



Environmental Protection Authority

EPA Referral Form

Form for the referral of a proposal to the Environmental Protection Authority under Section 38 of the *Environmental Protection Act 1986*

Referrer information

Who is referring this proposal?		<input checked="" type="checkbox"/> Proponent <input type="checkbox"/> Decision-making authority <input type="checkbox"/> Community member/third party	
Name Rowena Albones		Signature	
Position	Director	Organisation	Hamersley HMS Pty Limited
Email	Rowena.Albones@riotinto.com		
Address	152 – 158	St Georges Terrace	
	Perth	WA	6000
Date	24 August 2021		
Does the referrer request that the EPA treat any part of the proposal information in the referral as confidential? <i>Provide confidential information in a separate attachment.</i>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Referral declaration for organisations, proponents and decision-making authorities:

I, Rowena Albones, declare that I am authorised to refer this proposal on behalf of **Hamersley HMS Pty Limited** and further declare that the information contained in this form is true and not misleading.

Part A: Proponent and proposal description

Proponent information

Name of the proponent/s (including Trading Name if relevant)	Hamersley HMS Pty Limited
Australian Company Number(s) <input checked="" type="checkbox"/> Australian Business Number(s) <input type="checkbox"/>	115 004 129
Contact for the proposal (if different from the referrer) <i>Please include: name; physical address; phone; and email.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Sally Pickard: Senior Advisor Environmental Approvals Rio Tinto Central Park, 152 – 158 St Georges Terrace, Perth, WA 6000 Phone: +61 8 9327 2000; Email: sally.pickard@riotinto.com

<p>Does the proponent have the legal access required for the implementation of all aspects of the proposal?</p> <p><i>If yes, provide details of legal access authorisations / agreements / tenure.</i></p> <p><i>If no, what authorisations / agreements / tenure is required and from whom?</i></p>	<p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No </p> <p>The HD2 Proposal is located on Mining Lease M282SA held pursuant to the <i>Iron Ore (Hope Downs) Agreement Act 1992</i>.</p> <p>Some areas of the HD2 Proposal are located on Exploration Licences held under the <i>Mining Act 1978</i> (WA). These exploration licences will be converted to appropriate tenure to support development of the HD2 Proposal.</p> <p>Third-party tenure within the proposed Development Envelope will be subject to the grant of additional tenure and/or subject to access agreements prior to the commencement of ground disturbing activities in these areas.</p> <p>Therefore, the proposed Development Envelope may be refined as the HD2 Proposal progresses to align with changes in tenure or access agreements.</p>
<p>Proposal type</p>	
<p>What type of proposal is being referred?</p> <p>For a change to an approved proposal please state the Ministerial Statement number/s (MS No./s) of the approved proposal</p> <p>For a derived proposal please state the Ministerial Statement number (MS No.) of the associated strategic proposal</p>	<p> <input checked="" type="checkbox"/> significant – new proposal <input type="checkbox"/> significant – change to approved proposal (MS No./s: _____) <input type="checkbox"/> proposal under an assessed planning scheme <input type="checkbox"/> strategic <input type="checkbox"/> derived (Strategic MS No.: _____) </p>
<p>For a significant proposal:</p> <ul style="list-style-type: none"> Why do you consider the proposal may have a significant effect on the environment and warrant referral to the EPA? 	<p>The Hope Downs 2 (HD2) Proposal includes a conceptual footprint of approximately 4,700 ha to support the development, operation and closure of two new above water table (AWT) iron ore pits at Hope Downs 2 (HD2) and Bedded Hilltop (BHT) within a proposed Development Envelope of 14,085 ha.</p> <p>The HD2 Proposal will require the clearing of up to 4,700 ha of native vegetation and fauna habitat. The HD2 Proposal will also involve the realignment of approximately 6 km of the Great Northern Highway to allow for access to the deposit.</p>
<p>For a proposal under an assessed planning scheme, provide the following details:</p> <ul style="list-style-type: none"> Scheme name and number <p>For the Responsible Authority:</p> <ul style="list-style-type: none"> What new environmental issues are raised by the proposal that were not assessed during the assessment of the planning scheme? <p>How does the proposal not comply with the assessed scheme and/or the environmental conditions in the</p> <ul style="list-style-type: none"> assessed planning scheme? 	<p>Not applicable.</p>

Proposal description	
Title of the proposal	Hope Downs 2
Name of the Local Government Authority in which the proposal is located.	Shire of East Pilbara
Location: a) street address, lot number, suburb, and nearest road intersection; or b) if remote the nearest town and distance and direction from that town to the proposal site.	The HD2 Proposal is located approximately 80 km north-west of the township of Newman in the Pilbara region of Western Australia.
Proposal description – including the key characteristics of the proposal <i>Provide as an attachment to the form</i>	Please see Attachment 1 .
Have you provided electronic spatial data, maps and figure in the appropriate format? <i>Refer to instructions at the front of the form</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Figure 1: Regional location of the HD2 Proposal Figure 2: Conceptual layout and Development Envelope for the HD2 Proposal
What is the current land use on the property, and the extent (area in hectares) of the property?	The HD2 Proposal includes a proposed Development Envelope of approximately 14,085 ha. Mining related activities are the primary land use in the HD2 Proposal region. Land uses within the Development Envelope include public and private infrastructure (including roads and railways), Vacant Crown Land, and access by Traditional Owners for cultural purposes. The Development Envelope is on land the subject of the Nyiyaparli, Banjima and Ngarlawangga native title determinations.
Have you had pre-referral discussions with the EPA at DWER Services? If so, quote the reference number and/or the DWER contact.	Pre-referral consultation sessions for the HD2 Proposal have been held with the EPA Services, with the most recent being 20th July 2021 involving EPA Board member Lee Macintosh and EPA Services representatives Anthony Sutton, Dehlia Goundrey and Rachel Vukmirovic. The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.
Part B: Environmental impacts	
Environmental factors	
What are the likely significant environmental factors for this proposal?	<input type="checkbox"/> Benthic Communities and Habitat <input type="checkbox"/> Coastal Processes <input type="checkbox"/> Marine Environmental Quality <input type="checkbox"/> Marine Fauna <input checked="" type="checkbox"/> Flora and Vegetation <input type="checkbox"/> Landforms

		<input checked="" type="checkbox"/> Subterranean Fauna <input type="checkbox"/> Terrestrial Environmental Quality <input checked="" type="checkbox"/> Terrestrial Fauna <input checked="" type="checkbox"/> Inland Waters <input type="checkbox"/> Air Quality <input checked="" type="checkbox"/> Greenhouse Gas Emissions <input checked="" type="checkbox"/> Social Surroundings <input type="checkbox"/> Human Health
<p>For each of the environmental factors identified above, complete the following table, or provide the information in a supplementary report</p>		
Potential environmental impacts		
1	EPA Factor	Flora and vegetation
2	<p>EPA policy and guidance - What have you considered and how have you applied them in relation to this factor?</p>	<p>EPA Objective:</p> <ul style="list-style-type: none"> To protect flora and vegetation so that biological diversity and ecological integrity are maintained. <p>Policy and guidance:</p> <p>The following policy and guidance are relevant to this factor:</p> <ul style="list-style-type: none"> Instructions on how to prepare an Environmental Review Document (EPA 2020a). Statement of Environmental Principles, Factors and Objectives (EPA 2020b). Environmental Factor Guideline: Flora and Vegetation (EPA 2016a). Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b). Statutory Guidelines for Mine Closure Plans (DMIRS 2020). 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 (EPA 2014). WA Environmental Offsets Policy (GoWA 2011). WA Environmental Offsets Guidelines (GoWA 2014). <p>The Proponent has considered the above-mentioned policy and guidance in the following ways:</p> <ul style="list-style-type: none"> Planning, design, and implementation of the environmental surveys undertaken. Preliminary assessment of potential impacts. Application of the mitigation hierarchy. Consideration of environmental offsets.
3	<p>Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts</p>	<p>Consultation with decision-making authorities (Department of Water and Environmental Regulation (DWER); Department of Biodiversity, Conservation and Attractions (DBCA); Department of Mining, Industry Regulation and Safety (DMIRS)) and key stakeholders is ongoing.</p> <p>The most recent pre-referral consultation with EPA Services in relation to the HD2 Proposal was held on 20th July 2021.</p> <p>Consultation with the Banjima, Ngarlawangga and Nyiyaparli native title holders is ongoing.</p> <p>The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.</p>

4	<p>Receiving environment – Describe the current condition of the receiving environment in relation to this factor.</p>	<p>The receiving environment in the Development Envelope is generally well understood. Numerous flora and vegetation surveys have been conducted in and around the Development Envelope since 2009. Previous flora and vegetation surveys include:</p> <ul style="list-style-type: none"> • Hope Downs 2 Proposal Flora and Vegetation Survey May 2019, three phase detailed survey, (Astron 2019a). • Hope Downs Development Envelope Vegetation Mapping (Astron 2020a). • Baby Hope Flora and Vegetation Survey (Biota 2014a). • Flora and Vegetation of the Hope Downs 1 Area (Mattiske 2009). <p>Vegetation</p> <p>Vegetation within the Development Envelope is generally typical of the Hamersley Interim Biogeographic Regionalisation for Australia (IBRA) sub-region and can be described as:</p> <ul style="list-style-type: none"> • Hamersley (PIL3): Dissected bold plateaux and ranges of flat lying, moderately folded sandstone and quartzite with vegetation described as Mulga low woodland over tussock grasses occurring on fine textured soils in valley floors, with scattered Snappy gum (<i>Eucalyptus leucophloia</i>) over <i>Triodia brizoides</i> on skeletal soils of the ranges. <p>The majority of the intact vegetation in the Development Envelope is considered to be in Good to Excellent condition. Some areas have been degraded from exploration drilling and grazing by cattle and camels in the drainage lines and associated plains.</p> <p>Significant Vegetation</p> <p>No Environmentally Sensitive Areas occur within the Development Envelope. Additionally, none of the vegetation units from the area represent a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC).</p> <p>The Weeli Wolli Spring community Priority 1 PEC is located approximately 10 km northeast of the Development Envelope and will not be impacted as a result of implementation of the HD2 Proposal. Ben's Oasis, also part of the Weeli Wolli Spring community Priority 1 PEC, is located approximately 1 km south east of the Development Envelope and is not expected to be impacted as a result of implementation of the HD2 Proposal. The West Angelas Cracking Clay PEC is 18 km southwest of the Development Envelope.</p> <p>Flora</p> <p>No Threatened flora species have been recorded within the proposed Development Envelope; twelve (12) Priority flora species have been recorded within the proposed Development Envelope:</p> <ul style="list-style-type: none"> • Priority 1 (P1): <ul style="list-style-type: none"> ○ <i>Eremophila</i> sp. West Angelas (S. van Leeuwen 4068) • Priority 2 (P2): <ul style="list-style-type: none"> ○ <i>Aristida lazaridis</i> ○ <i>Hibiscus</i> sp. Gurinbiddy Range (M.E. Trudgen MET 15708). • Priority 3 (P3) <ul style="list-style-type: none"> ○ <i>Eremophila</i> sp. Hamersley Range (K. Walker KW 136) ○ <i>Acacia subtiliformis</i>
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		<ul style="list-style-type: none"> ○ <i>Goodenia</i> sp. East Pilbara (A.A Mitchell PRP 727) ○ <i>Grevillea saxicola</i> ○ <i>Rhagodia</i> sp. Hamersley (M. Trudgen MET 17794) ○ <i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739). ● Priority 4 (P4) <ul style="list-style-type: none"> ○ <i>Acacia bromilowiana</i> ○ <i>Lepidium catapycnon</i> ○ <i>Ptilotus mollis</i>.
5	<p>Proposal activities – Describe the proposal activities that have the potential to impact the environment</p>	<p>Proposal activities (typical of iron ore mines) that have the potential to impact flora and vegetation include:</p> <ul style="list-style-type: none"> ● Clearing for mine and infrastructure development resulting in direct removal of native vegetation. ● Vehicle movements during construction and operations causing the introduction and/or spread of weeds. ● Vehicle movements and mining activities generating dust that may deposit on adjacent on vegetation. ● Groundwater abstraction for water supply leading to potential indirect impacts to vegetation health. ● Infrastructure development leading to altered hydrological regimes and potential indirect impacts to vegetation. ● Operational ‘hot works’ activities leading to fire ignition that may spread to adjacent vegetation.

6	<p>Mitigation – Describe the measures proposed to manage and mitigate the potential environmental impacts.</p>	<p>The Proponent has extensive experience developing and operating mines and related infrastructure in the Pilbara through which it has developed and refined strategies to manage and mitigate potential environmental impacts in an adaptive manner. The Proponent will apply the mitigation hierarchy to the HD2 Proposal to ensure it meets the EPA objective in relation to flora and vegetation. Mitigation measures being considered during the development of the HD2 Proposal include:</p> <p>Avoid</p> <ul style="list-style-type: none"> • Flora and vegetation surveys will identify conservation significant flora and vegetation of significance which may be able to be avoided during the detailed design of the Proposal • Detailed design will seek to avoid disruption of natural surface water flows <p>Minimise</p> <ul style="list-style-type: none"> • Ground disturbance will be managed to ensure the Proposal is developed in accordance with any regulatory approvals and that ground disturbance is minimised. This will be implemented via the Rio Tinto Approvals Request system. <p>Rehabilitate/revegetate</p> <ul style="list-style-type: none"> • The Proponent will prepare and implement a Closure Plan, in accordance with the joint DMIRS <i>Statutory Guidelines for Mine Closure Plans, March 2020</i> for the Proposal. • Rehabilitation activities will be undertaken progressively over the life of the mine as opportunities arise. <p>Offset</p> <p>The Proponent will develop an offset strategy for any significant residual environmental impacts, including offsets for disturbance of vegetation in Good to Excellent condition, in consultation with DWER - EPA Services and the Commonwealth Department of Agriculture, Water and the Environment (DAWE).</p>
7	<p>Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.</p>	<p>A detailed environmental impact assessment is currently in preparation for this Proposal. Likely residual impacts are listed below:</p> <ul style="list-style-type: none"> • Clearing of up to 4,700 ha native vegetation, including approximately 4,050 ha in Good to Excellent condition. • Loss of individuals of Priority flora species; • Loss of bush tucker and bush medicine species, and possibly other culturally important flora species. • Introduction and/or spread of weeds. • Changes to vegetation due to altered hydrological regimes.
8	<p>Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation measures or regulatory conditions.</p>	<p>N/a</p>

1	EPA Factor	Terrestrial Fauna
2	<p>EPA policy and guidance - What have you considered and how have you applied them in relation to this factor?</p>	<p>EPA Objective:</p> <ul style="list-style-type: none"> • <i>To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.</i> <p>Policy and guidance: The following policy and guidance are relevant to this factor:</p> <ul style="list-style-type: none"> • <i>Instructions on how to prepare an Environmental Review Document (EPA 2020a).</i> • <i>Statement of Environmental Principles, Factors and objectives (EPA 2020b).</i> • <i>Environmental Factor Guideline: Terrestrial Fauna (EPA 2016c).</i> • <i>Technical Guidance – Terrestrial Fauna Surveys (EPA 2016d).</i> • <i>Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna (EPA 2016e).</i> • <i>Technical Guidance – Sampling Methods for Short Range Endemic Invertebrate Fauna (EPA 2016f).</i> • <i>Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2020c).</i> • <i>Statutory Guidelines for Mine Closure Plans (DMIRS 2020).</i> • <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 1986 (EPA 2014).</i> • <i>WA Environmental Offsets Policy (GoWA 2011).</i> • <i>WA Environmental Offsets Guidelines (GoWA 2014).</i> <p>The Proponent has also considered the following:</p> <ul style="list-style-type: none"> • <i>Survey guidelines for Australia’s threatened mammals (Department of Sustainability, Environment, Water, population and Communities (DSEWPaC 2011a).</i> • <i>Survey guidelines for Australia’s threatened reptiles (DSEWPaC 2011b).</i> • <i>Survey guidelines for Australia’s threatened bats (DEWHA 2010).</i> • <i>Commonwealth Listing Advice on Northern Quoll (<i>Dasyurus hallucatus</i>) (Threatened Species Scientific Committee 2005).</i> • <i>Conservation Advice for <i>Macroderma gigas</i> (Ghost Bat) (TSSC 2016a).</i> • <i>Conservation Advice for <i>Rhinonicteris aurantia</i> ((Pilbara Leaf-nosed Bat) (TSSC 2016b).</i> <p>The Proponent has considered the above-mentioned policy and guidance in the following ways:</p> <ul style="list-style-type: none"> • Planning, design and implementation of the environmental surveys undertaken. • Preliminary assessment of potential impacts. • Application of the mitigation hierarchy. • Consideration of environmental offsets.

3	<p>Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts</p>	<p>Consultation with decision-making authorities (DWER, DBCA and DMIRS) and key stakeholders is ongoing.</p> <p>The most recent pre-referral consultation with EPA Services in relation to the HD2 Proposal was held on 20th July 2021.</p> <p>Consultation with the Banjima, Ngarlawangga and Nyiyaparli native title holders is ongoing.</p> <p>The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.</p>
4	<p>Receiving environment – Describe the current condition of the receiving environment in relation to this factor.</p>	<p>The receiving environment in the Development Envelope is generally well understood. Numerous terrestrial fauna surveys have been undertaken in the HD2 Proposal area since 2009. Targeted surveys and investigations for significant species, including Northern Quoll, Ghost Bat, Pilbara Leaf-nosed Bat, Pilbara Olive Python and Night Parrot, have also been undertaken covering areas in and around the Development Envelope. Relevant terrestrial fauna surveys include:</p> <ul style="list-style-type: none"> • Hope Downs Vertebrate Fauna Habitat Mapping (Astron 2020b). • Hope Downs 2 Proposal – Ghost Bat Cave Characteristics February/March 2020 (Astron 2020c). • Hope Downs 2 Proposal Matters of National Environmental Significance Fauna Assessment, September 2019 (Astron 2019b). • Hope Downs 2 Proposal Fauna Survey, March 2019 (Astron 2019c). • Hope Downs 2, Bedded Hilltop and Wonmunna Level 2 Fauna Survey, May 2018 (Astron 2018). • Baby Hope Targeted Troglofauna Survey, July 2015 (Biota 2015). • Hope Downs South West Marra Mamba Development Targeted Fauna Survey (Biota Environmental Sciences 2014). • Hope Downs Project Life of Mine Targeted Fauna Survey (Biota Environmental Sciences 2011). • Hope Downs Section 45C Targeted Fauna Review (Biota Environmental Sciences 2009). • A Vertebrate Fauna Survey of the Proposed Hope Downs 4 Infrastructure Corridor Option 6 Near Newman Western Australia (Ninox Wildlife Consulting 2009a). <p>Fauna Habitat</p> <p>Eight fauna habitats are known to occur in the Development Envelope including:</p> <ul style="list-style-type: none"> • Minor drainage • Gorge/Gully • Breakaway • Rocky Hill • Low Hill and Slopes • Alluvial Plain • Mulga Woodland • Stony Plain. <p>In addition, 10 Ghost Bat caves have been identified in the Development Envelope.</p>

		<p>Fauna habitats are affected to some extent by grazing and trampling pressures from cattle and feral camels in localised areas but are generally considered to be in Good to Excellent condition.</p> <p>Significant Fauna</p> <p>The following Matters of National Environmental Significance (MNES) and Priority fauna species have been recorded in and around the Development Envelope or are considered likely to occur:</p> <ul style="list-style-type: none"> • Northern Quoll (<i>Dasyurus hallucatus</i>) – Environmental Protection and Biodiversity Conservation (EPBC) Act Endangered, <i>Biodiversity Conservation Act 2016</i> (BC Act) Schedule 2 • Pilbara Leaf-nosed Bat (<i>Rhinoicteris aurantia</i>) – EPBC Act Vulnerable, BC Act Schedule 3 • Ghost Bat (<i>Macroderma gigas</i>) – EPBC Act Vulnerable, BC Act Schedule 3 • Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) – EPBC Act Vulnerable, Vulnerable BC Act • Oriental Plover (<i>Charadrius veredus</i>) – EPBC Act Migratory • <i>Lerista macropisthopus remota</i> – DBCA Priority 2 • Letter-winged Kite (<i>Elanus scriptus</i>) – DBCA Priority 4 • Western Pebble Mound Mouse (<i>Pseudomys chapmani</i>) – DBCA Priority 4. <p>Short Range Endemic (SRE) Invertebrate Fauna</p> <p>SRE fauna habitats known to occur in the proposed Development Envelope include:</p> <ul style="list-style-type: none"> • Minor drainage • Gorge/Gully • Breakaway • Rocky Hill • Mulga Woodland. <p>SRE species</p> <p>Surveys identified 47 potential SREs and one confirmed SRE, <i>Karaops banyjima</i> and one likely SRE, <i>Troglarmadillo</i> sp. Of these taxa 32 were identified to the level of species or morphospecies; seven spiders, nine pseudoscorpions, four scorpions; seven centipedes, three millipedes and two isopods. Seventeen represent ambiguously identified groups; three spiders, five pseudoscorpions, two centipedes, two millipedes and five isopods. Five of the SRE invertebrate taxa were found in multiple habitat types within the Development Envelope.</p>
5	Proposal activities – Describe the proposal activities that have the potential to impact the environment	<p>Proposal activities (typical of iron ore mines) that have the potential to impact terrestrial fauna include:</p> <ul style="list-style-type: none"> • clearing of fauna habitat; • development of the Proposal, including vehicle and machinery movements which may lead to the loss of fauna individuals; and • light, dust, noise and blast vibration as a result of construction and operation activities may disturb fauna individuals.
6	Mitigation – Describe the measures proposed to manage and mitigate	<p>The Proponent has extensive experience developing and operating mines and related infrastructure in the Pilbara through which it has developed and refined strategies to manage and mitigate potential</p>

	the potential environmental impacts.	<p>environmental impacts in an adaptive manner. The Proponent will apply the mitigation hierarchy to the HD2 Proposal to ensure it meets the EPA objective in relation to terrestrial fauna. Mitigation measures being considered during the development of the HD2 Proposal include:</p> <p>Avoid</p> <ul style="list-style-type: none"> • Vertebrate fauna surveys will identify conservation significant fauna and supporting habitat of significance which may be able to be avoided during the detailed design of the Proposal. • Detailed design will seek to avoid disturbance of natural surface water flows. <p>Minimise</p> <ul style="list-style-type: none"> • Ground disturbance will be managed to ensure the Proposal is developed in accordance with any regulatory approvals and that ground disturbance is minimised. This will be implemented via the Rio Tinto Approvals Request system. • Groundwater abstraction will be minimised by limiting water abstraction for water supply requirements only. • The Proponent commits to avoiding the use of barbed wire fencing as far as practicable, except where legislated. Where the use of barbed wire fencing cannot be avoided, the Proponent will install reflectors to deter fauna interaction. • Implementation of vehicle speed limits (outside of active mine areas) at all times to reduce potential interactions of vehicles and machinery with fauna. <p>Rehabilitate</p> <ul style="list-style-type: none"> • The Proponent will prepare and implement a Closure Plan, in accordance with the joint DMIRS <i>Statutory Guidelines for Mine Closure Plans, March 2020</i> for the Proposal. • Rehabilitation activities will be undertaken progressively over the life of the mine as opportunities arise. <p>Offset</p> <p>The Proponent will develop an offset strategy for any significant residual environmental impacts, including offsets for any significant residual impacts on fauna.</p>
7	Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.	<p>A detailed environmental impact assessment is currently in preparation for this Proposal. Potential residual impacts are listed below:</p> <ul style="list-style-type: none"> • Clearing of fauna habitat, some of which is considered to be important to significant species. • Loss of fauna individuals • Direct impact to some potential SRE species.
8	Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation measures or regulatory conditions.	N/a

1	EPA Factor	Subterranean Fauna
2	<p>EPA policy and guidance - What have you considered and how have you applied them in relation to this factor?</p>	<p>EPA Objective:</p> <ul style="list-style-type: none"> • <i>To protect subterranean fauna so that biological diversity and ecological integrity are maintained.</i> <p>Policy and guidance: The following policy and guidance are relevant to this factor:</p> <ul style="list-style-type: none"> • <i>Instructions on how to prepare an Environmental Review Document</i> (EPA 2020a). • <i>Statement of Environmental Principles, Factors and Objectives</i> (EPA 2020b). • <i>Environmental Factor Guideline: Subterranean Fauna</i> (EPA 2016g). • <i>Technical Guidance – Subterranean Fauna Surveys</i> (EPA 2016h). • <i>Technical Guidance: Sampling Methods for Subterranean Fauna</i> (EPA 2016i). • <i>Statutory Guidelines for Mine Closure Plans</i> (DMIRS 2020). <p>The Proponent has considered the above-mentioned policy and guidance in the following ways:</p> <ul style="list-style-type: none"> • Planning, design, and implementation of the environmental surveys undertaken. • Preliminary assessment of potential impacts. • Application of the mitigation hierarchy.
3	<p>Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts</p>	<p>Consultation with decision-making authorities (DWER, DBCA and DMIRS) and key stakeholders is ongoing.</p> <p>The most recent pre-referral consultation with EPA Services in relation to the HD2 Proposal was held on 20th July 2021.</p> <p>Consultation with the Banjima, Ngarlawangga and Nyiyaparli native title holders is ongoing.</p> <p>The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.</p>
4	<p>Receiving environment – Describe the current condition of the receiving environment in relation to this factor.</p>	<p>Numerous detailed subterranean fauna surveys have been undertaken in the HD2 Proposal area. The surveys include:</p> <ul style="list-style-type: none"> • Hope Downs 2 Proposal Level 2 Troglifauna Survey (Stantec 2019). • Baby Hope Downs Troglifauna Survey Phase 2 (Biota 2015). • Hope Downs Project Life of Mine Targeted Subterranean Fauna Survey (Biota 2011). • Hope Downs 2 Proposal Level 2 Stygofauna Survey (Stantec 2020). <p>A subterranean fauna survey (Stantec 2019 and 2020), comprising two phases of troglifauna and stygofauna sampling has been completed within the Development Envelope. Three-dimensional subterranean habitat modelling has been developed.</p> <p>The Weeli Wolli Spring PEC spring and creekline are noted for their relatively high diversity of stygofauna, which is likely attributed to the large-scale calcrete and alluvial aquifer system associated with the creek.</p> <p>The current subterranean fauna surveys will assess species of potential conservation significance with regard to their locations within the geological and hydrogeological environment to draw conclusions regarding habitat suitability and connectivity.</p>

5	Proposal activities – Describe the proposal activities that have the potential to impact the environment	<p>Proposal activities (typical of iron ore mines) that have the potential to impact subterranean fauna include:</p> <ul style="list-style-type: none"> • Excavation of mine pits resulting in removal of troglofauna individuals and reduction in available habitat. • Groundwater abstraction for local water supplies resulting in a reduction in available habitat and removal of stygofauna individuals. • Placement of mineral waste management infrastructure resulting in changes to the underlying subterranean habitat.
6	Mitigation – Describe the measures proposed to manage and mitigate the potential environmental impacts.	<p>The Proponent has extensive experience developing and operating mines and related infrastructure in the Pilbara through which it has developed and refined strategies to manage and mitigate potential environmental impacts in an adaptive manner. The Proponent will apply the mitigation hierarchy to the HD2 Proposal to ensure it meets the EPA objective in relation to subterranean fauna. Mitigation measures being considered during the development of the HD2 Proposal include:</p> <p>Avoid</p> <ul style="list-style-type: none"> • Subterranean fauna surveys will identify conservation significant subterranean fauna and supporting habitat of significance which may be able to be avoided during the detailed design of the Proposal. • Resource drilling will be undertaken to further define the area of resource and develop pit shells to avoid unnecessary disturbance and excavation of material. <p>Minimise</p> <ul style="list-style-type: none"> • Ground disturbance will be managed to ensure the Proposal is developed in accordance with any regulatory approvals and that ground disturbance hence potential disturbance to the underlying troglofauna habitat is minimised. This will be implemented via the Rio Tinto Approvals Request system. • Hydrocarbon management measures will minimise potential for contamination of troglofauna habitat. • Groundwater abstraction will be limited to that required for construction and operational water supply. <p>Rehabilitate</p> <ul style="list-style-type: none"> • The Proponent will prepare and implement a Closure Plan, in accordance with the joint DMIRS <i>Statutory Guidelines for Mine Closure Plans, March 2020</i> for the Proposal. • Rehabilitation activities will be undertaken progressively over the life of the mine as opportunities arise.
7	Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.	<p>A detailed environmental impact assessment is currently in preparation for this Proposal. Potential residual impacts are listed below:</p> <ul style="list-style-type: none"> • Removal or reduction of subterranean fauna habitat. • Loss of subterranean fauna individuals, which may include potentially restricted species. • Degradation of subterranean fauna habitat.
8	Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation	N/a

	measures or regulatory conditions.	
1	EPA Factor	Inland Waters
2	<p>EPA policy and guidance</p> <p>- What have you considered and how have you applied them in relation to this factor?</p>	<p>EPA Objective:</p> <ul style="list-style-type: none"> <i>To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.</i> <p>Policy and guidance:</p> <p>The following guidance is relevant to this factor:</p> <ul style="list-style-type: none"> <i>Instructions on how to prepare an Environmental Review Document (EPA 2020a).</i> <i>Statement of Environmental Principles, Factors and Objectives (EPA 2020b).</i> <i>Environmental Factor Guideline: Inland Waters (EPA 2018).</i> <i>Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2020c).</i> <i>Statutory Guidelines for Mine Closure Plans (DMIRS 2020).</i> <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 1986 (EPA 2014).</i> <p>The Proponent has considered the above-mentioned policy and guidance in the following ways:</p> <ul style="list-style-type: none"> Planning, design and implementation of the environmental surveys undertaken. Preliminary assessment of potential impacts. Application of the mitigation hierarchy.
3	<p>Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts</p>	<p>Consultation with decision-making authorities (DWER, DBCA and DMIRS) and other stakeholders is ongoing.</p> <p>The most recent pre-referral consultation with EPA Services in relation to the HD2 Proposal was held on 20th July 2021.</p> <p>Consultation with the Banjima, Ngarlawangga and Nyiyaparli native title holders is ongoing.</p> <p>The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.</p>
4	<p>Receiving environment – Describe the current condition of the receiving environment in relation to this factor.</p>	<p>Hydrology</p> <p>The HD2 Proposal is located in proximity to the upper reaches of Weeli Wolli Creek and within the Weeli Wolli Creek catchment that forms part of the Fortescue River Region. This catchment also includes Pebble Mouse Creek, a major tributary of Weeli Wolli Creek. The nearest significant surface water bodies include Weeli Wolli Spring and Ben's Oasis which are located outside of the Development Envelope and contain permanent and semi-permanent pools, considered to be supported by groundwater expression.</p> <p>There are no permanent or semi-permanent pools known within the Development Envelope. Several surface water pools are present in the proposed Development Envelope.</p> <p>Hydrogeology</p> <p>The hydrogeological setting within the Development Envelope comprises the Wittenoom Aquifer at HD2 and the Mineralised Brockman Aquifer at Bedded Hilltop. Groundwater depth is relatively</p>

		deep, ranging between approximately 25 to 100 m below ground level (bgl) throughout most of the Development Envelope depending on the surface topography. Groundwater depth is shallowest along Pebble Mouse Creek, occurring around 25 to 30 m bgl.
5	Proposal activities – Describe the proposal activities that have the potential to impact the environment	<p>Proposal activities that have the potential to impact inland waters include:</p> <ul style="list-style-type: none"> • Placement of mineral waste management infrastructure and creek crossings resulting in localised changes to surface hydrology. • Groundwater abstraction for water supply resulting in localised groundwater drawdown. • Use of surplus mine dewater from adjacent operations for implementation of the Proposal • Potential acid mine drainage (AMD) resulting in the alteration of groundwater quality.
6	Mitigation – Describe the measures proposed to manage and mitigate the potential environmental impacts.	<p>The Proponent has extensive experience developing and operating mines and related infrastructure in the Pilbara through which it has developed and refined strategies to manage and mitigate potential environmental impacts in an adaptive manner. The Proponent will apply the mitigation hierarchy to the HD2 Proposal to ensure it meets the EPA objective in relation to inland waters. Mitigation measures being considered during the development of the HD2 Proposal include:</p> <p>Avoid</p> <ul style="list-style-type: none"> • Detailed design will seek to avoid disruption of natural surface water flows. <p>Minimise</p> <ul style="list-style-type: none"> • Creek crossings will be designed to minimise disruption to natural surface water flows • Groundwater abstraction will be minimised by limiting dewatering for water supply requirements only • Detailed design will seek to minimise disturbance of natural surface water flows from placement of mineral waste management infrastructure. <p>Rehabilitate</p> <ul style="list-style-type: none"> • The Proponent will prepare and implement a Closure Plan, in accordance with the joint DMIRS <i>Statutory Guidelines for Mine Closure Plans, March 2020</i> for the Proposal. • Rehabilitation activities will be undertaken progressively over the life of the mine as opportunities arise.
7	Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.	<p>A detailed environmental impact assessment is in preparation for this Proposal. Potential residual impacts are listed below:</p> <ul style="list-style-type: none"> • Reduction or degradation of native vegetation (including riparian vegetation) and fauna habitats from alteration to hydrological regimes (surface water). • Altered hydrogeology, including local surface water features, and water balance associated with groundwater abstraction. • Permanent modification to existing catchments and associated impacts to flow paths of surface water systems. • Temporary modification of natural surface water flows resulting from infrastructure crossing Pebble Mouse Creek.

8	Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation measures or regulatory conditions.	N/a
1	EPA Factor	Social Surroundings
2	EPA policy and guidance - What have you considered and how have you applied them in relation to this factor?	<p>EPA Objective:</p> <ul style="list-style-type: none"> • <i>To protect social surroundings from significant harm.</i> <p>Policy and guidance: The following policy and guidance are relevant to this factor:</p> <ul style="list-style-type: none"> • <i>Instructions on how to prepare and Environmental Review Document</i> (EPA 2020a). • <i>Statement of Environmental Principles, Factors and Objectives</i> (EPA 2020b). • <i>Environmental Factor Guideline: Social Surroundings</i> (EPA 2016j). • <i>Statutory Guidelines for Mine Closure Plans</i> (DMIRS 2020). <p>The Proponent has also considered the following:</p> <ul style="list-style-type: none"> • Department of Aboriginal Affairs and Department of Premier and Cabinet Due Diligence Guidelines, Version 3.0 (DAA and DPC 2013). <p>The Proponent has considered the above-mentioned policy and guidance in the following ways:</p> <ul style="list-style-type: none"> • Planning and design of relevant surveys and investigations undertaken to date. • Consultation with Traditional Owners. • Preliminary assessment of potential impacts. • Development of mitigation measures.
3	Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts	<p>The proposed Development Envelope is on land the subject of the Nyiyaparli, Banjima and Ngarlawangga native title determinations. The Nyiyaparli section covers the majority (92.7%) of the proposed Development Envelope and conceptual footprint, including the</p>

		<p>entirety of HD2 and BHT deposits and associated mineral waste management infrastructure. Nyiyaparli lands generally extend to the south and east from the proposed Development Envelope. Banjima land (2.3% of the proposed Development Envelope) lies to the north and intersects proposed infrastructure areas north of Pebble Mouse Creek, adjacent to the existing rail loop and access corridor connecting the HD2 Proposal with HD1 operations. A narrow part (5.0%) of the south western end of the proposed Development Envelope, including the Great Northern Highway alignment and realignment option, coincides with Ngarlawangga land, which extends west and south from the proposed Development Envelope boundary.</p> <p>Ongoing engagement with each Traditional Owner group is maintained through formal and informal engagement frameworks including six-monthly Local Implementation Committee (LIC) meetings which are attended by Traditional Owner representatives, heritage and approvals specific engagement and consultation between the Proponent and the Traditional Owner representatives, and other meetings as required.</p> <p>The Proponent and each Traditional Owner group have agreed heritage specific engagement processes, including Heritage Protocols, which provide for archaeological and ethnographic surveys, associated consultation and meetings and Cultural Heritage Management Plans. This is the framework through which the Proponent and the Traditional Owner groups work together to manage and maintain the cultural values of the areas in which the Proponent operates on their country.</p> <p>Through ongoing engagement and consultation with the Traditional Owner groups, review of the Register of Aboriginal Sites managed by DPLH and archaeological and ethnographic surveys undertaken to date within the proposed Development Envelope, the Proponent has established an initial understanding of the cultural heritage values of the land the subject of the HD2 Proposal.</p> <p>The Proponent has commenced targeted engagement with each of the Traditional Owner groups in respect of the Social Surroundings values relevant to the HD2 Proposal. This consultation process is being jointly developed with each of the Traditional Owner groups and is ongoing. The broad consultation process followed to date is outlined below, but will continue to be jointly developed with each Traditional Owner group:</p> <ul style="list-style-type: none"> • Meetings to establish a baseline understanding of the HD2 Proposal and work to investigate its potential development. • Initial pre-referral meetings (step completed for all groups). • Pre-fieldwork meetings with each Traditional Owner group to discuss the HD2 Proposal and to scope Social Surroundings fieldwork (step completed for Nyiyaparli and Ngarlawangga). • In-field consultation with each Traditional Owner group. In-field consultation has commenced with Nyiyaparli and Ngarlawangga Traditional Owners, and additional in-field consultations with Nyiyaparli and Ngarlawangga are planned
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		<p>for the coming months. Engagement with Banjima Traditional Owners has commenced prior to planning in-field consultation.</p> <ul style="list-style-type: none"> • Meetings to review and discuss the outcomes of in-field consultation and to plan additional in-field consultation (meetings have been held with Nyiyaparli and Ngarlawangga and additional meetings will be planned as required and Traditional Owner capacity permits). • Report/s detailing outcomes of Social Surroundings consultation with each Traditional Owner group (preliminary reports have been provided from initial Nyiyaparli and Ngarlawangga in-field consultation and additional reports will be completed as part on ongoing in-field consultation). • Review and endorsement (if appropriate) of the report for use (not yet completed). <p>To date, Social Surroundings consultation with Traditional Owners has identified that the following key issues which are important to understanding the social and cultural values of the Proposal area and the potential significant impacts of the HD2 Proposal on Social Surroundings:</p> <ul style="list-style-type: none"> • water use and management; • access to country, including access to bush tucker/bush medicine on country and important areas for cultural practices; • amenity including dust, noise, vibrations and visual impacts; • rehabilitation and final landform design; • protection of cultural heritage values; and • cumulative impacts of multiple proposals. <p>Potential impacts to key values will be assessed through the environmental impact assessment process and targeted Social Surroundings consultation with each Traditional Owner group.</p> <p>The Proponent will continue to consult with the Banjima, Ngarlawangga and Nyiyaparli Traditional Owners during the environmental impact assessment process for the HD2 Proposal.</p> <p>Other Stakeholders</p> <p>Consultation with decision-making authorities and key stakeholder is ongoing.</p> <p>Pre-referral consultation sessions with EPA Services in relation to the HD2 Proposal were held on 16 September 2019, 21 October 2019, 12 May 2020, 17 December 2020 and 20th July 2021.</p> <p>The Proponent will continue to consult with relevant stakeholders during the environmental assessment process for the HD2 Proposal.</p>
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4	<p>Receiving environment – Describe the current condition of the receiving environment in relation to this factor.</p>	<p>Water values</p> <p>Water is seen as the lifeblood of the land and is important both environmentally and culturally. Water systems not only sustain the landscape, they also form the basis of long and continued understandings of country and are often key markers of cultural identity. Weeli Wolli Creek, which is adjacent to and within the proposed Development Envelope, is of particularly high cultural importance. Pebble Mouse Creek is adjacent to and within the proposed Development Envelope and infrastructure associated with the HD2 Proposal is proposed to cross Pebble Mouse Creek in a number of locations.</p> <p>Access</p> <p>The Nyiyaparli, Banjima and Ngarlawangga Traditional Owners have native title rights in accordance with their respective determinations. This includes rights to access country and exercise traditional rights on that country. Rio Tinto understands that maintaining access to country is important for the purpose of hunting, collecting bush tucker and bush medicines, enjoyment of and caring for country and other cultural purposes. Access to Weeli Wolli Creek is through the Hope Downs Mine Access Road. This access will be maintained, however the Mine Access Road alignment will change as a result of the HD2 Proposal.</p> <p>Amenity</p> <p>Mining operations generate dust in the environment. The creation of dust can impact the amenity of an area for Traditional Owners, and other stakeholders, through impacts to country (including plants and animals), noise, traffic and visual impacts. Impacts to visual amenity, including those resulting from dust, are being assessed from key locations, including locations identified from consultation with Traditional Owners, some sections of Great Northern Highway, and from significant high points surrounding the Development Envelope. Noise and other impacts to amenity will also be assessed from key locations, including locations identified from consultation with Traditional Owner groups.</p> <p>Cultural heritage</p> <p>Surveys to date have focussed on Aboriginal heritage and have recorded cultural heritage values in the proposed Development Envelope including tangible sites (e.g. physical sites such as artefact scatters; quarries; rock shelters; scarred trees; rock art) and intangible values (e.g. mythologies, stories and song lines linked to one or more landscape features).</p> <p>Some of these sites contain heritage features that are considered to be of high archaeological significance such as rock shelters containing potentially datable sub-surface deposits and intact stone features.</p> <p>Archaeological sites of high cultural significance to the Nyiyaparli Traditional Owners include places that contain painted rock art, which is very uncommon in the region, permanent/semi-permanent water sources and places with ceremonial significance.</p> <p>Sites of high ethnographic significance have been identified near the HD2 Proposal including major creek lines and water sources such as Weeli Wolli Creek which feeds into Weeli Wolli Spring and Ben's Oasis. Weeli Wolli Creek is also important as a cultural boundary between the Nyiyaparli and Banjima traditional lands.</p> <p>Broader cultural and social values, including places and areas that are important for hunting, collecting bush tucker and bush medicine,</p>
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		<p>cultural practices and other purposes, will be investigated through the Social Surroundings consultation described above.</p> <p>The Proponent is committed to consulting with Traditional Owners to identify sites and places of high cultural significance, and to facilitate appropriate management of cultural values.</p>
5	<p>Proposal activities – Describe the proposal activities that have the potential to impact the environment</p>	<p>Engagement and consultation with the Traditional Owner groups is ongoing to inform the Proponent's understanding of the potential significant impacts on the Social Surroundings. Key HD2 Proposal activities that have the potential to impact social surroundings include:</p> <ul style="list-style-type: none"> • Vegetation clearing, and mine pit excavation and infrastructure placement. • Groundwater abstraction for water supply, alterations to surface water and groundwater hydrological regimes. • Mining activities leading to increased dust, noise and blast vibrations. • Mining pits and placement of infrastructure leading to temporary and/or permanent restriction of access to areas on which traditional practices are conducted and resources collected. • Mine pits and placement of mineral waste management infrastructure. <p>The Proponent is committed to consultation with Traditional Owners and other stakeholders in respect of any potential impacts upon the social surroundings.</p>
6	<p>Mitigation – Describe the measures proposed to manage and mitigate the potential environmental impacts.</p>	<p>The Proponent has agreed engagement processes in place with each Traditional Owner group. Engagement and consultation is ongoing with each Traditional Owner group in respect of the HD2 Proposal in order to identify potential impacts to cultural and social values associated with implementation of the Proposal and appropriate avoidance management and mitigation measures. This will be undertaken through the Social Surroundings consultation process which is being jointly developed with each Traditional Owner group.</p> <p>The identification and management of cultural and social values potentially impacted by the HD2 Proposal will also be undertaken in accordance with the principles and practices outlined within:</p> <ul style="list-style-type: none"> • the Proponent's Communities and Social Performance Guidelines; • the Proponent's Cultural Heritage Group Procedure; and • agreed Heritage Protocols. <p>In line with the engagement processes agreed with each Traditional Owner group, statutory requirements and these internal heritage management standards, archaeological, ethnographic and cultural heritage surveys have been and will continue to be undertaken over the proposed Development Envelope.</p> <p>The Proponent will apply the mitigation hierarchy to the HD2 Proposal to ensure it meets the EPA's objective in relation to social surroundings. Mitigation measures being considered during the development of the Proposal include:</p> <p>Avoid</p> <ul style="list-style-type: none"> • Engagement and consultation, including in-field consultation, with Traditional Owner groups will inform the Proposal design, with the aim of avoiding impacts to sites, places and values of social and cultural significance wherever practicable. • The HD2 Proposal will avoid interactions with significant water

	<p>features and will be designed to maintain continuation of natural surface water flows, where it is practicable to do so.</p> <ul style="list-style-type: none"> • Disturbance will be managed using Rio Tinto Approvals Request database to avoid unauthorised disturbance of sites of cultural significance. <p>Minimise</p> <ul style="list-style-type: none"> • The Proponent will identify significant impacts to social surroundings values and seek to minimise direct and indirect impacts that may be a result of the implementation of the HD2 Proposal, wherever practicable. • Groundwater abstraction will be limited to water supply only. • Creek crossings will be designed to minimise disruption to surface water flows, where it is practicable to do so. • The HD2 Proposal will be designed to facilitate access to areas and places which are important to Traditional Owners and other stakeholders, where it is practicable to do so. • A visual impact assessment will be completed to inform mine design and to assess potential impacts to visual amenity, from key locations, including locations identified from consultation with Traditional Owners, some sections of Great Northern Highway, and from significant high points surrounding the proposed Development Envelope, and assist in minimising these impacts. • Noise, vibration and other impacts to amenity will also be assessed from key locations, including locations identified from consultation with Traditional Owner groups to assist in minimising these impacts to social and cultural values. • The Proponent will implement dust management measures, such as dust suppression, and a Blast Management Plan to minimise indirect impacts to relevant places of social and cultural significance. • The Proponent will seek to minimise potential disturbance to known heritage sites within the proposed Development Envelope. However, if sites are likely to be disturbed by the Proposal, the Proponent will consult with the relevant Traditional Owner group in accordance with the agreed processes and seek heritage approvals under statutory processes as required. • Social and Cultural Heritage Management Plans will be developed. <p>Rehabilitate</p> <ul style="list-style-type: none"> • Rehabilitation and final landform design will consider Traditional Owner views including regarding post-closure access to sites and places of social and cultural significance. • The Proponent will prepare and implement a Mine Closure Plan, in accordance with the joint DMIRS <i>Statutory Guidelines for Mine Closure Plans, March 2020</i> for the Proposal. • Rehabilitation activities will be undertaken progressively over the life of the mine and opportunities to involve Traditional Owner groups in the rehabilitation of their country will be explored. • Use of bush tucker and bush medicine plants in revegetation will be explored.
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7	Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.	<p>A detailed environmental impact assessment is in preparation for this Proposal, which will be informed by consultation with relevant stakeholders.</p> <p>The Proposal may cause temporary impacts to cultural, social and/or aesthetic values as a result of:</p> <ul style="list-style-type: none"> • Groundwater abstraction for water supply to support construction and operation of the Proposal. • Placement of infrastructure. • Dust, noise and vibrations from mining operations. • Restricted access to areas during construction, operation and rehabilitation of the Proposal. <p>The Proposal may cause permanent impacts to cultural, social and/or aesthetic values as a result of:</p> <ul style="list-style-type: none"> • (Partially) remaining pit voids post closure. • Placement of mineral waste management infrastructure. • Alterations of surface water flow paths during implementation and post closure. • Restricted access to areas post closure. • Clearing or degradation of individuals or populations of ethnobotanical or culturally important plant species, bush tucker or bush medicine. • Habitat loss and relocation of culturally important animal species and bush tucker.
8	Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation measures or regulatory conditions.	N/a
1	EPA Factor	Greenhouse Gas emissions
2	EPA policy and guidance - What have you considered and how have you applied them in relation to this factor?	<p>EPA Objective:</p> <ul style="list-style-type: none"> • <i>To reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change.</i> <p>Policy and guidance:</p> <ul style="list-style-type: none"> • Instructions on how to prepare an Environmental Review Document (EPA 2020a). • <i>Statement of Environmental Principles, Factors and Objectives</i> (EPA 2020b). • <i>Greenhouse Gas Emissions Policy for Major Projects (State GHG Policy)</i>. • <i>Environmental Factor Guideline: Greenhouse Gas Emissions</i> (EPA 2020d). • <i>National Greenhouse and Energy Reporting Act 2007</i> (Cth; NGER Act). <p>In considering this objective, the Proponent will provide estimates for the construction and operation of the HD2 Proposal.</p>

3	Consultation – Outline the outcomes of consultation in relation to the potential environmental impacts	<p>Consultation with decision-making authorities and key stakeholders is ongoing. The Proponent will continue to consult with relevant stakeholders during the environmental assessment process.</p> <p>The most recent pre-referral consultation sessions with EPA Services in relation to the HD2 Proposal was held on 20th July 2021.</p>
4	Receiving environment – Describe the current condition of the receiving environment in relation to this factor.	<p>Existing mining operations in the Pilbara generate greenhouse gas emissions predominantly from diesel fuel combustion and electricity generation.</p> <p>The HD2 Proposal is intended to ensure continuity of ore supply, as other existing Rio Tinto iron ore operations near the end of life. As a result, the emissions from the HD2 Proposal are expected to replace emissions from depleting deposits at other Pilbara Mine Operations.</p> <p>The Proponent has well established procedures for the reporting of greenhouse gas emissions at its Pilbara operations in accordance with the NGER Act and is committed to an ongoing program of reporting and review to identify opportunities to further reduce energy consumption and reduce greenhouse gas emissions.</p>
5	Proposal activities – Describe the proposal activities that have the potential to impact the environment	<p>Proposal activities (typical of iron ore mines) that have the potential to impact greenhouse gas emissions include:</p> <ul style="list-style-type: none"> • Production of greenhouse gases from electricity generation. • Diesel combustion by fixed and mobile equipment.
6	Mitigation – Describe the measures proposed to manage and mitigate the potential environmental impacts.	<p>The Proponent has extensive experience developing and operating mines and related infrastructure in the Pilbara through which it has developed and refined strategies to manage and mitigate potential environmental impacts in an adaptive manner. The Proponent will apply the mitigation hierarchy to the Proposal to ensure it meets the EPA objective in relation to Greenhouse Gas Emissions.</p> <p>The Proponent has well established procedures for the reporting of greenhouse gas emissions at its Pilbara operations. In accordance with the NGER Act, the Proponent reports annually on energy production and consumption, and Scope 1 and 2 emissions.</p> <p>The Proponent is committed to an ongoing program of reporting, benchmarking and review to identify opportunities to further reduce energy consumption and minimise greenhouse gas emissions via the Hope Downs 2 Greenhouse Gas Management Plan being prepared.</p>
7	Impacts – Assess the impacts of the proposal and review the residual impacts against the EPA objective.	<p>The HD2 Proposal is predicted to contribute annual emissions of both Scope 1 and Scope 2 emissions.</p> <p>The Proposal is currently in an early mine planning and engineering design phase and as such, greenhouse gas emissions calculations have not yet been finalised. Relevant greenhouse gas guidance will be taken into consideration in the design and planning of the Proposal.</p>
8	Assumptions - Describe any assumptions critical to your assessment e.g. particular mitigation measures or regulatory conditions.	N/a

Part C: Other approvals and regulation			
State and Local Government approvals			
Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
If this proposal has been referred by a decision-making authority, what approval(s) are required from you?		Not applicable.	
Please identify other approvals required for the proposal:			
Proposal activities e.g. clearing, dewatering, mining, processing, dredging	Land tenure/access e.g. Crown land, Mining lease, specify legislation for access if relevant	Type of approval e.g. Native Vegetation Clearing Permit, licence, mining proposal,	Legislation regulating the activity e.g. EP Act 1986 – Part V, RiWI Act 1914, Mining Act 1979
Mining and processing	Mining Lease M282SA granted under <i>Iron Ore (Hope Downs) Agreement Act 1992</i>	State Agreement Proposals Part V Licence	<i>Iron Ore (Hope Downs) Agreement Act 1992</i>
Abstraction/dewatering	Mining Lease M282SA granted under <i>Iron Ore (Hope Downs) Agreement Act 1992</i>	Part V Licence Section 26D and Section 5C Licences	<i>Environmental Protection Act 1986 (EP Act) – Part V Rights in Water and Irrigation Act 1914 (RiWI Act)</i>
Disturbance of Aboriginal heritage	Mining Lease M282SA granted under <i>Iron Ore (Hope Downs) Agreement Act 1992</i>	Section 16 authorisation and Section 18 consent if required	<i>Aboriginal Heritage Act 1972</i>
Commonwealth Government approvals			
Does the proposal involve an action that may be or is a controlled action under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Has the proposed action been referred? If yes, when was it referred and what is the reference number (EPBC No.)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No The Proponent will be referring the Proposal under the EPBC Act. Date: _____ EPBC No.: _____	
If referred, has a decision been made on whether the proposed action is a controlled action? If 'yes', check the appropriate box and provide the decision in an attachment.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Decision – controlled action <input type="checkbox"/> Decision – not a controlled action	
If the proposal is determined to be a controlled action, do you request that this proposal be assessed under the bilateral agreement or as an accredited assessment?		<input type="checkbox"/> Yes - Bilateral <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes - Accredited	
Is approval required from other Commonwealth Government/s for any part of the proposal? <i>If yes, describe.</i>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Approval:	

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Attachment 1 – Description of Proposal

The HD2 Proposal is located in the Pilbara Region of Western Australia (**Figure 1**) and includes a conceptual footprint of approximately 4,700 ha to support the development, operation and closure of two new AWT iron ore deposits (HD2 and BHT) within a proposed Development Envelope of approximately 14,085 ha (**Figure 2**).

The HD2 Proposal includes, but is not limited to the following:

- Development and operation of AWT iron ore deposits: BHT and HD2.
- Activities required to facilitate mining which may include, but are not limited to, the following:
 - Mineral waste management infrastructure: includes waste rock landforms, landbridges, low grade ore dumps, and topsoil and sub-soil stockpiles.
 - New processing infrastructure: including dry processing facilities at HD2 and/or BHT deposits.
 - Support facilities: including workshops, hydrocarbon storage areas, ANFO facilities, laydown areas, turkeys nests, transfer pads and offices.
 - Linear infrastructure: including heavy and light vehicle access roads, railway crossing, conveyors, pipelines, power distribution network (including sub-stations), communications distribution network and associated communications infrastructure.
 - Realignment of approximately 6 km of the Great Northern Highway.
 - Infrastructure for surface water management: including Pebble Mouse Creek crossings, diversion drains, levees and culverts.
 - Infrastructure for water supply: including abstraction of groundwater and/ or use of surplus water from local sources and adjacent operations.
 - Accommodation: including installation of a new construction camp may be required to support the implementation of the HD2 Proposal.

The HD2 Development Envelope (Figure 2) incorporates these components and provides the boundary within which the HD2 Proposal will be implemented. The conceptual layout shows the approximate location of mine pits and waste rock landforms within the Development Envelope, although this remains flexible to enable adaptability to operational needs.

Exclusions

The scope of the HD2 Proposal subject to assessment excludes:

- low impact activities during the process of the assessment required to inform proposal planning and investigation, including, but not limited to: drilling and associated activities for the purposes of resource evaluation; geotechnical assessment; and hydrogeological investigations. These activities will be subject to the relevant provisions under Part V of the EP Act and the RiWI Act; and
- Activities that are part of, or required for, continuation of the existing approved operations at Hope Downs 1 (including Baby Hope) as approved under Ministerial Statements No. 584, 893 and 1025; or other Rio Tinto Iron Ore sites.

Current Rio Tinto Iron Ore operational activities are authorised via statutory environmental approvals under Part IV and V of the EP Act and the RiWI Act. The Proponent notes that, whilst the HD2 Proposal is under assessment, additional approvals or amendments to existing approvals may be required to support the continuation of existing operations that do not relate to the implementation of this HD2 Proposal. Therefore,

the above exclusions are not limited to only those activities already approved but also to activities authorised by existing approvals as they may be amended (including under s45C of the EP Act).

The EPA's consent may be sought for minor or preliminary works associated with the HD2 Proposal under section 41A (3) of the EP Act.

Table 2: Summary of the Proposal

Proposal title	Hope Downs 2 Proposal
Proponent name	Hamersley HMS Pty Limited
Short description	The HD2 Proposal is located approximately 80 km north-west of Newman in the Pilbara region of Western Australia. The HD2 Proposal includes, but is not limited to, the development of above water table deposits at Hope Downs 2 and Bedded Hilltop; mineral waste management; water supply, mine associated infrastructure and support facilities; and realignment of approximately 6 km of the Great Northern Highway.

Table 3: Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
Physical elements		
Mine and associated infrastructure	Figure 2	Clearing of up to approximately 4,700 ha within a Development Envelope of approximately 14,085 ha.
Operational elements		
Water supply	Development Envelope	Abstraction of groundwater and/ or use of surplus water from local sources and adjacent operations.



