • the proponent's existing management approach, the EPA considers that the proposal can be managed to meet the EPA's objective for Subterranean Fauna provided there is: • continued implementation of the measures to minimise impacts to the Ethel Gorge Aquifer Stygobiont Community, through the preparation, submission and implementation of an environmental management plan (condition 8).

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>A total of 49 stygofauna species were collected from within the Groundwater Assessment Area, which extends beyond the Eastern Ridge Development Envelope and is the area which is predicted to be impacted from drawdown. Five species have ranges that may result in the species being impacted from the modelled groundwater drawdown.</p> <p>The five species in the Groundwater Assessment Area occur outside the Eastern Ridge Development Envelope within the alluvium along the tributaries associated with the Upper Fortescue River. The extent and habitat connectivity of the alluvium is expected to allow dispersal of stygofauna species between the Eastern Ridge Development Envelope and surrounding aquifers.</p> <p><u>Impacts</u></p> <p>Changes in groundwater drawdown from the additional dewatering and changes in water quality through the discharge of additional surplus</p>		<p>from Ophthalmia Dam borefield.</p>		

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>dewater into Ophthalmia Dam could potentially impact the Ethel Gorge Aquifer Stygobiont Community. Groundwater modelling predicts that there will be a minimal change in water levels and to the extent of drawdown when compared with areas previously approved.</p>				
<p>3.4 Rehabilitation and Decommissioning (Integrating Factor) <i>To ensure that premises are decommissioned and rehabilitated in an ecologically sustainable manner.</i></p>				
<p><u>Context</u> The proposal is subject to the <i>Iron Ore (Mount Newman) Agreement Act 1964</i>, and therefore aspects of mine closure would not be subject to the <i>Mining Act 1978</i>.</p> <p><u>Policy and Guidance</u> The EPA policy and guidance applicable to Rehabilitation and Decommissioning for this assessment and relevant matters discussed in the policy and guidance are outlined in Appendix 3. The EPA considers that the following policy and guidance is</p>	<p>Alteration of landforms to create mine pits and waste landforms.</p> <p>Recovery of groundwater levels to form pit lakes.</p>	<p>No Potentially Acid Forming (PAF) material is anticipated. However, in the case that unknown PAF is encountered during operations, management options will include measures to avoid impacts from PAF material.</p> <p><u>Avoid</u></p> <ul style="list-style-type: none"> • avoiding exposure of PAF in final pit wall. • covering any exposed PAF with 10 - 20 m of non-acid forming or acid neutralising capacity material. 	<p>Condition 8 has been recommended requiring the proponent to prepare and implement a Mine Closure Plan and update this plan every three years during the operations. This is consistent with the current <i>Guidelines for preparing mine closure plans</i>. This plan will include how pit lakes would be managed post-closure.</p> <p>As stated in the above guidelines, where the</p>	<p>Having particular regard to the:</p> <ul style="list-style-type: none"> • relevant EPA policy and guidance pertaining to Rehabilitation and Decommissioning; • the proposal occurring on State Agreement Act tenements; • up to 1,560 ha of additional disturbed native vegetation requiring rehabilitation; • the low risk of encountering PAF material;

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>relevant to its assessment of the proposal in relation to this factor:</p> <ul style="list-style-type: none"> • <i>Guidelines for preparing mine Closure Plans</i> (DMP & EPA, 2015); and • Environmental Protection Bulletin No. 19 – <i>EPA involvement in mine closure</i> (EPA, 2015d); <p>As the proposal occurs on State Agreement Act tenements, the EPA considers that rehabilitation and decommissioning should be assessed for the whole proposal. This is consistent with Environmental Protection Bulletin No. 19 and the <i>Guidelines for preparing mine closure plans</i> that state that the EPA will assess rehabilitation and decommissioning for proposals subject to State Agreement Acts.</p> <p><u>Key (Survey) Findings</u></p> <ul style="list-style-type: none"> • Under the proposed mine closure strategy, Orebody 24 and Orebody 25 West pit voids would become pit lakes. 		<ul style="list-style-type: none"> • flood protection designs, such as engineered flood levee for Orebody 25 West, as it is adjacent to Homestead Creek. <p><u>Minimise</u></p> <p>Impacts and the potential risks from pit lakes to inland water quality will be managed through the triggers and thresholds for water quality outlined in the Eastern Pilbara Water Resource Management Plan (BHP Billiton 2016, Appendix I).</p> <p><u>Rehabilitate</u></p> <p>Disturbed areas will be progressively rehabilitated. To date, 137 ha has been rehabilitated under Ministerial Statement 712 and 834.</p>	<p>mine site is subject to multiple regulatory frameworks, a single Mine Closure Plan is required that addresses <i>Mining Act 1978</i> components and non-<i>Mining Act 1978</i> components.</p>	<ul style="list-style-type: none"> • management measures to address PAF material if encountered; and • the formation of pit lakes after closure, <p>the proposal can be managed to meet the EPA's objective for Rehabilitation and Decommissioning subject to condition 9 requiring the proponent to develop and implement a Mine Closure Plan and review the Mine Closure Plan every three years consistent with the <i>Guidelines for preparing mine closure plans</i>.</p>

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<ul style="list-style-type: none"> No Potentially Acid Forming (PAF) material is anticipated. <p><u>Impacts</u></p> <ul style="list-style-type: none"> Potential impacts to surface and groundwater if unknown PAF is encountered during operations. The formation of pit lakes at could have a potential impact on aquifer water quality. 				
<p>3.5 Offsets (Integrating Factor)</p> <p><i>To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.</i></p>				
<p><u>Context</u></p> <p>In its advice on the cumulative impacts in the Pilbara (EPA 2014a), the EPA raises its concern that without intervention, the increasing cumulative impacts of development and land use in the Pilbara region will significantly impact on biodiversity and environmental values.</p> <p>The EPA considers that the clearing of native vegetation and impacts on other associated environmental values in the Pilbara IBRA bioregion</p>	<p>Clearing of native vegetation in 'Good to Excellent' condition.</p>	<p>Consistent with the relevant offset policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts. Mitigation measures are assessed under the relevant environmental factor (see Flora and Vegetation).</p>	<p>A condition (Condition 10) has been recommended requiring the proponent to provide an offset for the additional clearing of 1,560 ha plus the 350 ha of clearing approved under Ministerial Statement 1018 (total of 1,910 ha).</p> <p>The clearing authorised under Ministerial</p>	<p>Conservation areas in the Pilbara bioregion total approximately eight per cent of the area, with the remainder mostly Crown Land, covered with mining tenements and pastoral leases. As such, the potential for traditional land acquisition and management offsets are limited.</p> <p>The <i>WA Offsets policy</i> states that Environmental</p>

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>is significant where the cumulative impact may reach critical levels if not managed.</p> <p>The proposal is located within the Hamersley IBRA subregion. Only 13% of the Hamersley subregion is currently reserved for conservation.</p> <p><u>Policy and guidance</u></p> <p>The EPA policy and guidance applicable to Offsets for this assessment and relevant matters discussed in the policy and guidance are outlined in Appendix 3. The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:</p> <ul style="list-style-type: none"> • <i>WA Environmental offsets policy</i> (Government of Western Australia, 2011); • <i>WA Environmental offset guidelines</i> (Government of Western Australia, 2014); and • Environmental Protection Bulletin No. 1 – <i>Environmental offsets</i> (EPA, 2014b). 		<p>Given the cumulative impact of clearing in the Hamersley IBRA subregion, the EPA considers that the loss of up to 1,560 ha of native vegetation in ‘Good to Excellent’ condition constitutes a significant residual impact, after taking into account the proponent’s proposed measures to avoid, minimise and rehabilitate impacts and the proposed conditions.</p> <p>Consistent with the Residual Impact Significance Model in the <i>WA Environmental Offsets Guidelines</i>, where the cumulative impact may reach critical levels if not managed, the clearing of native vegetation in ‘Good to Excellent’ condition within the Hamersley IBRA subregion requires an offset to counterbalance the</p>	<p>Statements 712 (800 ha) and 834 (1,100 ha), which totals 1,910 ha is exempt from offset requirements as no offset was required for those approvals, consistent with Environmental Protection Bulletin 1.</p>	<p>Offsets will be focussed on longer term strategic outcomes (Principle 6). Strategic approaches, such as the use of a fund, can provide a coordination mechanism to implement offsets across a range of land tenures (Government of Western Australia 2014).</p> <p>In its advice on the cumulative impacts in the Pilbara (EPA 2014a), the EPA proposed the establishment of a strategic conservation initiative for the Pilbara as a mechanism to pool offset funds to achieve biodiversity conservation outcomes.</p> <p>The EPA has stated that the type of environmental offsets in the Pilbara that contribute to a strategic conservation initiative will ensure a consistent and transparent approach and contribute to longer term</p>

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
<p>As stated in Environmental Protection Bulletin No. 1, if a proponent is seeking a change to, or an expansion of, a proposal under an existing approval/s, these changes would be subject to the current offsets practice. Therefore, consistent with this, the EPA is only assessing whether offsets are appropriate for the change to the approved proposals (Authorised by Ministerial Statements 712, 834, and 1018).</p> <p><u>Impacts</u></p> <p>Following the implementation of all mitigation measures, the proposal would have a significant residual impact of clearing of up to an additional 1,560 ha of 'Good to Excellent' condition native vegetation.</p>		<p>significant residual impact of the clearing.</p> <p>The proponent has committed to providing an offset in line with current policies and guidelines.</p>		<p>strategic outcomes (as outlined in the <i>WA Environmental Offsets Guidelines</i>), with contributions based on an assessment of the significance of environmental impacts.</p> <p>Commensurate with other decisions within the Hamersley IBRA subregion, the EPA recommends that an offset of \$750 per hectare cleared of 'Good to Excellent' condition vegetation should apply in the form of a contribution to a Pilbara strategic conservation initiative.</p> <p>Having particular regard to:</p> <ul style="list-style-type: none"> • relevant EPA policy and guidance pertaining to Offsets; and • the loss of up to 1,560 ha of native vegetation, the EPA considers that the proposal can be managed to

Inherent Impact	Environmental Aspect/s	Mitigation actions to address residual impacts	Proposed regulatory mechanisms for ensuring mitigation	Outcome to demonstrate that the proposal meets EPA objective
				meet the EPA's objectives for Flora and Vegetation and Offsets provided that a condition is imposed to counterbalance the significant residual impact of the clearing of up to 1,560 ha of native vegetation in 'Good to Excellent' condition (condition 10).

4. Conclusion and recommended conditions

The EPA has concluded that this proposal (changes to the approved proposals) can be managed to meet the EPA's objectives and therefore recommends that the proposal may be implemented.

Section 45B of the EP Act provides that if a proposal is revised (i.e. the amalgamation of the existing approved proposals and this proposal once approved) after implementation conditions have been agreed, each of those implementation conditions (in this case, implementation conditions in Ministerial Statements 712, 834, and 1018) continue to apply to the revised proposal, subject to revised conditions or procedures being applied to the revised proposal.

In its assessment of this proposal, the EPA has also reviewed the implementation conditions of the approved proposals and recommends revised implementation conditions be imposed to the revised proposal (i.e. the amalgamation of the existing approved proposals and this proposal), if the Minister decides that it may be implemented. Appendix 4 sets out the EPA's review of the Ministerial Statements for the approved proposals and Appendix 5 sets out the EPA's recommended environmental conditions for the revised proposal.

These conditions include the following:

- preparation of a revised Management-based Environmental Management Plan/s to manage the impacts on:
 - conservation significant flora species and vegetation (condition 6);
 - conservation significant terrestrial fauna (condition 7);
- preparation of a revised Outcomes-based Environmental Management Plan to manage the impacts on the conservation significant stygofauna Ethel Gorge Aquifer Stygobiont Community (condition 8);
- preparation of a Mine Closure Plan (condition 9); and
- a requirement for the proponent to contribute additional funds to a government established conservation offset fund to counterbalance the significant residual impacts on native vegetation in 'Good to Excellent' condition (condition 10).

5. Recommendations

That the Minister for Environment notes:

1. that the proposal assessed is a change to approved iron ore proposals in the Eastern Ridge area;
2. the key environmental factors identified by the EPA in the course of its assessment set out in Section 3; and

3. that the EPA has concluded that the proposal may be implemented to meet the EPA's objectives, provided the implementation of the revised proposal is carried out in accordance with the recommended revised conditions and procedures set out in Appendix 5 and summarised in Section 4.

Appendix 1

References

BHP Billiton 2016, *Eastern Ridge Revised Proposal – Environmental Referral Document*, February 2016.

DMP & EPA 2015, *Guidelines for Preparing Mine Closure Plans*, Department of Mines and Petroleum and Environmental Protection Authority, May 2015, Perth, Western Australia.

EPA 2000, *Position Statement No. 2: Environmental Protection of Native Vegetation in WA*, Environmental Protection Authority, December 2000.

EPA 2002, *Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection*, Environmental Protection Authority, March 2002.

EPA 2004a, *Guidance Statement No. 51 – Guidance for the Assessment of Environmental Factors - Terrestrial Flora and Vegetation Surveys for Environmental Impact in Western Australia*. Environmental Protection Authority, June 2004.

EPA 2004b, *Guidance Statement No. 56: Guidance for the Assessment of Environmental Factors - Terrestrial Fauna Surveys for Environmental Impact in Western Australia*, Environmental Protection Authority, June 2004.

EPA 2004c, *Guidance Statement No. 41 – Assessment of aboriginal heritage*, Environmental Protection Authority, April 2004.

EPA 2006, *Guidance Statement No. 6: Guidance for the Assessment of Environmental Factors - Rehabilitation of Terrestrial Ecosystems*, Environmental Protection Authority, June 2006.

EPA 2007, *Guidance Statement No. 54a – Sampling methods and survey considerations for subterranean fauna in Western Australia*, August 2007

EPA 2012, *Environmental Assessment Guideline No. 1 (– Defining the key characteristics of a proposal (EAG 1)*, Environmental Protection Authority, May 2012.

EPA 2013b, *Environmental Assessment Guideline for Consideration of subterranean fauna in environmental impact assessment in Western Australia (EAG 12)*, June 2013, Perth.

EPA 2014a, *Cumulative environmental impacts of development in the Pilbara region*, Advice of the Environmental Protection Authority to the Minister for Environment under Section 16(e) of the *Environmental Protection Act 1986*, August 2014, Perth.

EPA 2014b, *Environmental Protection Bulletin No. 1 – Environmental offsets*, Environmental Protection Authority, August 2014, Perth, Western Australia.

EPA 2015a, *Environmental Assessment Guideline for Environmental Principles, Factors and Objectives*, January 2015, Perth.

EPA 2015b, *Environmental Assessment Guideline for Application of a Significance Framework in the Environmental Impact Assessment Process*, January 2015, Perth.

EPA 2015c, *Environmental Assessment Guideline for Preparation of an API – Category A Environmental Review Document*, January 2015, Perth.

EPA 2015d, *Environmental Protection Bulletin No. 19 – EPA Involvement in Mine Closure*, Environmental Protection Authority, July 2013, Perth, Western Australia.

EPA 2015e, *Environmental Assessment Guideline No. 17 – Preparation of management plans under Part IV of the Environmental Protection Act 1986*, Environmental Protection Authority, August 2015.

EPA 2015f, *Environmental Assessment Guideline No. 11 – Recommending environmental conditions*, Environmental Protection Authority, Revised August 2015.

Government of Western Australia 2011, *WA Environmental offsets policy*, September 2011, Perth.

Government of Western Australia 2014, *WA Environmental offsets guidelines*, August 2014, Perth.

Appendix 2

Summary of Identification of Key Environmental Factors and Principles

Summary of identification of key environmental factors

Environmental Factors	Proposal Characteristics	Evaluation of whether a factor is a key environmental factor
LAND		
Flora and vegetation	<p>The proposal requires the clearing of an additional 1,560 ha of vegetation in 'Good to Excellent' condition.</p> <p>The proposal would impact priority flora species. Riparian vegetation in the Homestead Creek drainage system may be impacted by groundwater drawdown from dewatering activities.</p>	<p>Flora and Vegetation was identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>Having regard to the scale of vegetation clearing that will be undertaken and the potential for conservation significant flora and vegetation to be impacted, the EPA identified Flora and Vegetation as a key environmental factor at the conclusion of its assessment.</p>
Subterranean Fauna	Changes to groundwater drawdown and discharge of surplus dewater to Ophthalmia Dam as a result of changes to dewatering for the proposal could impact the Ethel Gorge Aquifer Stygobiont Community which is listed as an Endangered TEC.	<p>Subterranean Fauna was identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>Having regard to the proximity of the Ethel Gorge Aquifer Stygobiont Community to the proposal, which could be impacted, the EPA identified Subterranean Fauna as a key environmental factor at the conclusion of its assessment.</p>
Terrestrial Fauna	<p>The clearing of up to an additional 1,560 ha of native vegetation for the proposal has the potential to impact on terrestrial fauna through direct loss and the loss of suitable habitat.</p> <p>Surveys have recorded five conservation significant fauna species from within the development envelope:</p> <ul style="list-style-type: none"> • Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) (EPBC Act Vulnerable; WC Act Schedule 3); • Peregrine Falcon (<i>Falco peregrinus</i>) (WC Act Schedule 7); • Rainbow Bee-eater (<i>Merops ornatus</i>) (EPBC Act Migratory; WC Act Schedule 5); 	<p>Terrestrial Fauna was not identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>The EPA notes that the northern boundary of the Eastern Ridge Development Envelope was modified to avoid some of the known locations of the Pilbara Olive Python and its habitat (specifically semi-permanent waterholes).</p> <p>Having regard to the results of surveys carried out in accordance with Guidance Statement No. 56 – <i>Terrestrial Fauna Surveys for Environmental Impact Assessment in WA</i> (EPA, 2004b) and Environmental</p>

Environmental Factors	Proposal Characteristics	Evaluation of whether a factor is a key environmental factor
	<ul style="list-style-type: none"> • Ghost Bat (<i>Macroderma gigas</i>) (WC Act Schedule 3, Priority 4); and • Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>) (Priority 4). <p>All five fauna species have been recorded within previously assessed and approved Ministerial Statement boundaries. Additional records of Pilbara Olive Python and Rainbow Bee-eater have been recorded within the Proposed Additional Areas in the north of the Eastern Ridge Development Envelope. The potential impacts to the Peregrine Falcon, Rainbow Bee-eater, Ghost Bat, and Western Pebble-mound Mouse are considered to be negligible.</p>	<p>Assessment Guideline 9 - <i>Application of a Significance Framework in the Environmental Impact Assessment Process</i> (EPA, 2015b) and given:</p> <ul style="list-style-type: none"> • all five significant species have been recorded outside the Eastern Ridge Development Envelope; • there are limited records of significant species within the Proposed Additional Areas; and • the modification of the Eastern Ridge Development Envelope to avoid some known areas of Pilbara Olive Python habitat, <p>the EPA considers that it is unlikely that the proposal (for the change to the approved proposals) would have a significant impact on terrestrial fauna and the proposal can meet the objectives for this factor. Accordingly, the EPA did not identify Terrestrial Fauna as a key environmental factor at the conclusion of its assessment.</p> <p>For the revised proposal (this proposal and the approved proposals), the EPA has recommended continued implementation of the measures to minimise impacts to Terrestrial Fauna (particularly Pilbara Olive Python) through Condition 7 (Appendix 5).</p>
WATER		
Hydrological Processes	Changes in groundwater levels from the additional dewatering and discharge of surplus dewater could potentially impact the water supply borefields, Homestead Creek, and the Ethel Gorge Aquifer Stygobiont Community.	<p>Hydrological Processes was not identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>Having regard to increase in abstraction of groundwater for dewatering and the increase in discharge of surplus dewater and potential impacts on sensitive environmental receptors, the EPA</p>

Environmental Factors	Proposal Characteristics	Evaluation of whether a factor is a key environmental factor
		<p>identified Hydrological Processes as a key environmental factor at the conclusion of its assessment.</p>
<p>Inland Waters Environmental Quality</p>	<p>Changes in groundwater quality from the additional discharge of surplus dewater could potentially impact the Ethel Gorge Aquifer Stygobiont Community.</p>	<p>Inland Waters was not identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>Having regard to the increase in discharge of surplus dewater and potential impacts on sensitive environmental receptors, the EPA identified Inland Waters Environmental Quality as a key environmental factor at the conclusion of its assessment.</p>
PEOPLE		
<p>Heritage</p>	<p>The Eastern Ridge Development Envelope lies within the Nyiyaparli native title claim. The additional clearing has the potential to impact on known archaeological or ethnographical sites. Apart from clearing, the proponent did not identify any other particular changes to the biological and physical environment that could adversely impact heritage.</p>	<p>Heritage was not identified as a preliminary environmental factor in the decision to assess the proposal.</p> <p>The proponent has conducted archaeological and ethnographical surveys within the Eastern Ridge Development Envelope and surrounds. Heritage sites have been identified within the Eastern Ridge Development Envelope. The EPA notes that the proponent consulted with the Nyiyaparli Traditional Owners regarding the proposal.</p> <p>The proponent will minimise the impacts from clearing by utilising existing infrastructure and facilities, and disposing of waste rock into the pits.</p> <p>Having regard to Guidance Statement No. 41 – <i>Assessment of aboriginal heritage</i> (EPA 2004) and EAG 9 – <i>Application of a Significance Framework in the Environmental Impact Assessment Process</i> (EPA 2015b) the EPA considers that it is unlikely</p>

Environmental Factors	Proposal Characteristics	Evaluation of whether a factor is a key environmental factor
		<p>that the proposal would have a significant impact on heritage and the proposal can meet the objectives for this factor. Accordingly, the EPA did not identify Heritage as a key environmental factor at the conclusion of its assessment.</p> <p>The EPA notes that there is an agreement in place between BHP Billiton Iron Ore and the Nyiyaparli People for the existing mine that would also apply to this proposal.</p> <p>The EPA also notes that where disturbance to a site cannot be avoided, the proponent would obtain approvals under the <i>Aboriginal Heritage Act 1972</i>.</p>
INTEGRATING FACTORS		
Rehabilitation and Decommissioning	<p>Mining would occur below the water table for pits within Orebody 24, Orebody 25, and Orebody 25 West. The pits within Orebody 25 will be backfilled above groundwater level so that they do not form pit lakes. Orebody 24 and Orebody 25 West will potentially form pit lakes at closure.</p> <p>The proposal is subject to the <i>Iron Ore (Mount Newman) Agreement Act 1964</i>, and therefore aspects of mine closure would not be subject to the <i>Mining Act 1978</i>.</p> <p>The proposal has the potential to impact surface and groundwater if unknown Potentially Acid Forming (PAF) material encountered during operations. The formation of pit lakes at could have a potential impact on aquifer water quality and Homestead Creek.</p>	<p>Rehabilitation and Decommissioning was identified as a preliminary integrating factor in the decision to assess the proposal.</p> <p>Having regard to the proposal being subject to the <i>Iron Ore (Mount Newman) Agreement Act 1964</i>, and therefore not subject to regulation under the <i>Mining Act 1978</i> for mine closure, and the potential impacts of PAF material and pit lakes, the EPA identified Rehabilitation and Decommissioning as a key integrating factor at the conclusion of its assessment.</p>
Offsets	The proposal would result in the additional clearing up to 1,560 ha of 'Good to Excellent' condition vegetation within the Hamersley IBRA subregion.	<p>Offsets was identified as a preliminary integrating factor in the decision to assess the proposal.</p> <p>Consistent with the <i>WA Environmental offsets guidelines</i> (Government of Western Australia, 2014)</p>

Environmental Factors	Proposal Characteristics	Evaluation of whether a factor is a key environmental factor
		<p>and the <i>WA Environmental Offsets Policy</i> (Government of Western Australia, 2011), the EPA considers that the clearing of 'Good to Excellent' condition vegetation in the Pilbara region is a significant residual environmental impact which requires an offset to counterbalance the impacts which may reach critical levels cumulatively if not managed.</p> <p>Having regard to the significant residual impact from the clearing of 1,560 ha of 'Good to Excellent' condition native vegetation, the EPA identified Offsets as a key integrating factor at the conclusion of its assessment.</p>

Summary of identification of principles

Principle	Consideration
Environmental principles of the EP Act	
<p>1. The precautionary principle</p> <p><i>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 –</i></p> <p><i>a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p><i>b) an assessment of the risk-weighted consequences of various options.</i></p>	<p>In considering this principle, the EPA notes that Flora and Vegetation, Hydrological Processes, Inland Waters Environmental Quality and Subterranean Fauna could be significantly impacted by this proposal. The assessment of these impacts is provided in this report.</p> <p>Investigations on the biological and physical environment undertaken by the proponent have provided sufficient certainty to assess risks and identify measures to avoid or minimise impacts. The EPA has recommended conditions to ensure relevant measures are undertaken by the proponent.</p> <p>From its assessment of this proposal, the EPA has concluded that there is not a threat of serious or irreversible harm.</p>
<p>2. The principle of intergenerational equity</p> <p><i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	<p>In considering this principle, the EPA notes that the proponent has taken measures to avoid, minimise, rehabilitate (and offset) impacts in accordance with the mitigation hierarchy in the <i>WA Environmental offsets guidelines</i> (Government of Western Australia, 2014). In assessing this proposal the EPA has recommended adaptive management mechanisms (through conditions requiring environmental management plans) be implemented to maintain ecological processes. In addition, the EPA recommends that mine rehabilitation and decommissioning requirements are imposed to ensure that the post-mine environment is ecologically sustainable. The EPA has also recommended an offset for the cumulative loss of native vegetation in ‘Good to Excellent’ condition.</p> <p>From its assessment of this proposal, the EPA has concluded that the health, diversity and productivity of the environment can be maintained and enhanced for the benefit of future generations.</p>
<p>3. The principle of the conservation of biological diversity and ecological integrity</p> <p><i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	<p>In considering this principle, the EPA notes that the proposal would result in impacts to Priority flora species. In assessing the proposal the EPA has considered these impacts and has taken into account measures proposed by the proponent to minimise impacts to the affected species. The EPA has concluded</p>

Principle	Consideration
	<p>that the proposal would not compromise the biological diversity or ecological integrity within this IBRA region.</p> <p>Through this assessment, the EPA has demonstrated that the conservation of biological diversity and ecological integrity was a fundamental consideration.</p>
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms</p> <p>(1) <i>Environmental factors should be included in the valuation of assets and services.</i></p> <p>(2) <i>The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i></p> <p>(3) <i>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 waste.</i></p> <p>(4) <i>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimize costs to develop their own solution and responses to environmental problems.</i></p>	<p>In considering this principle, the EPA notes that the proponent would bear the cost relating to waste and pollution, including avoidance, containment, decommissioning, rehabilitation and closure. The proponent would also be responsible for the costs relating to rehabilitation and decommissioning, and offsets for significant residual impacts.</p> <p>The EPA has demonstrated due regard to this principle during the assessment of this proposal.</p>
<p>5. The principle of waste minimisation</p> <p><i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i></p>	<p>In considering this principle, the EPA notes that waste rock from the proposal would be used to backfill some of the mine pits. Other waste products created as a result of implementation of the proposal would be disposed of according to relevant regulations and legislation.</p> <p>The EPA has demonstrated due regard to this principle during the assessment of this proposal.</p>

Principle	Consideration
Environmental principles of the EPA	
<p>1. Best practice</p> <p><i>When designing proposals and implementing environmental mitigation and management actions, the contemporary best practice measures available at the time of implementation should be applied.</i></p>	<p>In considering this principle, the EPA notes that the proponent has designed the proposal to use waste material to backfill some pits, which is preferred by the EPA, and has proposed mitigation measures to manage the potential impacts and risks, , particularly related to groundwater management.</p> <p>These reflect measures already in place for the existing operations in the Eastern Ridge area.</p> <p>The proponent has also designed the mining operations to utilise existing disturbed areas.</p> <p>The EPA has demonstrated due regard to this principle during the assessment of this proposal.</p>
<p>2. Continuous Improvement</p> <p><i>The implementation of environmental practices should aim for continuous improvement in environmental performance.</i></p>	<p>The proponent operates under a management system which sets out a framework of adaptive management.</p> <p>The EPA has recommended conditions requiring the development of environmental management plans. As outlined in Environmental Assessment Guideline 17 – <i>Preparation of management plans under Part IV of the Environmental Protection Act 1986</i> (EPA, 2015e), the EPA encourages adaptive management and continual improvement through environmental management plans.</p> <p>The EPA has demonstrated due regard to this principle during the assessment of this proposal.</p>

Appendix 3

Relevant EPA Policies and Guidance and identified matters

The EPA reviewed its policies and guidance documents for each environmental factor and integrating factor to determine their relevance to the assessment of the proposal. The EPA has outlined the relevant matters discussed in each policy and guidance document for the key environmental factors and integrating below.

1. Flora and vegetation

The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:

- Guidance Statement No. 51 – *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in WA* (EPA, 2004a);
- Position Statement No. 2 – *Environmental protection of native vegetation in Western Australia* (EPA 2000); and
- Position Statement No. 3 – *Terrestrial biological surveys as an element of biodiversity protection* (EPA 2002).

The EPA notes that the *Technical Guide – Flora and Vegetation Surveys for Environmental Impact Assessment* was released in December 2015. This was after flora and vegetation surveys were undertaken for the proposal (and after the proponent's Response to Submissions on the PER), therefore the EPA did not consider this document for the assessment.

Guidance Statement No. 51 – Terrestrial flora and vegetation surveys for environmental impact assessment in WA

Relevant matters discussed in Guidance Statement No. 51 for this assessment include the following objectives:

1. Surveys are planned and designed appropriately.
2. The analysis, interpretation and reporting is of a suitable quality and consistent methodology to enable the EPA to judge the impacts of proposals on flora and vegetation.
3. The environment, in particular significant flora and vegetation biodiversity is identified and protected.

Position Statement No. 2 – Environmental protection of native vegetation in Western Australia

Relevant matters discussed in Position Statement No. 2 for this assessment include the following, in relation to the EPA's consideration of biological diversity in assessing a proposal:

1. A comparison of development scenarios, or options, to evaluate protection of biodiversity at the species and ecosystem levels, and demonstration that all reasonable steps have been taken to avoid disturbing native vegetation.
2. No known species of plant or animal is caused to become extinct as a consequence of the development and the risks to threatened species are considered to be acceptable.

3. No association or community of indigenous plants or animals ceases to exist as a result of the project.
4. There would be an expectation that a proposal would demonstrate that the vegetation removal would not compromise any vegetation type by taking it below the “threshold level” of 30% of the pre-clearing extent of the vegetation type.
5. Where a proposal would result in a reduction below the 30% level, the EPA would expect alternative mechanisms to be put forward to address the protection of biodiversity.
6. There is a comprehensive, adequate and secure representation of scarce endangered habitats within the project area and/or in areas which are biologically comparable to the project area, protected in secure reserves.
7. The on-site and off-site impacts of the project are identified and the proponent demonstrates that these impacts can be managed.

Position Statement No. 3 – Terrestrial biological surveys as an element of biodiversity protection

Relevant matters discussed in Position Statement No. 3 for this assessment include the following:

1. The EPA expects proponents to demonstrate in their proposals that all reasonable measures have been undertaken to avoid impacts on biodiversity. Where some impact on biodiversity cannot be avoided, it is for the proponent to demonstrate that the impact will not result in unacceptable loss.
2. The EPA expects proponents to ensure that terrestrial biological surveys provide sufficient information to address both biodiversity conservation and ecological function values within the context of the type of proposal being considered and the relevant EPA objectives for protection of the environment.
3. The EPA requires that the quality of information and scope of field surveys meets the standards, requirements and protocols as determined and published by the EPA.
4. In the absence of information that could provide the EPA with assurance that biodiversity will be protected, the EPA will adopt the precautionary principle.

Position Statement No. 3 refers to definitions, principles and objectives in the first national biodiversity strategy *National Strategy for the Conservation of Australia's Biological Diversity* (Commonwealth of Australia, 1996). The EPA notes that the most recent version of the strategy, *Australia's Biodiversity Conservation Strategy 2010–2030* (Commonwealth of Australia, 2010), refers to a shortened definition of biological diversity and contains different principles. The 2010 Strategy also notes that a review of the 1996 Strategy found it difficult to objectively measure performance against the qualitative objectives in the 1996 Strategy and that there have been shifts in environmental management approaches regarding biodiversity conservation. Therefore, the EPA has not considered the matters relating to the 1996 Strategy to be relevant for this assessment.

2. Hydrological Processes and Inland Waters Environmental Quality

The EPA considers that there is no EPA policy or guidance relevant to its assessment of the proposal in relation to these factors.

3. Subterranean Fauna

The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:

1. Guidance Statement No. 54a – *Sampling Methods and Survey Considerations for Subterranean Fauna in Western Australia*, (EPA 2007);
2. Environmental Assessment Guidelines No. 12 – *Consideration of subterranean fauna in environmental impact assessment in Western Australia* (EPA 2013b);

Guidance Statement No. 54a - Sampling Methods and Survey Considerations for Subterranean Fauna in Western Australia

The relevant considerations for Guidance Statement No. 54a are:

1. Surveys should be planned and designed appropriately including preliminary investigations (desktop review and pilot study) and if required comprehensive surveys;
2. The use of appropriate sampling methods, effort and survey design, including both within and outside the area of impact, employing a reasonable sampling effort that will collect most species and provide sufficient information to demonstrate whether the project is likely to impact on species of conservation concern;
3. Reporting should be clearly written and contain all relevant information presented at a sufficient quality to enable the EPA to judge the impacts of proposals.

Environmental Assessment Guideline No. 12 - Consideration of subterranean fauna in environmental impact assessment in Western Australia

The relevant considerations for EAG 12 are:

1. Appropriate level of survey required based on the likely presence of subterranean fauna and the potential impact on its habitat.
2. Survey design, including:
 - Sufficient survey using the most contemporary techniques and standards, to ensure that the subterranean fauna is adequately understood in the context of the project footprint and surrounding areas;
 - the amount of sampling required being based on the site characteristics, likely significance of impacts, and existing sampling information;
 - the use of genetics to resolve uncertainty regarding species identification and distribution; and

- the use of surrogates based on the biological features of species or species group and/or physical characteristics of a habitat, on a local scale to infer the likely distribution of another poorly sampled species.
- 3. Specimen vouchering and lodgment of data and DNA sequences with State collections to improve the knowledge of subterranean fauna.
- 4. Adequate interpretation and reporting of the results to allow an understanding of the subterranean fauna present in the project area, and analysis to consider the significance of the predicted impact on subterranean fauna.

4. Rehabilitation and Decommissioning

The EPA considers that the following policy and guidance is relevant to its assessment of the proposal in relation to this factor:

- Environmental Protection Bulletin No. 19 – *EPA involvement in mine closure* (EPA 2015c); and
- *Guidelines for preparing mine closure plans* (DMP & EPA 2015).

The EPA notes that Guidance Statement No. 6 – *Rehabilitation of Terrestrial Ecosystems* was prepared in 2006 to guide the preparation of documentation for the environmental impact assessment process of EPA and to help produce management plans to rehabilitate vegetation. The more recent *Guidelines for preparing mine closure plans* (2011 and revised 2015) also guides the preparation of Environmental Impact Assessment documentation and mine closure plans (which include the rehabilitation of vegetation) for mining proposals. The EPA considers that the more recent *Guidelines for preparing mine closure plans* is more relevant to its assessment than Guidance Statement No. 6.

Environmental Protection Bulletin No. 19 – EPA involvement in mine closure

Relevant matters discussed in Environmental Protection Bulletin No. 19 for this assessment include the following:

1. The EPA will assess and regulate all mining projects that are not subject to the *Mining Act 1978*.
2. Where Rehabilitation and Decommissioning is seen as a key integrating factor, the EPA will assess mine closure. A condition will be recommended to require a Mine Closure Plan to be prepared in accordance with the guidelines.

Guidelines for preparing mine closure plans

Relevant matters discussed in the *Guidelines for preparing mine closure plans* for this assessment include the following:

1. Mine closure planning should be an integral part of mine development and operations planning and it is a progressive process.
2. The EPA requires that Mine Closure Plans be prepared in accordance with the guidelines.

3. Where the EPA concludes that Rehabilitation and Decommissioning is a Key Integrating Factor in its EPA report on the proposal, the EPA will recommend a condition requiring a Mine Closure Plan to be prepared that is consistent with these guidelines.

5. Offsets

The EPA has determined that the policy and guidance relevant for offsets for this assessment are:

- *WA Environmental offsets policy* (Government of Western Australia, 2011);
- *WA Environmental offset guidelines* (Government of Western Australia, 2014); and
- Environmental Protection Bulletin No. 1 – *Environmental Offsets* (EPA, 2014b).

WA Environmental Offsets Policy – Government of Western Australia

The relevant considerations for the Offsets Policy are the six principles in the Offsets Policy:

1. Environmental offsets will only be considered after avoidance and mitigation options have been pursued.
2. Environmental offsets are not appropriate for all projects (circumstances).
3. Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted.
4. Environmental offsets will be based on sound environmental information and knowledge.
5. Environmental offsets will be applied within a framework of adaptive management.
6. Environmental offsets will be focussed on longer term strategic outcomes.

WA Environmental Offset Guidelines - Government of Western Australia

The WA Environmental Offsets Guidelines complement the Offsets Policy by clarifying the determination and application of environmental offsets in Western Australia, with reference to the offsets principles in the Offsets Policy.

In addition to guidance on the application of the principles contained within the offsets policy, the relevant considerations in the offsets guidelines for this assessment are:

1. Environmental offsets will only be applied where the residual impacts of a project are determined to be significant, after avoidance, minimisation and rehabilitation have been pursued.
2. Proponents must apply the mitigation hierarchy (avoid, minimise, rehabilitate and offset) to reduce the potential impacts of a proposal on the environment.
3. The Residual Impact Significance model outlines how significance is determined and when an offset is likely to be required, or may be required, in relation to the relevant EPA environmental factors.

4. In determining the significance of an impact (and the requirement for an offset) it is important to consider the impacts in a regional context. Where cumulative impacts are considered to be already significant and these are published, impacts will normally be considered as requiring an offset.
5. Strategic approaches to offsets, such as a fund, provide a coordination mechanism to implement offsets across a range of land use tenures and can achieve better environmental outcomes by considering offsets at a landscape scale.

Environmental Protection Bulletin No. 1 – Environmental Offsets

The relevant considerations in Environmental Protection Bulletin No. 1 for this assessment are:

1. The EPA adopts the *WA Offsets Policy* and *WA Environmental Offsets Guidelines* for application through the environmental impact assessment process.
2. Where the EPA is of the view that a significant residual impact remains after avoidance, minimisation and rehabilitation efforts, the EPA will ensure that any offsets are recommended as conditions of approval in the EPA's report to the Minister for Environment, as well as including details on the rationale for the offset.
3. As part of an Environmental Review document, proponents must include a section discussing how it has applied the mitigation hierarchy to its proposal. Offsets should be addressed in a separate section of the document, after the assessment of environmental factors.
4. If a proponent is seeking a change to, or an expansion of, a proposal under an existing approval, these changes will be subject to the current offsets practice. Consideration will be given to any offsets that were a requirement of the existing proposal.

Appendix 4

Review of existing Ministerial Statements

Proposed Implementation Agreement (Ministerial Statement)

The EPA recommends that this proposal may be implemented and further recommends that the implementation of the revised proposal be subject to the Implementation Agreement (Ministerial Statement) set out in Appendix 5.

The recommended Ministerial Statement has been developed in accordance with Environmental Assessment Guideline No. 11 – *Recommending Environmental Conditions* (EPA, 2015f) and Environmental Assessment Guideline No. 17 – *Preparation of management plans under Part IV of the Environmental Protection Act 1986* (EPA, 2015e), and includes a review of the following implementation conditions:

1. Ministerial Statement 712: Orebody 25 Extension Project, Shire of East Pilbara; issued on 24 January 2006;
2. Ministerial Statement 834: Orebody 24/25 Upgrade Project; issued on 8 July 2010; and
3. Ministerial Statement 1018: Orebody 32 Above Water Table Iron Ore Mine Project; issued on 15 October 2015.

The EPA considers that the measures in the conditions in the above Ministerial Statements are effective in managing potential significant impacts on the environment and has not recommended any material changes in the recommended conditions for the revised proposal.

The main changes between the proposed new Ministerial Statement and the existing Ministerial Statements relate to:

- removal of clauses relating to standard reporting and data availability in individual conditions as these duplicate clauses in the standard Compliance Reporting and Public Availability of Data conditions;
- removing conditions which are no longer applicable;
- removing duplication;
- updating conditions to refer to approved environmental management plans (EMP) ; and
- updating conditions to reflect contemporary conditions and the EMP requirements of Environmental Assessment Guidelines 11 and 17.

Recommended environmental conditions

The EPA notes the following:

- Condition 6 of Ministerial Statement 712 refers to the submission of a Performance Review Report every 5 years. This condition is no longer required as the relevant conditions relating to the key environmental factors include reporting.
- Condition 8 of Ministerial Statement 712 and Condition 7 of Ministerial Statement 834 contain conditions relating to weeds. The EPA considers that the impact of weeds can be adequately managed as part of the Environmental

Management Plan for conservation significant flora species and vegetation (see proposed conditions 5 and 6).

- The EPA has proposed that a condition relating to Terrestrial Fauna is retained (see condition 7). Although the EPA does not consider that Terrestrial Fauna is a key environmental factor for this proposal, it does consider that it remains a key environmental factor for the revised proposal.
- Condition 8 of Ministerial Statement 834 refers to the management of acid and metalliferous drainage. This issue can be adequately managed as part of the Mine Closure Plan required by recommended Condition 9 – Rehabilitation and Decommissioning.

Recommended proposal details (Schedule 1)

The proposal details contained in Schedule 1 have been amended to include an updated description which reflects the EPA's contemporary approach to project descriptions detailed in Environmental Assessment Guideline No. 1 – *Defining the Key Characteristics of a Proposal* (Appendix 5, Table 2). The location and authorised extent of physical and operational elements in Schedule 1 includes the additional clearing proposed for this proposal. The limit on dewatering and surplus water discharge into Ophthalmia Dam has also been included.

Appendix 5

Identified Decision-making Authorities and Recommended Environmental Conditions

Identified Decision-making Authorities

Section 44(2) of EP Act 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.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities, and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified:

Decision-making Authority	Approval
1. Minister for Environment	<i>Wildlife Conservation Act 1950</i>
2. Minister for Aboriginal Affairs	<i>Aboriginal Heritage Act 1972</i>
3. Minister for State Development	<i>Iron Ore (Mount Newman) Agreement Act 1964</i>
4. Minister for Water	<i>Rights in Water Irrigation Act 1914</i>
5. CEO, Department of Environment Regulation	Part V of the <i>Environmental Protection Act 1986</i>
6. Chief Dangerous Goods Officer, Department of Mines and Petroleum	<i>Dangerous Goods Safety Act 2004</i>
7. State Mining Engineer Department of Mines and Petroleum	<i>Mines Safety and Inspection Act 1994</i>
8. Commissioner Main Roads	Encroachment into road reserve

Note: In this instance, consultation and agreement is only required with DMAs 1 to 4 since these DMAs are Ministers.

RECOMMENDED ENVIRONMENTAL CONDITIONS

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

EASTERN RIDGE IRON ORE REVISED PROPOSAL

Proposal: The proposal is to undertake mining and associated activities at Eastern Ridge, located approximately 3 km north-east of Newman.

Proponent: BHP Billiton Iron Ore Pty Ltd
Australian Company Number: 008 700 981

Proponent Address: 125 St Georges Terrace
Perth WA 6000

Assessment Number: 2076

Report of the Environmental Protection Authority: 1571

Previous Assessment Numbers: 1609, 1833, and 2056

Previous Reports of the Environmental Protection Authority: 1210, 1356, and 1557

Previous Statement Numbers: 712, 834, and 1018

Pursuant to section 45, read with section 45B of the *Environmental Protection Act 1986*, it has been agreed that:

1. the Proposal described and documented in Schedule 1 may be implemented;
2. the implementation of the Proposal is subject to the following revised implementation conditions; and
3. from the date of this Statement each of the implementation conditions in Statements 712, 834, and 1018 no longer apply in relation to the Proposal.

1 Proposal Implementation

- 1-1 When implementing the Proposal, the proponent shall not exceed the authorised extent of the Proposal as defined in Table 2 in Schedule 1, unless amendments to the Proposal and the authorised extent of the Proposal have been approved under the EP Act.

2 Contact Details

- 2-1 The proponent shall 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.

3 Compliance Reporting

- 3-1 The proponent shall prepare, submit and maintain a Compliance Assessment Plan to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 3-6, or prior to implementation, whichever is sooner.
- 3-2 The Compliance Assessment Plan shall indicate:
- (1) the frequency of compliance reporting;
 - (2) the approach and timing of compliance assessments;
 - (3) the retention of compliance assessments;
 - (4) the method of reporting of potential non-compliances and corrective actions taken;
 - (5) the table of contents of Compliance Assessment Reports; and
 - (6) public availability of Compliance Assessment Reports.
- 3-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 3-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 3-1.
- 3-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 3-1 and shall make those reports available when requested by the CEO.
- 3-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.
- 3-6 The proponent shall submit to the CEO a Compliance Assessment Report by 1 October each year addressing compliance in the previous financial year, or as agreed in writing by the CEO. The first Compliance Assessment Report shall be submitted by 1 October 2017 addressing the compliance for the period from the date of issue of this Statement, notwithstanding that the first reporting period may be less than 12 months.

The Compliance Assessment Report shall:

- (1) be endorsed by the proponent's CEO or a person delegated to sign on the CEO's behalf;
- (2) include a statement as to whether the proponent has complied with the conditions;
- (3) identify all potential non-compliances and describe corrective and preventative actions taken;
- (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and
- (5) indicate any proposed changes to the Compliance Assessment Plan required by condition 3-1.

4 Public Availability of Data

4-1 Subject to condition 4-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

4-2 If any data referred to in condition 4-1 contains particulars of:

- (1) a secret formula or process; or
- (2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

5 Management-based Condition Environmental Management Plan/s

5-1 Within 6 months of issue of this Statement or as otherwise agreed by the CEO, the proponent shall prepare and submit a Condition Environmental Management Plan/s to demonstrate that the **environmental objectives** in conditions 6-1 and 7-1 will be met.

5-2 The Condition Environmental Management Plan/s shall:

- (1) specify the **environmental objectives** to be achieved, as specified in conditions 6-1 and 7-1;
- (2) specify risk-based **management actions** that will be implemented to demonstrate compliance with the environmental objectives specified in conditions 6-1 and 7-1. Failure to implement one or more of the management actions represents non-compliance with these conditions;
- (3) specify measurable **management targets** to determine the effectiveness of the risk-based management actions;
- (4) specify **monitoring** to measure the effectiveness of management actions against management targets, including but not limited to, parameters to

be measured, baseline data, monitoring locations, and frequency and timing of monitoring;

- (5) specify a process for **revision** of management actions and changes to proposal activities, in the event that the management targets are not achieved. The process shall include an investigation to determine the cause of the management target/s being exceeded;
- (6) provide the format and timing to demonstrate that condition 5-1 has been met for the reporting period in the Compliance Assessment Report required by condition 3-6 including, but not limited to:
 - (a) verification of the implementation of management actions; and
 - (b) reporting on the effectiveness of management actions against management target/s.

5-3 After receiving notice in writing from the CEO that the Condition Environmental Management Plan/s satisfies the requirements of condition 5-2, the proponent shall:

- (1) implement the provisions of the Condition Environmental Management Plan/s; and
- (2) continue to implement the Condition Environmental Management Plan/s until the CEO has confirmed by notice in writing that the proponent has demonstrated the objectives specified in conditions 6-1 and 7-1 have been met.

5-4 In the event that monitoring, tests, surveys or investigations indicate exceedance of management target/s specified in the Condition Environmental Management Plan/s, the proponent shall:

- (1) report the exceedance in writing to the CEO within 21 days of the exceedance being identified;
- (2) investigate to determine the cause of the management targets being exceeded;
- (3) provide a report to the CEO within 90 days of the exceedance being reported as required by condition 5-4(1). The report shall include:
 - (a) cause of management targets being exceeded;
 - (b) the findings of the investigation required by conditions 5-4(2);
 - (c) details of revised and/or additional management actions to be implemented to prevent exceedance of the management target/s;
 - (d) relevant changes to proposal activities.

5-5 In the event that monitoring, tests, surveys or investigations indicate that one or more management actions specified in the Condition Environmental Management Plan have not been implemented, the proponent shall:

- (1) report the failure to implement management action/s in writing to the CEO within 7 days of identification;
- (2) investigate to determine the cause of the management action/s not being implemented;

- (3) investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions;
- (4) provide a report to the CEO within 21 days of the reporting required by condition 5-5(1). The report shall include:
 - (a) cause for failure to implement management actions;
 - (b) the findings of the investigation required by conditions 5-5(2) and 5-5(3);
 - (c) relevant changes to proposal activities; and
 - (d) measures to prevent, control or abate the environmental harm which may have occurred.

5-6 The proponent:

- (1) may review and revise the Condition Environmental Management Plan/s, or
- (2) shall review and revise the Condition Environmental Management Plan/s as and when directed by the CEO.

5-7 The proponent shall implement the latest revision of the Condition Environmental Management Plan/s, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 5-2.

6 Flora and Vegetation – conservation significant flora species and vegetation

6-1 The proponent shall manage the implementation of the proposal to meet the following **environmental objectives**:

- (1) minimise impacts to Priority flora species, including *Eremophila magnifica* subsp. *velutina*.
- (2) minimise impacts to riparian vegetation (*Eucalyptus camaldulensis* subsp. *refulgens* and *E. victrix*) health.

6-2 The Condition Environmental Management Plan/s required by condition 5-1 shall include provisions required by condition 5-2, to address potential impacts on conservation significant flora and vegetation health including from, but not limited to, changes to groundwater levels and from weeds.

6-3 The proponent shall continue to implement the version most recently approved by the CEO of the *Orebody 24/25 Mining Operations Environmental Management Plan* until the CEO has confirmed by notice in writing that the plan/s required by condition 5-1 satisfies the requirements of condition 5-2.

7 Terrestrial Fauna – conservation significant terrestrial fauna

- 7-1 The proponent shall manage the implementation of the proposal to meet the following **environmental objective**:
- (1) minimise direct and indirect impacts on conservation significant fauna species, including Pilbara Olive Python, and their habitat.
- 7-2 The Condition Environmental Management Plan/s required by condition 5-1 shall include provisions required by condition 5-2, to address potential impacts on conservation significant terrestrial fauna including from, but not limited to loss of habitat, including wetlands and waterways.
- 7-3 The proponent shall continue to implement the versions most recently approved by the CEO of the *Orebody 24/25 Mining Operations Environmental Management Plan* until the CEO has confirmed by notice in writing that the plan/s required by condition 5-1 satisfies the requirements of condition 5-2.

8 Subterranean Fauna – Ethel Gorge Aquifer Stygobiont Community

- 8-1 Within 6 months of issue of this Statement or as otherwise agreed by the CEO, the proponent shall prepare and submit a Condition Environmental Management Plan/s to demonstrate that the following **environmental outcome** will be met:
- (1) maintain the habitat of the Ethel Gorge Aquifer Stygobiont Community (delineated in Figure 1 and defined by the geographic coordinates in Schedule 2).
- 8-2 The Condition Environmental Management Plan/s shall:
- (1) specify the **environmental outcome** to be achieved, as specified in condition 8-1;
 - (2) specify **trigger criteria** that must provide an early warning that the threshold criteria identified in condition 8-2(3) may not be met;
 - (3) specify **threshold criteria** to demonstrate compliance with the environmental outcome specified in condition 8-1. Exceedance of the threshold criteria represents non-compliance with these conditions;
 - (4) specify **monitoring** to determine if trigger criteria and threshold criteria are exceeded;
 - (5) specify **trigger level actions** to be implemented in the event that trigger criteria have been exceeded;
 - (6) specify **threshold contingency actions** to be implemented in the event that threshold criteria are exceeded;
 - (7) provide the format and timing for the reporting of monitoring results against trigger criteria and threshold criteria to demonstrate that condition 8-1 has been met over the reporting period in the Compliance Assessment Report required by condition 3; and
- 8-3 The Condition Environmental Management Plan/s required by condition 8-1 shall include provisions required by condition 8-2, to address potential impacts

on conservation significant stygofauna including from, but not limited to, changes to groundwater levels and quality.

8-4 After receiving notice in writing from the CEO that the Condition Environmental Management Plan/s satisfy the requirements of condition 8-2, the proponent shall:

- (1) implement the provisions of the Condition Environmental Management Plan/s; and
- (2) continue to implement the Condition Environmental Management Plan/s until the CEO has confirmed by notice in writing that the proponent has demonstrated the outcomes specified in condition 8-1 has been met.

8-5 In the event that monitoring indicates exceedance of threshold criteria specified in the Condition Environmental Management Plan/s, the proponent shall:

- (1) report the exceedance in writing to the CEO within 7 days of the exceedance being identified;
- (2) implement the threshold contingency actions specified in the Condition Environmental Management Plan/s within 24 hours and continue implementation of those actions until the CEO has confirmed by notice in writing that it has been demonstrated that the threshold criteria are being met and the implementation of the threshold contingency actions is no longer required;
- (3) investigate to determine the cause of the threshold criteria being exceeded;
- (4) investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded; and
- (5) provide a report to the CEO within 21 days of the exceedance being reported as required by condition 8-5(1). The report shall include:
 - (a) details of threshold contingency actions implemented;
 - (b) the effectiveness of the threshold contingency actions implemented, against the threshold criteria;
 - (c) the findings of the investigations required by condition 8-5(3) and 8-5(4);
 - (d) measures to prevent the threshold criteria being exceeded in the future; and
 - (e) measures to prevent, control or abate the environmental harm which may have occurred.
 - (f) justification of the threshold remaining, or being adjusted based on better understanding, demonstrating that outcomes will continue to be met.

8-6 The proponent:

- (1) may review and revise the Condition Environmental Management Plan/s, or
- (2) shall review and revise the Condition Environmental Management Plan/s as and when directed by the CEO.

8-7 The proponent shall implement the latest revision of the Condition Environmental Management Plan/s, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 8-2.

8-8 The proponent shall continue to implement the versions most recently approved by the CEO of the *Orebody 24/25 Mining Operations Environmental Management Plan* until the CEO has confirmed by notice in writing that the plan/s required by condition 8-1 satisfies the requirements of condition 8-2.

9 Rehabilitation and Decommissioning

9-1 The proponent shall ensure that the proposal is decommissioned and rehabilitated in an ecologically sustainable manner, through the implementation of the Mine Closure Plan required by condition 9-2.

9-2 Within six months of the issue of this Statement or as otherwise agreed by the CEO, the proponent shall prepare and submit a Mine Closure Plan in accordance with the *Guidelines for Preparing Mine Closure Plans, May 2015* (or any subsequent revisions of the guidelines).

9-3 The proponent shall review and revise the Mine Closure Plan required by condition 9-2 at intervals not exceeding three years, or as otherwise specified by the CEO.

9-4 The proponent shall implement the latest revision of the Mine Closure Plan, which the CEO has confirmed in writing satisfies the requirements of condition 9-2.

9-5 The proponent shall continue to implement the version most recently approved by the CEO of the *Orebody 24/25 Decommissioning and Rehabilitation Closure Plan* until the CEO has confirmed by notice in writing that the Mine Closure Plan satisfies the requirements of condition 9-2.

10 Offsets

10-1 In view of the significant residual impacts and risks as a result of implementation of the proposal, the proponent shall contribute funds for the clearing of 'Good to Excellent' condition native vegetation in the Hamersley IBRA subregion, and calculated pursuant to condition 10-2. This funding shall be provided to a government established conservation offset fund or an alternative offset arrangement providing an equivalent outcome as determined by the Minister.

10-2 The proponent's contribution to the initiative identified in condition 10-1 shall be paid biennially, the first payment due two years after the issue of this Statement. The amount of funding will be \$750 AUD (excluding GST) per hectare of 'Good to Excellent' condition native vegetation cleared within the Eastern Ridge Development Envelope (delineated in Figure 1 and defined by the geographic coordinates in Schedule 2) within the Hamersley IBRA subregion.

- 10-3 The 1,910 ha of clearing for the Orebody 25 Extension Project and the Orebody 24/25 Upgrade Project approved under Ministerial Statements 712 and 834 is exempt from the requirement to offset under condition 10-2.
- 10-4 Within twelve months of the date of this statement, the proponent shall prepare an Impact Reconciliation Procedure to the satisfaction of the CEO.
- 10-5 The Impact Reconciliation Procedure required pursuant to condition 10-4 shall:
- (1) include a methodology to identify clearing of 'Good to Excellent' condition native vegetation in the Hamersley IBRA subregion;
 - (2) require the proponent to submit spatial data identifying areas of 'Good to Excellent' condition native vegetation that has been cleared;
 - (3) include a methodology for calculating the amount of clearing undertaken during each biennial time period; and
 - (4) state dates for the commencement of the biennial time period and for the submission of results of the Impact Reconciliation Procedure, to the satisfaction of the CEO.
- 10-6 The proponent shall implement the Impact Reconciliation Procedure required by condition 10-4.
- 10-7 The real value of contributions described in condition 10-2 will be maintained through indexation to the Perth Consumer Price Index, with the first adjustment to be applied to the first contribution.

Table 1: Summary of the Proposal

Proposal Title	Eastern Ridge Iron Ore Revised Proposal
Short Description	<p>The proposal is to undertake mining and associated activities at Eastern Ridge, located approximately 3 km north-east of Newman.</p> <p>The proposal involves open-pit mining above the water table at Orebody 32 and below the water table at Orebody 24, Orebody 25, and Orebody 25 West. The proposal includes pit dewatering, discharge of surplus dewater into Ophthalmia Dam and the construction and operation of associated mine infrastructure.</p>

Table 2: Location and authorised extent of physical and operational elements

Column 1	Column 2	Column 3
Element	Location	Authorised Extent
Mine and associated infrastructure	Figure 1	Clearing of no more than 3,820 ha within the Eastern Ridge Development Envelope of 4,267 ha.
Dewatering	Figure 1	Abstraction of up to 24 GL/a of groundwater.
Surplus dewater management	Figure 1	Discharge of up to 19 GL/a surplus dewater into Ophthalmia Dam.
Backfilling of mine pits	Figure 1	Orebody 25 Pit 1 and Pit 3 are to be backfilled to a level which will not allow the formation of permanent pit lakes.

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	Definition or Term
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or his delegate.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i>
OEPA	Office of the Environmental Protection Authority
GL/a	Gigalitres per annum
ha	Hectare

Figures (attached)

Figure 1: Eastern Ridge Development Envelope and Ethel Gorge Aquifer Stygobiont Community

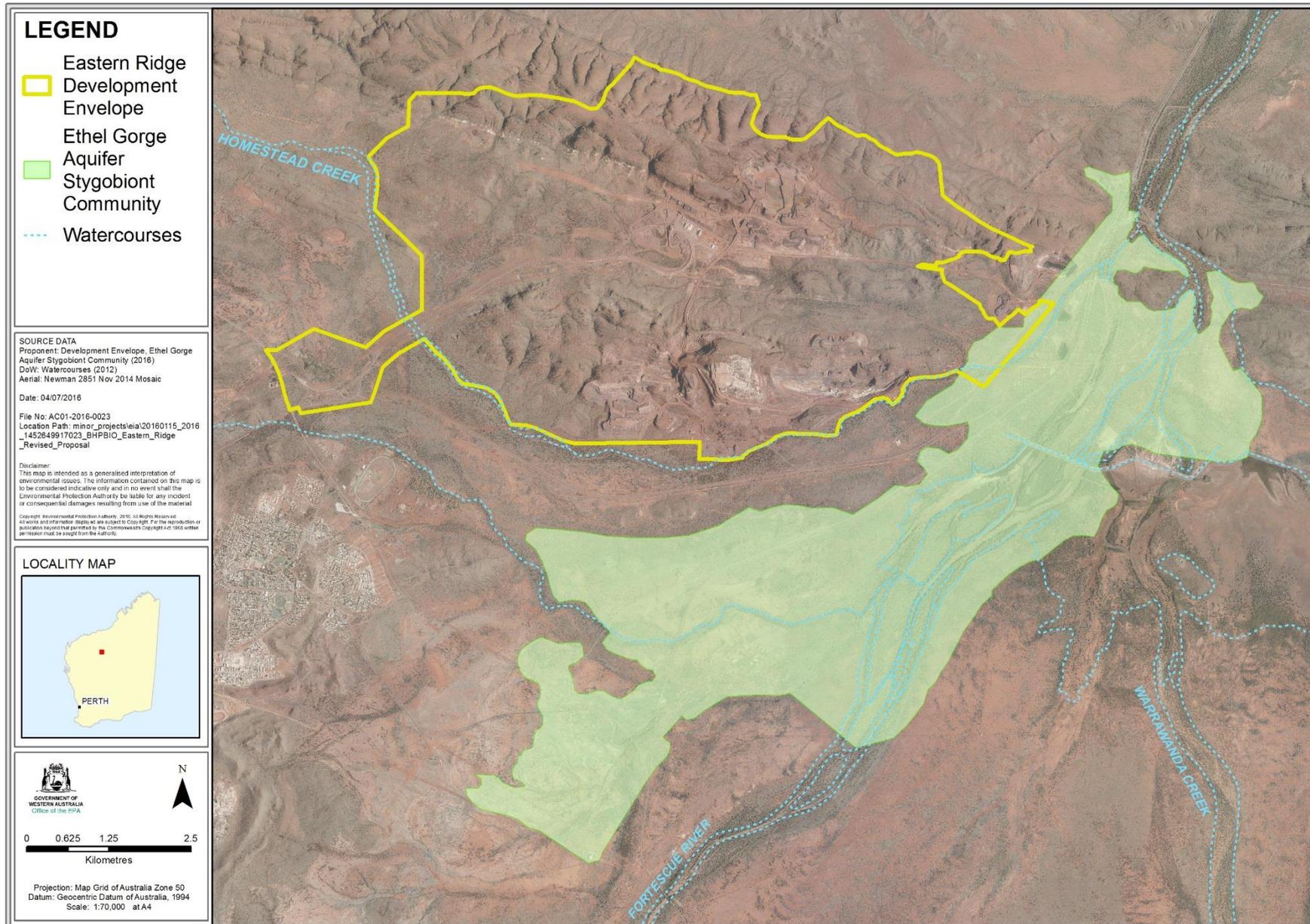


Figure 1: Eastern Ridge Development Envelope and Ethel Gorge Aquifer Stygobiont Community

Geographic spatial data coordinates

Coordinates defining the following are held by the Office of the Environmental Protection Authority:

- Eastern Ridge Development Envelope, Document Reference Number 2016-1463628337938, dated 19 May 2016.
- Ethel Gorge Aquifer Stygobiont Community, Document Reference Number 2016-1463628338272, dated 19 May 2016.

Appendix 6

Proponent's Environmental Referral Document

Provided on CD in hardcopies of this report and on the EPA's website at
www.epa.wa.gov.au