Report and recommendations of the Environmental Protection Authority

Turee Syncline Iron Ore Project

Hamersley Iron Pty Ltd

Report 1479

June 2013

Public Environmental Review
Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
26/07/10	Level of Assessment set (date appeals process completed)	
23/02/12	Final ESD approved	**82**
19/11/12	Environmental Review Document (ERD) released for public review	**39**
17/12/12	Public review period for ERD closed	**4**
11/03/13	Final Proponent response to ERD issues raised	**12**
16/05/13	EPA requested additional information	**9**
22/05/13	Proponent submitted additional information requested by the EPA	**1**
11/06/13	Provision of EPA Report to Minister	**3**
14/06/13	Publication of EPA report (3 days after report to Minister)	**3 days**
28/06/13	Close of appeals period	**2**

STATEMENT ON TIMELINES

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 agreed timeline objective for the completion of the assessment and provision of a recommendation to the Minister.

Dr Paul Vogel
Chairman

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Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for Environment on the proposal by Hamersley Iron Pty Ltd to develop the Turee Syncline iron ore mine and associated infrastructure 30 kilometres (km) north-east of Paraburdoo. Hamersley Iron is a wholly owned subsidiary of Rio Tinto's iron ore business (Rio Tinto).

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

- the key environmental factors identified 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 should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA is also required to have regard for the principles set out in section 4A of the EP Act.

Key environmental factors and principles

The EPA decided that the following key environmental factors relevant to the proposal required detailed evaluation in the report:

(a) Vegetation and flora;

(b) Terrestrial fauna;

(c) Subterranean fauna;

(d) Rehabilitation and closure – integrating factor; and

(e) Offsets – integrating factor.

There were a number of other factors which were relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

The following principles were considered by the EPA in relation to the proposal:

(a) the precautionary principle;

(b) the principle of intergenerational equity;

(c) the principle of the conservation of biological diversity and ecological integrity

(d) principles related to improved valuation, pricing and incentive mechanisms; and

(e) the principle of waste minimisation.

The proposal is considered by the Commonwealth of Australia to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because of potential significant impacts to listed threatened species. The proposal is being assessed according to the Bilateral Agreement between the Commonwealth and State of Western Australia.

Conclusion

The EPA has considered the proposal by Hamersley Iron Pty. Limited to develop the Turee Syncline Iron Ore deposit and construct and operate associated mining infrastructure.

Vegetation and flora

The proposal would result in the disturbance of up to 1,050 hectares (ha) of vegetation, of which 985 ha is considered to be in 'good to excellent' condition.

Flora surveys of the area did not record any Threatened or Priority Ecological Communities or listed threatened flora species within the proposal area. However eight species of priority flora were recorded. All of these species have been recorded at other locations within the Pilbara.

The proponent has developed a Flora and Vegetation Management Plan as part of the Turee Syncline Operational Environmental Management Plan (OEMP), which includes measures to minimise the direct impacts on priority flora species. The EPA has recommended condition 6 to ensure that the OEMP is implemented to minimise the overall impact on vegetation and flora.

Terrestrial fauna

Surveys have identified five main habitat types for terrestrial fauna: mulga woodlands; ridges and scree slopes; drainage lines; breakaways, cliff faces, gullies and gorges and spinifex grasslands. These habitat types are considered to be widespread.

Conservation significant fauna recorded or considered likely to be found within the proposal area include the Northern Quoll (*Dasyurus hallucatus*), Pilbara Olive Python (*Liasis olivaceus barroni*) and Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*).

Matters of National Environmental Significance

The Department of Sustainability, Environment, Water, Population and Communities has declared the Turee Syncline proposal a Controlled Action

due to impact on listed threatened species or communities, principally due to the clearing of habitat suitable for the Northern Quoll.

Targeted surveying suggests that the proposal area supports a Northern Quoll population of low intensity, based on the collection of scats, but no observation of individuals. Habitat mapping by the proponent shows that the habitat in which the scats have been recorded extends into Karijini National Park and the proposed Rocklea conservation area.

The EPA acknowledges that the presence of Northern Quoll in the proposal area is likely to be limited to a population of low intensity. The EPA also notes that suitable Northern Quoll habitat is found in the nearby Karijini National Park. As there is contiguous Northern Quoll habitat in the conservation estate surrounding the project the impacts to Northern Quoll are not expected to result in unacceptable impacts on or unsustainable reduction of the local population or impact on the conservation status of the species.

The proponent has also developed a Significant Species Management Plan (SSMP) for the management of species considered a Matter of National Environmental Significance. Although the Northern Quoll is present in low numbers in the area, it is likely to be impacted by the Turee Syncline proposal. Therefore the EPA considers that the Rio Tinto SSMP should be implemented for the Turee Syncline proposal to minimise the impacts and ensure they are not significant. The EPA has recommended condition 8 to ensure that the SSMP is implemented for the Turee Syncline proposal.

Subterranean fauna

Subterranean fauna surveys have identified troglofauna species occurring within the mine pit area. The habitat for these species extends beyond the area of the pits. Development of a new borefield may impact on stygofauna species as there is a moderate likelihood of stygofauna occurring in the target aquifers. The EPA considers that impacts to subterranean fauna can be managed to meet its objectives for this factor and has recommended condition 9 to ensure any new borefield is located to avoid significant impacts on stygofauna.

Rehabilitation and closure

The proposal will require effective mine closure and rehabilitation. Mining is proposed to occur above the water table, so permanent pit lakes are not expected following mine closure. Waste characterisation tests carried out by the proponent has indicated that the potential for acid and metalliferous drainage is low. Some potentially acid forming (PAF) material will be encountered. However it is considered that there is enough non-acid forming waste material available to encapsulate this PAF material.

The proposal is located on State Agreement Act and Mining Act tenements. A Department of Mines and Petroleum (DMP) approved mine closure plan is required for those parts of the proposal occurring on Mining Act tenements.

As stated in the DMP/EPA *Guidelines for Preparing Mine Closure Plans*, mine closure will be managed through Part IV of the EP Act on tenements subject to a State Agreement Act.

Consistent with the mine closure plan guidelines, the EPA considers that the DMP should be involved in regulating mine closure for the whole project and not just those parts on Mining Act tenements. This will mean that one mine closure plan will apply to the whole project. The EPA has recommended condition 10 to ensure that the proponent develops a mine closure plan for the whole project in accordance with the *Guidelines for Preparing Mine Closure Plans* and with ongoing input from the DMP.

Offsets

The loss of individuals of priority flora species and the clearing of native vegetation in 'good to excellent' condition in the Pilbara IBRA bioregion is considered to be significant when considered in a cumulative context. The clearing of this vegetation also results in the loss of habitat for conservation significant species. The EPA has recommended condition 11, which addresses the significant residual impacts of the proposal. This condition provides for a contribution to the strategic regional conservation initiative.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's objectives provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4 and summarised in Section 5.

Recommendations

That the Minister for Environment:

1. Notes that the proposal being assessed is for an iron ore mine and associated infrastructure 30 km north-east of Paraburdoo;
2. Considers the report on the key environmental factors and principles as set out in Section 3;
3. Notes the EPA has concluded that it is likely that the EPA's objectives would be achieved, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4 and summarised in Section 4; and
4. Imposes the conditions and procedures recommended in Appendix 4 of this report.

Conditions

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Hamersley Iron Pty. Limited to develop the Turee Syncline Iron Ore Project is approved for implementation. These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

(a) Minimising the clearing of priority flora species;

(b) Implementation of the Rio Tinto Significant Species Management Plan for the Turee Syncline proposal;

(c) Ensuring that borefields are located so there is no significant impacts to stygofauna;

(d) Development and implementation of a mine closure plan in accordance with the DMP/EPA *Guidelines for Preparing Mine Closure Plans*; and

(e) Contribution to the strategic regional conservation initiative to mitigate for significant residual impacts on vegetation in 'good to excellent' condition.

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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 key environmental factors and principles for the proposal by Hamersley Iron Pty Ltd (Hamersley Iron), to develop the Turee Syncline Iron Ore deposit and construct associated mining infrastructure.

The Turee Syncline Iron Ore Project will involve the construction and operation of an iron ore mine approximately 30 kilometres (km) north-east of Paraburdoo. The proposal area is 2 km west of Karijini National Park and 15 km south of the Yinhawangka Aboriginal Community (Figure 1).

The expected mine life is 18 years and will involve disturbance of up to 1,050 hectares (ha). The proposal has five main components; the mining area, infrastructure corridor, access road, borefield and accommodation camp (Figure 2).

The Commonwealth of Australia considers the proposal to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because of potential significant impacts to nationally listed threatened species and communities. The proposal is being assessed according to the Bilateral Agreement between the Commonwealth and State of Western Australia.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the key environmental factors and principles for the proposal. Section 4 discusses the Matters of National Environmental Significance. The conditions to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 5. Section 6 provides other advice by the EPA.

Appendix 5 contains a summary of submissions and the proponent's response to submissions. It is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process, and which have been taken into account by the EPA, appear in the report itself.

2. The proposal

The Turee Syncline proposal is to develop an open-cut iron ore mine and associated infrastructure approximately 30 km north-east of Paraburdoo (Figure 1). The expected mine life is 18 years and will result in disturbance of up to 1,050 ha. The key components of the proposal include:

- mine pits (all above water table);
- product stockpiles and waste dumps;
- ore handling and on-site processing facilities, including a rail loop/siding to connect to the existing regional Rio Tinto rail network;
- a haul road to Paraburdoo (only required if the processing facilities and rail loop/siding are not constructed on-site), which is proposed to be un-sealed initially with the intention of sealing at a later stage of proposal development;
- mine support facilities, including offices, workshops, explosives storage, waste water treatment plant and accommodation camp (if required);
- diesel power generators (initially) then subsequent power-line connection to Paraburdoo;
- road infrastructure (mine access and internal road network);
- a local borefield and associated infrastructure;
- a water supply pipeline connecting to Paraburdoo (if required); and
- communications infrastructure.

The proposal has five main components; the mining area, infrastructure corridor, access road, borefield and accommodation camp (Figure 2). The Proponent is still considering options for ore processing and for water supply. Ore processing options are either road or rail transport to existing processing facilities at Paraburdoo or construction of a plant at the Turee Syncline mine site.

The mine is predicted to require 2.5 gigalitres (GL/a) of water per year. The water supply is proposed to come from either a pipeline connected to the existing Paraburdoo water supply scheme or the development of a new borefield near the Turee Syncline mine. The two borefield options are the Kalkamunda Borefield which is targeting the Boolgeeda Iron Formation, and the Wittenoom Borefield which is targeting fractured rocks of the Wittenoom Formation. Both of the proposed borefields are south of the mining area (Figure 2).

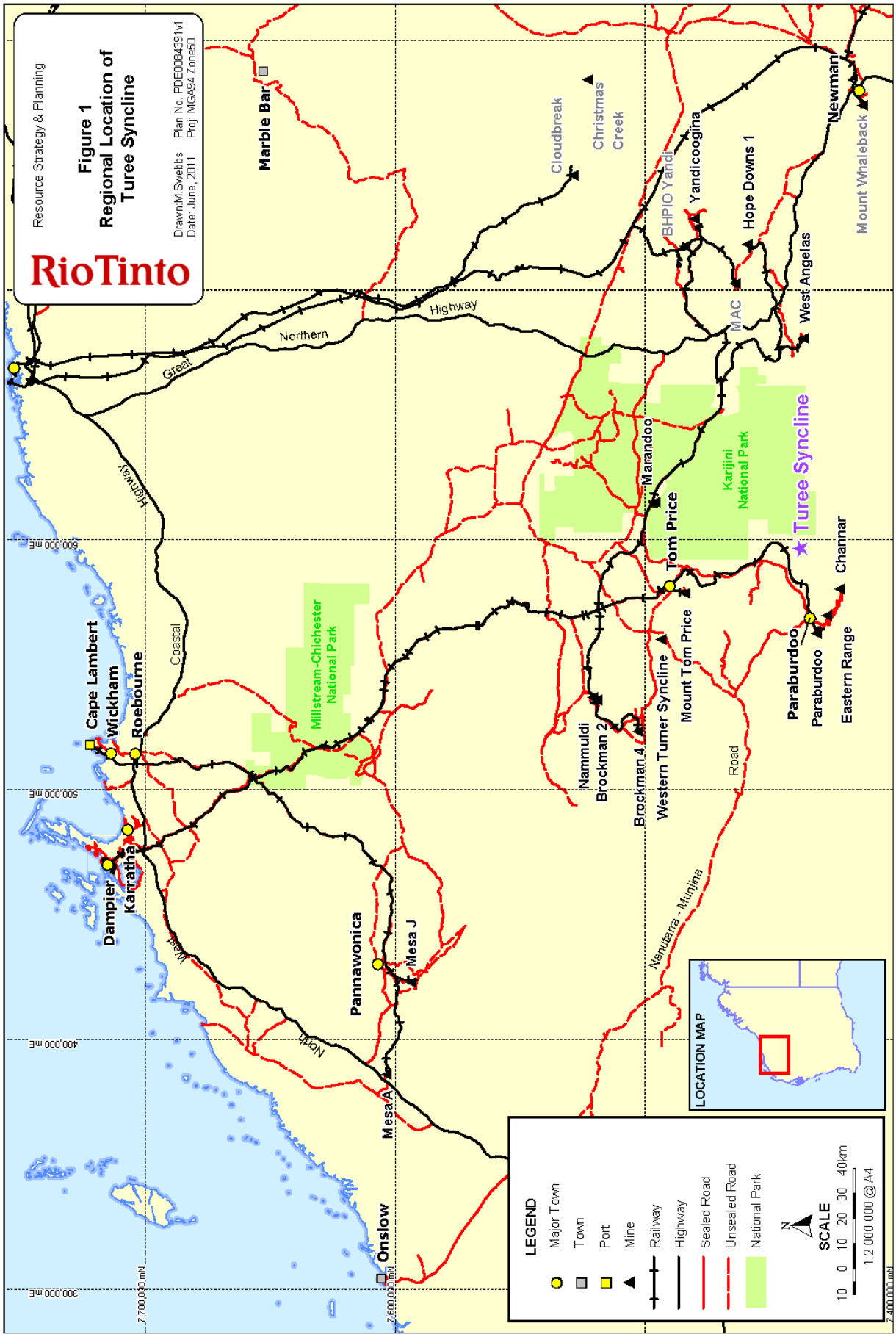

Figure 1: Regional location

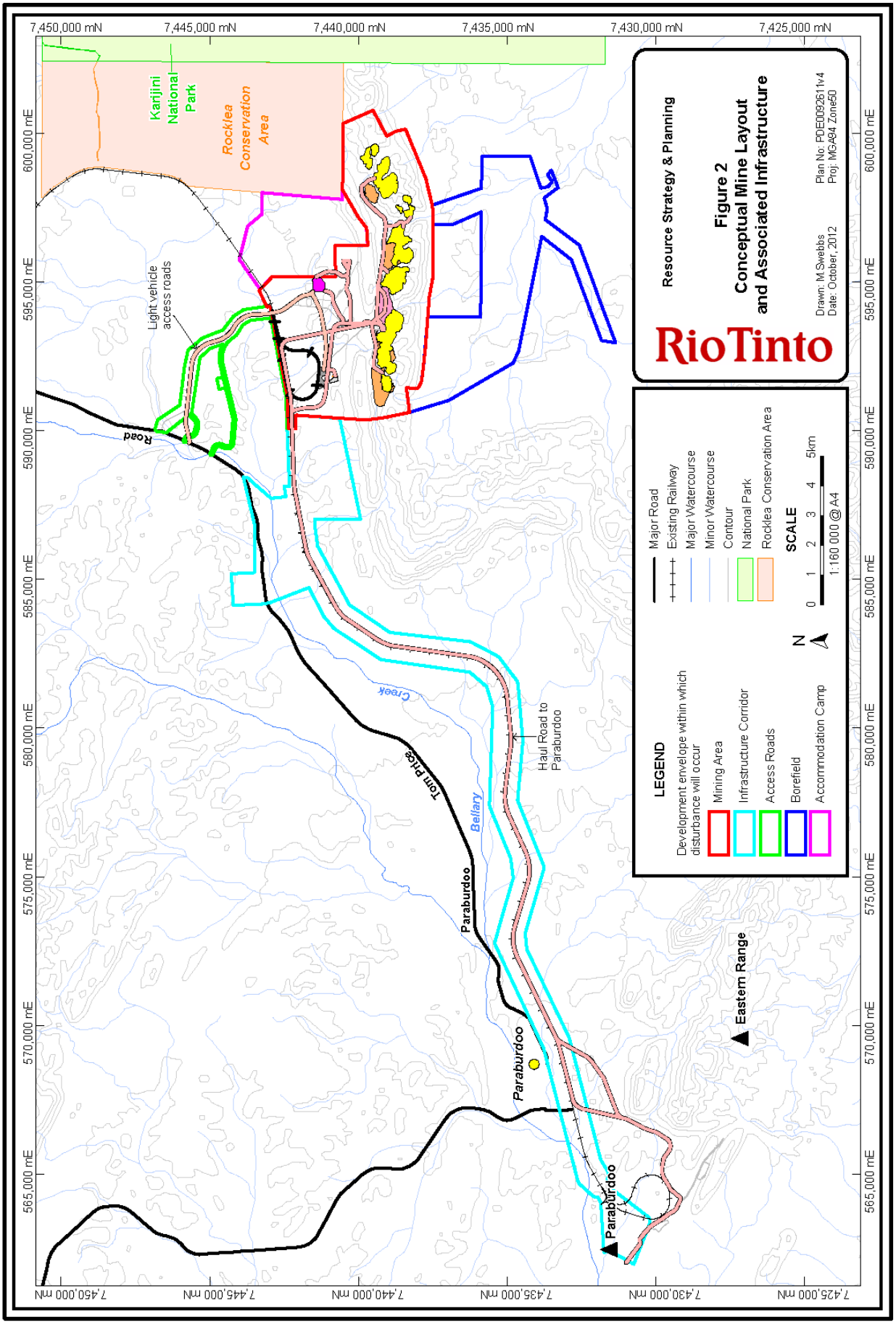

Fig 2 Turee Syncline proposal boundary and development envelopes

The main characteristics of the proposal are summarised in Table 1 below. A detailed description of the proposal is provided in Part 3 of the Public Environmental Review (PER) document (Eco Logical, 2012).

Table 1: Summary of key proposal characteristics

Summary of the Proposal		
Proposal Title	Turee Syncline Iron Ore Project	
Proponent Name	Hamersley Iron Pty Limited	
Short Description	The proposal will involve the construction and operation of a greenfield mine site and associated infrastructure (roads, administration buildings, accommodation camp and potential borefield) approximately 30 km north-east of Paraburdoo.	
Physical Elements		
Element	**Location**	**Proposed Extent**
Mining Area	Figure 2	Clearing of no more than 725 ha within the Mining development envelope of 3,698 ha. Excavation for all pits to be above the water table.
Infrastructure Corridor and Access Roads	Figure 2	Clearing of no more than 275 ha within the Infrastructure Corridor and Access Roads development envelope of 4,530 ha.
Accommodation Area	Figure 2	Clearing of no more than 25 ha with the Accommodation development envelope of 935 ha.
Operational Elements		
Element	**Location**	**Proposed Extent**
Borefield	Figure 2	Clearing of no more than 25 ha within the Borefield development envelope of 2,165 ha. Abstraction of groundwater at a rate of no more than 2.5 GL/a for operational purposes.

The potential impacts of the proposal initially predicted by the proponent in the PER document (Eco Logical, 2012) and their proposed management are summarised in Table ES2 (Executive Summary) of the proponent's document.

3. Key environmental factors and principles

Section 44 of the EP Act requires the EPA to report to the Minister for Environment on the key environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the key factors selected for detailed evaluation in this report is summarised in Appendix 3. The reader is referred to Appendix 3 for the evaluation of factors not discussed below. A number of these factors, such as noise, dust and aboriginal heritage, are relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

It is the EPA's opinion that the following key environmental factors for the proposal require detailed evaluation in this report:

(a) Vegetation and flora;

(b) Terrestrial fauna;

(c) Subterranean fauna;

(d) Rehabilitation and closure – integrating factor; and

(e) Offsets – integrating factor.

The above key factors were identified from the EPA's consideration and review of all of the preliminary key environmental factors generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

Details on the key environmental and integrating factors and their assessment are contained in sections 3.1 - 3.5. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal, taking into consideration how Hamersley Iron Pty Ltd proposes to manage environmental impacts. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

The following principles were considered by the EPA in relation to the proposal:

(a) the precautionary principle;

(b) the principle of intergenerational equity;

(c) the principle of the conservation of biological diversity and ecological integrity;

(d) principles related to improved valuation, pricing and incentive mechanisms; and

(e) the principle of waste minimisation.

3.1 Vegetation and flora

Description

The Turee Syncline project will have a direct impact on vegetation and flora through the clearing of up to 1,050 ha of native vegetation for the development of the proposal. Indirect impacts may occur through alteration of surface water flow patterns, introduction of weeds, dust deposition and altered fire regimes.

The proposal is within the Pilbara biogeographic region and Hamersley sub-region according to the Interim Biogeographic Regionalisation for Australia classification system. The Hamersley sub-region is characterised as having mountainous area of Proterozoic sedimentary ranges and plateaux with Mulga low woodland over bunch grasses on fine textured soils and Snappy Gum over *Triodia brizoides* on skeletal sandy soils of the ranges (Environment Australia, 2000).

The proponent commissioned studies between 2003 and 2011 to identify the vegetation and flora present in the proposal area. The proponent has undertaken flora and vegetation surveys in accordance with the EPA's *Guidance Statement 51 – Terrestrial Flora and Vegetation Surveys for Environmental Impact in Western Australia* (EPA, 2004).

Vegetation

Surveys to date have identified 11 vegetation communities within the proposal area. The dominant vegetation type is large swathes of hummock grasslands, characterised by *Triodia epactia*, *T. longiceps*, or *T. wiseana*. Other vegetation communities found include drainage lines dominated by eucalyptus and acacia species and areas where Mulga woodlands occur.

The surveys have not identified any Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) within the proposal area. The vegetation communities that have been identified are considered to be well represented in the Pilbara (Mattiske, 2011). Vegetation condition ranges from 'disturbed' to 'excellent', with most in 'good to excellent' condition. The vegetation that is considered to be 'disturbed to good' is found in creeklines or low lying flats, particularly in areas close to existing railway lines and tracks.

Flora

The surveys recorded 563 taxa (including sub-species and varieties). Of the 563 taxa, 25 are considered weed species, with the regionally significant species *Acetosa vesicaria* (Ruby Dock) amongst the 25.

No Declared Rare Flora (DRF) under the *Wildlife Conservation Act 1950* or threatened flora under the EPBC Act were recorded in the proposal area.

Other conservation significant flora identified during surveys were eight species of priority flora:

- *Aristida lazaridis* (P2);
- *Oxalis* sp. Pilbara (P2);
- *Goodenia* sp. East Pilbara (P3);
- *Gunniopsis propinqua* (P3);
- *Sida* sp. Barlee Range (P3);
- *Eremophila coacta* (P3);
- *Nicotiana umbratica* (P3); and
- *Ptilotus mollis* (P4).

Individuals of *Gunniopsis propinqua*, *Sida* sp. Barlee Range, *Eremophila coacta* and *Ptilotus mollis* were recorded within the proposed mine pits and will be directly impacted. Individuals of *Oxalis* sp. Pilbara, *Goodenia* sp. East Pilbara and *Nicotiana umbratica* are located within the mining area, but not directly within the proposed pits, so may be impacted depending on final infrastructure locations.

All eight priority species have been recorded at other locations throughout the Pilbara, with *Gunniopsis propinqua* also recorded in the Gascoyne and Murchison regions. Further information on the regional distribution of these species is presented in Table 12 of the PER document (Eco Logical, 2012).

Submissions

Submissions raised the need for the proponent to:

- minimise impacts from the proposal on priority flora species, particularly *Aristida lazaridis*, *Gunniopsis propinqua* and *Sida* sp. Barlee Range.
- manage weeds to avoid impacts on surrounding conservation areas.

Assessment

The EPA's environmental objective for flora and vegetation is to maintain representation, diversity, viability and ecological function at the species, population and community level.

The EPA notes that the vegetation units potentially impacted by the clearing of up to 1,050 ha of vegetation for the proposal are considered to be well represented throughout the Pilbara region and that most of the vegetation to be disturbed is considered to be in 'good to excellent' condition. There is unlikely to be an impact on any TEC or PEC or threatened flora under either the EP Act or EPBC Act, although there is likely to be an impact on eight priority flora species. The EPA notes that the proponent has committed to avoiding direct impacts on priority flora species where possible during the final project design (Eco Logical, 2012) and that all eight priority species have been recorded at other locations throughout the Pilbara.

The proponent has prepared a Flora and Vegetation Management Plan as part of its Operational Environmental Management Plan for the Turee Syncline proposal. Key management measures proposed by Hamersley Iron to minimise the direct impacts and manage and avoid any indirect impacts on vegetation and flora are:

- Restricting clearing to the extent allowed within the Proposal area;
- Priority flora location spatial data will be overlain onto mine planning layers during the mine planning process to allow for the designation of priority flora avoidance areas;
- Reducing clearing footprint by clearly planning and marking clearing areas, and obtaining internal ground disturbance authorisation for all areas to be cleared in accordance with Rio Tinto's Approvals Request System;
- Flagging in the field and recording GPS coordinates of observed Priority Flora species in earthmoving equipment to assist with the prevention of disturbance;
- Implementing weed hygiene measures for mobilisation and demobilisation of mining equipment entering and leaving the proposal area as required in accordance with hygiene procedures and personnel to use designated tracks and roads only;
- Internally reporting, recording, mapping and monitoring the distribution and abundance of target weed species (particularly Ruby Dock) and reporting new weed infestations as they are discovered;
- Undertaking weed control in disturbed areas as part of the annual weed control program and as required;
- Managing Declared Plants in accordance with the Department of Agriculture and Food Declared Plant Control Codes;
- Undertaking progressive rehabilitation of disturbed areas with native species; and
- Implementing fire management measures.

The EPA recommends that the location and authorised extent of clearing be limited to 1050 ha within the development envelope as described and spatially defined in schedules 1 and 2 of the recommended statement. The EPA has also recommended condition 6 to ensure the Operational Environmental Management Plan (OEMP) is implemented, to protect priority flora. .

The EPA acknowledges that the proponent has minimised potential impacts to vegetation and flora through the proposal design and has recommended condition 6 to ensure that impacts are managed over time. However, it is the EPA's opinion that a significant residual impact relating to the clearing of up to 985 ha of 'good to excellent' condition native vegetation remains when considering this proposal in the context of cumulative impacts from other proposals (including approved proposals) in the Pilbara (see Section 3.5 Offsets).

Summary

Having particular regard to the:

(a) widespread nature of the impacted vegetation types across the Pilbara;

(b) absence of any TEC, PEC or threatened flora species;

(c) presence of priority flora outside the proposal impact area; and

(d) the recommended condition 6 to ensure the clearing of priority flora species only occurs where it is deemed necessary and the implementation of the Operational Environmental Management Plan; and

(e) the recommended condition 11 to counterbalance the significant residual impacts associated with clearing 985 ha of 'good to excellent' condition native vegetation in the context of the cumulative impacts in the Pilbara region,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.2 Terrestrial fauna

Description

The Turee Syncline proposal will have an impact on terrestrial fauna through the loss of 1,050 ha of habitat. Direct impacts are also likely through vehicle strikes of fauna species. Indirect impacts are possible due to altered fire regimes, introduction of feral species and noise, dust and light emissions. Trenching may be required for the water supply pipeline, which could result in fauna becoming trapped in open trenches.

Fauna surveys where carried out across the proposal area between 2008 and 2012. This included echolocation surveys for bats and a targeted Northern Quoll survey. Surveys were carried out in accordance with EPA Guidance Statement 56 *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* and EPA Guidance Statement 20 *Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia*.

The surveys recorded 154 fauna species, comprising 18 mammals, 79 birds, 51 reptiles and six introduced species. Conservation significant fauna species recorded during the surveys or considered likely to be within the proposal area are listed in Table 14 of the PER (Eco Logical, 2012). Those recorded during the surveys include the following species protected under the Commonwealth EPBC Act:

- Northern Quoll (*Dasyurus hallucatus*);
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*); and
- Pilbara Olive Python (*Liasis olivaceus barroni*).

There are five main terrestrial fauna habitat types within the proposal area; mulga woodland; ridges and scree slopes; drainage lines; breakaways, cliff faces, gullies and gorges and spinifex grasslands. These habitat types are considered to be widespread across the Pilbara region (Ninox, 2011a).

Bennelongia (2012) presents the results of Short Range Endemic (SRE) species surveys across the project. Bennelongia collected 51 invertebrate species of which 12 were considered potential SRE species. Bennelongia concluded that, of these 12 species, none were definitely an SRE species or highly likely to be an SRE species. Habitat mapping showed that for those SRE species collected from within the impact area only, the habitat types extended beyond the impact area.

Matters of National Environmental Significance

Surveys, including a targeted Northern Quoll survey in 2011, did not record any individuals of Northern Quolls, however three scats were found from two locations within the proposal area. This is thought to indicate that there is a Northern Quoll population of low density with widely scattered individuals in the area. A search of the DEC's NatureMap database shows that Northern Quolls have not been recorded in the vicinity of Paraburdoo, Tom Price or the western portion of Karijini National Park between 1980 and 2011. It is acknowledged that this may be a function of low intensity of surveying in the area rather than an absence of the species (Ninox, 2011b).

Habitat mapping by Rio Tinto shows that the habitat in which the scats have been recorded extends into Karijini National Park and the proposed Rocklea conservation area.

The Pilbara Leaf-nosed Bat was recorded during several of the fauna surveys of the proposal area conducted in 2008 and 2009, including the targeted bat survey. The presence of the Pilbara Leaf-nosed Bat recorded during surveys indicates a population of this species does occur in the Proposal area. It is likely that the individuals of this species recorded at the site are part of a Greater Paraburdoo population (rather than a discrete population) as the presence of the Pilbara Leaf-nosed Bat has been extensively recorded in the Greater Paraburdoo area (Specialised Zoological, 2009).

The absence of suitable cave habitat suggests it is unlikely the Pilbara Leaf-nosed Bat utilises the proposal area for roosting. Surveys found that bat activity levels were greatest where pools of water had collected in depressions following significant rainfall events within the typical gorge/gully foraging habitat of the mining area. As the proposal area lacks such habitat, the proponent considers it unlikely that the proposal area represents significant foraging habitat for the species (Eco Logical, 2012).

The Pilbara Olive Python was recorded 3 km from the northern edge of the proposal area. The proponent considers it is likely that the Pilbara Olive Python may occur within the proposal area but it is unlikely that an important population is present, as the species prefers habitat consisting of deep gorges

and water holes in the ranges of the Pilbara region, in particular during drier periods, and these habitats are not well represented within the proposal area. This species is expected to be found in the proposal area in low numbers due to its proximity to suitable habitats in the nearby Karijini National Park (Eco Logical, 2012).

Submissions

Submissions raised the following matters:

- Ensure that if any trenching takes place, it is done in consultation with the DEC to ensure that best management practices are followed.
- Errors in the taxonomic classification of potential Short Range Endemic species found during surveys need to be corrected.

Assessment

The EPA's environmental objective for terrestrial fauna is to maintain representation, diversity, viability and ecological function at the species, population and assemblage level.

The EPA notes that there will be an impact to terrestrial fauna from the proposal, through the clearing of 1,050 ha of fauna habitat, including habitat that supports conservation significant fauna species listed under both State and Commonwealth legislation. The EPA also notes that five main habitat types will be disturbed and that these habitat types are considered to be widespread across the Pilbara. The proposal is adjacent to the proposed Rocklea conservation area which abuts Karijini National Park.

The proponent has prepared a Fauna Management Plan as part of the Operational Environmental Management Plan for the project. The proponent has also developed a Significant Species Management Plan (SSMP) for the management of species considered a Matter of National Environmental Significance under the EPBC Act. The SSMP is intended to apply across Rio Tinto's projects in the Pilbara, but includes site specific addendums for each project. Key management measures for fauna from these two management plans are:

- Firearms and pets will be prohibited on the mine site.
- Ensure no barbed wire is used on the site.
- Both mining equipment and light vehicles will be restricted to designated roads and drivers will abide by the allocated speed limit (except in cases of emergency) to minimise fauna fatality or injury by moving vehicles.
- The requirements of the Fauna Management Plan and the SSMP will be communicated to all personnel via compulsory site inductions.
- Native animals encountered on-site will be given the opportunity to move on if there is no threat to personnel safety in doing so. If sick or injured animals are encountered, a nominated carer will assess possible rescue and rehabilitation of the animal.

- Ensure any sightings or potential records of MNES encountered by the workforce during clearing operations are reported to site Environmental Advisors.
- Protect and preserve any pools of water or caves known to accommodate Pilbara Leaf-nosed Bats that are outside the mine footprint.
- Feral animal control measures will be implemented, including prohibiting the feeding of feral animals, trapping and eradication programs and effective management of domestic waste.
- Personnel inductions will include relevant information on conservation significant fauna and their importance and significant fauna habitat locations, potential for mine activities to affect fauna and fauna habitat, fauna encounter procedures and feral animal controls.

The EPA considers that the proponent should implement the management measures for terrestrial fauna detailed in the Turee Syncline OEMP to minimise the impacts on fauna species. The EPA has recommended condition 7 to ensure that any trenching required for the proposal is undertaken according to the prevailing best management practices.

The EPA acknowledges that the presence of Northern Quoll in the proposal area is likely to be limited to a population of low density. The EPA also notes that suitable Northern Quoll habitat is found in the nearby Karijini National Park.

As Northern Quoll scats were found within the proposal area, the EPA acknowledges that the species is present in low numbers in the area. The EPA acknowledges that while the Pilbara Leaf-nosed Bat was found in the proposal area, it is likely to be present in small numbers due to the lack of suitable foraging and roosting habitat. The EPA also acknowledges it is likely that the Pilbara Olive Python may occur within the proposal area due to the proximity to Karijini National Park, although at very low numbers. Therefore, the EPA concludes that these species are likely to be impacted by the Turee Syncline proposal.

Therefore the EPA considers that Rio Tinto should implement their Significant Species Management Plan (SSMP) for the Turee Syncline proposal to minimise the impacts to conservation significant fauna. The EPA has recommended condition 8 to ensure that the SSMP is implemented for the Turee Syncline proposal. Further information on the EPA's assessment of Matters of National Environmental Significance is provided in Section 4.

Summary

Having particular regard to the:

(a) presence of conservation significant fauna in the proposal area;

(a) extension of fauna habitat outside the proposal area, including Karijini National Park; and

(b) management measures detailed in the OEMP and SSMP,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for fauna provided that the following conditions are imposed:

- Condition 7 to ensure acceptable management practices are implemented to minimise impacts to fauna, if the water supply pipeline is developed and trenching is required.
- Condition 8 requiring the proponent to implement the Significant Species management Plan for the proposal.

3.3 Subterranean fauna

Description

Troglofauna

The main impact to troglofauna will be the excavation of the mine pits. The troglofauna sampling program focused on the area to be excavated for mine pits within the mining development envelope. Additional drill hole locations were sampled outside the area of the proposed mine pits (some within the proposal area and some outside), to show the wider distribution of troglofauna species.

The proponent collected 14 troglofauna species from within the proposal area, across nine taxonomic orders, which is considered to be a 'low' to 'moderate' number of species for troglofauna communities in the Pilbara (Section 5.3.3 of the PER, Bennelongia, 2012).

One of the troglofauna species has been formally described, *Tyrannochthonius aridus*, and it, along with four other of the species collected, are known to occur widely across the Pilbara. Samples of 11 of the 14 species have been collected outside the disturbance area of the mine pits. The species collected only within the mine pit disturbance areas were; the pseudoscorpion *Lagynochthonius* sp. B13, the dipluran Parajapygidae sp. B23, and the hemipteran Meenoplidae sp.

Habitat for troglofauna species is considered to be widespread and contiguous outside the proposal area. This is evident as there are no obvious geological or other habitat barriers, such as dykes and major faults, between the mining area and adjacent reference areas. Troglofauna collected from lithologies surrounding the Brockman Iron Formation that is to be mined (in particular from the Marra Mamba Formation) also suggests that the area of potential troglofauna habitat in the proposal area is larger than the extent of the Brockman Iron Formation.

Stygofauna

The proponent undertook a desktop risk assessment to determine the likelihood of stygofauna occurring within the proposal area. The proponent concluded that there is a moderate likelihood of stygofauna being found in the groundwater resources that are the target of this proposal.

Impacts to stygofauna will mainly be from drawdown of the Wittenoom or Kalkamunda borefields should either of these water sources be pursued. Stygofauna in the Kalkamunda Borefield is likely to resemble assemblages from the nearby Turee Creek alluvial sequences and include copepods, amphipods, oligochaetes and platyhelminthes flatworms.

Submissions

Submissions raised the following matters:

- The proponent should demonstrate that if one or both of the proposed borefields are developed as a component of this proposal, the abstraction of groundwater will not unacceptably impact on the conservation of potentially restricted stygofauna species only known from the Turee Syncline Project area.
- The Turee Syncline Project will potentially impact on restricted stygofauna species only known from the Turee Syncline area. The proponent should demonstrates to the EPA how potential impacts are to be managed.

Assessment

The EPA's environmental objective for subterranean fauna is to maintain representation, diversity, viability and ecological function at the species, population and assemblage level.

The EPA notes that the main impact to troglofauna will be from the excavation of mine pits. The EPA considers that the proposal will not have a significant impact on troglofauna as most of the troglofauna species are represented outside of the proposal area. The three troglofauna species recorded only within the proposed mine pits are likely to extend beyond the mine pit areas due to the widespread and contiguous habitat.

The EPA notes that the highest potential for impacts to subterranean fauna is the drawdown of aquifers associated if a water supply borefield is developed. The EPA also notes that there is a moderate likelihood of stygofauna occurring in the target aquifers.

If the proponent chooses to pursue either of the groundwater sources, they have committed to undertake additional investigations to ensure the water sources can be developed without significant impacts to subterranean fauna. They have also committed to using the existing approved Greater Paraburdoo

Scheme to supply water for the Turee Syncline proposal if either of the two target water sources can't be developed without significant impacts to stygofauna,.

The EPA acknowledges the proponent's commitment to avoid significant impacts to stygofauna, However, to ensure impacts are not significant, the EPA has recommended condition 9 prior to the abstraction of groundwater.

Summary

Having particular regard to:

(a) the extension of troglofauna habitat outside the mine pit area;

(b) the moderate likelihood of stygofauna occurring in the proposed borefields; and

(c) the proponent's commitments to avoid significant impacts to stygofauna if they develop a borefield;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for subterranean fauna provided a condition is imposed to ensure that the borefield is located to avoid significant impacts on stygofauna.

3.4 Rehabilitation and closure – integrating factor

Description

As the Turee Syncline project involves the clearing of vegetation and alteration of landforms it will require effective mine closure and rehabilitation. Potential impacts from mine closure include inadequate rehabilitation, water quality impacts from mine voids and poorly designed waste rock dumps, and other landforms being unsafe and unstable.

Long-term mine closure issues identified by the proponent are:

- final landform design for the post-mining land use;
- rehabilitation and biodiversity;
- surface water management; and
- Aboriginal heritage.

The Turee Syncline Project is proposed to occur on tenements granted under both the *Mining Act 1978* and under State Agreement Acts (*Iron Ore (Mount Bruce) Agreement Act 1972* and I*ron Ore (Hamersley Range) Agreement Act 1963*). A DMP approved mine closure plan is required for those parts of the proposal occurring on Mining Act tenements. As stated in the DMP/EPA *Guidelines for Preparing Mine Closure Plans* (DMP/EPA, 2011), mine closure will be managed through Part IV of the EP Act on tenements subject to a State Agreement Act.

The closure objectives for the Turee Syncline proposal are detailed in Section 17.2.1 of the PER document (Eco Logical, 2012) and include ensuring the environmental and social values of Karijini National Park are not adversely affected by closure of the proposal.

The proponent has proposed to not completely or partially backfill all voids as the mine is above water table and they have assessed the risk of acid and metalliferous drainage (AMD) as being low based on the results of waste characterisation testing. As a result, mine voids would remain post mine closure. However some backfilling is proposed to minimise total disturbance, with several pits proposed to have waste rock dumps constructed over them once they are mined.

As the pits are above the water table, the mine voids are not expected to become permanent pit lakes, although they will contain water for short periods following heavy rainfall events.

Although the proponent has identified the risk of AMD as being low, the Turee Syncline proposal is expected to encounter some Mount McRae Shale. Mount McRae Shale is known to cause AMD issues throughout the Pilbara. Drill testing has shown that most of the Mount McRae Shale that will be encountered has previously been oxidised. It is estimated that 514 kilotonnes of Mount McRae Shale will be encountered when mining Pit 3, of which the oxidation state is unknown. This represents 1.5% of the total waste from Pit 3. The proponent contends that there is sufficient volume of non-acid forming waste material to encapsulate the Mount McRae Shale to prevent AMD (Eco Logical, 2012).

Submissions

Submissions raised the following matters:

- Adequacy of closure planning to ensure no long term impacts, particularly on nearby conservation areas.
- Ensure that mine closure planning reflects the results of waste characterisation, surface water studies and is consistent with industry best practice.

Assessment

The EPA's environmental objective for rehabilitation and closure is to ensure that premises can be closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed outcomes and land uses, and without unacceptable liability to the State.

The proponent has developed a draft mine closure plan in accordance with the DMP/EPA *Guidelines for Preparing Mine Closure Plans*. The draft plan is included as an Appendix to the PER document. The proponent has made commitments in its Response to Submissions (Appendix 5) to update the mine

closure plan, during its next review, to address comments made by decision-making authorities.

The EPA notes that mining will be carried out above the watertable and it is unlikely that permanent lakes will be formed in the mine void. Whilst there will be no permanent waterbodies formed there will be temporary waterbodies following rainfall events that may attract fauna species. The EPA considers that the mine closure plan will need to address this issue and include appropriate management measures to limit these impacts, particularly regarding fauna egress and any potential changes in water quality.

The EPA notes the results of waste characterisation that predicts that the risk of acid and metalliferous drainage is low. However there will be some waste materials, particularly Mount McRae Shales that will need to be carefully managed to ensure they don't create significant mine closure issues, such as causing water quality problems in the temporary surface waterbodies discussed above. The EPA also notes that sufficient non-acid forming waste material is available to encapsulate the shales. In the Response to Submissions, the proponent commits to monitoring the waste dumps for contamination and undertaking audits internally and by external parties to ensure the site complies with requirements for Potential Acid Forming (PAF) materials.

Consistent with the mine closure plan guidelines, the EPA considers that the DMP should be involved in mine closure for the whole project and not just those parts on Mining Act tenements. This will mean that one mine closure plan will apply to the whole project.

The EPA has recommended condition 10 to ensure that a mine closure plan for the whole project is developed in accordance with the *Guidelines for Preparing Mine Closure Plans* and with ongoing input from the DMP.

Summary

Having particular regard to the:

(a) mine pits being above the watertable;

(b) results of waste characterisation testing indicating that any potential AMD is readily manageable;

(c) project occurring on both Mining Act and State Agreement Act tenements; and

(d) requirements of the DMP/EPA *Guidelines for Preparing Mine Closure Plans*,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for rehabilitation and closure provided a condition is imposed requiring the proposal to develop a mine closure plan in accordance with the *Guidelines for preparing Mine Closure Plans* and in consultation with DMP.

3.5 Offsets – integrating factor

Description

Following the implementation of all mitigation measures, the proposal would have the following significant residual impacts:

- clearing and direct disturbance of up to 985 ha of native vegetation in 'good to excellent' condition, including impacts to priority flora and loss of habitat for conservation significant fauna species.

Assessment

The EPA's environmental objective for offsets is to counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.

The loss of individuals of priority flora species and the clearing of native vegetation in 'good to excellent' condition in the Pilbara IBRA bioregion is considered to be significant when considered in a cumulative context. The clearing of this vegetation also results in the loss of habitat for conservation significant species.

This proposal is in the Hamersley IBRA subregion, which is fairly well represented (12.6%) within the conservation reserve system, however, this is still below the target of 15%.

Consistent with the approach outlined above, the EPA has recommended a condition 10, which addresses the significant residual impacts of the proposal. The condition provides for a contribution to a strategic regional conservation initiative that has been agreed to by the proponent.

3.6 Environmental principles

In preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the EP Act. Appendix 3 contains a summary of the EPA's consideration of the principles.

4. Matters of National Environmental Significance

The Commonwealth Department of Sustainability, Environment, Water, Population and Communities has declared the Turee Syncline proposal a Controlled Action due to the impact on listed threatened species or communities, principally due to the clearing of habitat suitable for Northern Quoll.

This proposal is being assessed by way of an accredited process with the EPA under a bilateral agreement made under section 47 of the EPBC Act.

The bilateral agreement allows the Commonwealth Government Minister for Environment to rely on the PER process of the State Government of WA in assessing this action under the EPBC Act.

The assessment report on the proposed action prepared by the EPA and provided to the WA Minister for Environment is forwarded to the Commonwealth Minister for Environment who will then make a decision as to whether or not the proposal should be approved under the EPBC Act. This is separate from any WA approval that may be required.

Surveys and investigations undertaken for the PER assessment identified several species protected under the EPBC Act as being present, or having the potential to be present, within the proposal area.

Species identified as being present within the proposal area are:

- Northern Quoll (*Dasyurus hallucatus*) – Endangered
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – Vulnerable
- Pilbara Olive Python (*Liasis olivaceus barroni*) - Vulnerable

As noted by the EPA in Section 3.2 Terrestrial fauna, the Turee Syncline SSMP addendum addresses management measures relevant to the species of conservation significance occurring, or potentially occurring, within the proposal area including the species listed above.

The EPA has concluded that the Northern Quoll, Pilbara Leaf-nosed Bat and Pilbara Olive Python are likely to be impacted by the Turee Syncline proposal. However, as there is contiguous habitat in the conservation estate surrounding the proposal area, the impacts to these species are not expected to result in unacceptable impacts on or unsustainable reduction of the local populations or impact on the conservation status of these species.

5. Conditions

Section 44 of the EP Act requires the EPA to report to the Minister for Environment on the key environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

5.1 Recommended conditions

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Hamersley Iron to develop the Turee Syncline Iron Ore Project, is approved for implementation.

These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

(a) minimising the clearing of priority flora species;

(a) implementation of the Rio Tinto Significant Species Management Plan for the Turee Syncline proposal;

(b) ensuring that borefields are located so there is no significant impacts to stygofauna;

(c) development and implementation of a mine closure plan in accordance with the DMP/EPA *Guidelines for Preparing Mine Closure Plans*; and

(d) contribution to the strategic regional conservation initiative to mitigate for significant residual impacts on vegetation in good to excellent condition.

5.2 Consultation

In developing these conditions, the EPA consulted with the proponent, the Department of Sustainability, Environment, Water, Population and Communities, the Department of Environment and Conservation, the Department of Water, the Department of Mines and Petroleum and the Department of State Development on matters of fact and matters of technical or implementation significance. Minor changes, which did not change the intent or scope, were made to conditions 4, 9 and 11.

6. Other advice

As noted above, the proponent has made commitments in its Response to Submissions (Appendix 5) to update the mine closure plan to address comments by government agencies. The EPA expects that the next revision of the mine closure plan will incorporate these commitments.

Appendix 1

List of submitters

Organisations:

Department of State Development
Department of Water
Western Australian Museum
Department of Mines and Petroleum
Department of Health
Department of Environment and Conservation

Individuals:

One public submission

Appendix 2

References

Bennelongia (2012) *Turee Syncline Iron Ore Project: Short Range Endemic Invertebrate Survey*, February 2012.

Department of Mines and Petroleum/Environmental Protection Authority (2011) *Guidelines for Preparing Mine Closure Plans*. Department of Mines and Petroleum and Environmental Protection Authority, June 2011.

Eco Logical Australia (2012) *Public Environmental Review, Turee Syncline Iron Ore Project*. Prepared for Hamersley Iron Ore Pty Limited, November 2012.

Environment Australia (2000) *Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1: Summary Report*. Environment Australia, November 2000.

Environmental Protection Authority (2004) *EPA Guidance Statement 56: Guidance for the Assessment of Environmental Factors – Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia.* June 2004.

Environmental Protection Authority (2004) *EPA Guidance Statement 51: Guidance for the Assessment of Environmental Factors – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia.* June 2004.

Environmental Protection Authority (2005) *Position Statement No. 9 Environmental Offsets*. June 2005.

Environmental Protection Authority (2009) *EPA Guidance Statement 20: Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia.* June 2004.

Mattiske Consulting Pty Ltd (2011) *Flora and Vegetation Survey of the Turee Syncline Area*. Prepared for Rio Tinto, October 2011.

Ninox Wildlife Consulting (2011a) *A Level 1 Fauna Reconnaissance Survey of Proposed Infrastructure Areas, Turee Syncline*. Prepared for Rio Tinto, November 2011.

Ninox Wildlife Consulting (2011b) *A Targeted Survey of Northern Quoll (*Dasyurus hallucatus*), Turee Syncline*. Prepared for Rio Tinto, September 2011.

Appendix 3

Summary of identification of key environmental factors and principles

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
BIOPHYSICAL			
Vegetation and flora	The proposal requires clearing of 1,050 ha of native vegetation for mine pits, waste dumps, mine infrastructure, accommodation camp, rail loop and a borefield. Level 1 and Level 2 flora surveys were undertaken between 2003 and 2011. The surveys recorded 563 flora taxa, representing 60 families and 190 genera. Vegetation communities in the proposal area can generally be separated into flowlines, hills and ridges and plains. The vegetation is generally considered to be in good to excellent condition. The surveys did not record any Threatened Flora in the proposal area but did record eight priority flora species which may be disturbed. These are made up of two Priority 2 species, five Priority 3 species and one Priority 4 species. All these species have been recorded outside the proposal area.	**Department of Environment and Conservation** • That the proponent clarifies the impacts of the project on priority listed flora • That the proponent minimises impacts from the Turee Syncline Project on priority listed flora, in particular *Aristida lazaridis* (Priority 2), *Gunniopsis propinqua* (Priority 3) and *Sida* sp. Barlee Range (Priority 3) where practicable	The clearing of 1,050 ha of native vegetation of which 985 ha is in Good to Excellent condition is proposed. The clearing will also impact on priority flora species. **Vegetation and flora is considered to be a Key Environmental Factor. See Section 3.1.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Terrestrial Fauna	The proposal would involve the clearing of 1,050 ha of fauna habitat which has the potential to impact on fauna species. Fauna mortality is also expected to occur from collisions as a result of vehicle movement. Potential indirect impacts on fauna are from noise and light spill, increased feral animal populations and altered fire regimes. Level 1 and Level 2 fauna surveys, targeted bat surveys, targeted Northern Quoll surveys and short range endemic species surveys have been undertaken for the project. The surveys recorded 154 species, comprising 18 mammals, 79 birds, 51 reptiles and six introduced species. Conservation significant species identified as occurring or likely to occur in the project area are the Pilbara Leaf-nosed Bat, Northern Quoll and Pilbara Olive Python. The Department of Sustainability, Environment, Water, Populations and Communities declared the Turee Syncline Project a controlled action	**Department of Environment and Conservation** • That the proponent commits to further consultation with DEC regarding fauna management and trenching, in the event that the water supply pipeline requires burying. **Western Australian Museum** • Land snail and isopod specimens collected during SRE surveys have not been lodged with the WA Museum as required by EPA guidance statements. **Public submission** • This submission included a number of comments in regards to the taxonomic classification of SRE species identified during surveys.	The main impact on conservation significant fauna species is the loss of habitat through clearing of 1,050 ha of vegetation, particularly Northern Quoll habitat. **Terrestrial fauna is considered to be a Key Environmental Factor. See Section 3.2.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	due to the potential impacts on Northern Quoll. In terms of Short Range Endemic (SRE) species, 12 of the invertebrate species recorded during surveys are considered possible SRE species. The proponent undertook a habitat based assessment on the likely distribution of the SRE species. The proponent contends that the SRE species were found in habitat that is well connected to surrounding areas and therefore the distribution of these species is unlikely to be confined to the proposal area.	• The habitat based approach to assessing impacts needs to be differentiated based on the taxa being assessed.	
Subterranean Fauna	14 troglofauna species were collected from within the proposal area, across nine taxonomic orders. Habitat for troglofauna species is considered to be widespread and contiguous outside the proposal area. This is considered to be a low to moderate species richness. One of the troglofauna species has been formally described, *Tyrannochthonius aridus*, and it, along with four other of the species collected, are known to occur widely across the Pilbara. Samples of 11 of the 14 species have been collected outside the disturbance area of the mine pits.	**Department of Environment and Conservation** • That if one or both of the proposed borefields are developed as a component of this proposal the proponent clearly demonstrates that the abstraction of groundwater will not unacceptably impact on the conservation of potentially restricted stygofauna species only known from the Turee	In accordance with the *Draft Environmental Assessment Guidelines for Consideration of Subterranean fauna in Environmental Impact Assessment in Western Australia*, the use of surrogates has demonstrated the continuity of troglofauna habitat outside the proposed disturbance area. As Rio Tinto has only

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	The main impact to troglofauna will be excavation of the mine pits. A desktop risk assessment was undertaken to determine likelihood of stygofauna occurring within the proposal area. It was concluded that there is a moderate likelihood of stygofauna being found in the groundwater resources that are the target of this proposal. Impacts to stygofauna with principally be from drawdown of the Wittenoom or Kalkamunda borefields should either of these water sources be pursued. Stygofauna in the Kalkamunda Borefield is likely to resemble assemblages from the nearby Turee Creek alluvial sequences and include copepods, amphipods, oligochaetes and platyhelminthes flatworms. If Rio Tinto chooses to pursue one of these water sources, additional investigations will be undertaken to ensure they can be developed without significant impacts to subterranean	Syncline Project area. • That if it is determined that the Turee Syncline Project will potentially impact on restricted stygofauna species only known from the Turee Syncline area, the proponent demonstrates to the EPA how potential impacts are to be managed.	conducted a desktop assessment of stygofauna, it is not possible to assess whether potential impacts to stygofauna are significant. **Subterranean fauna is considered to be a Key Environmental Factor. See Section 3.3.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	fauna.		
Surface water	The principal impact to surface water from the project will be alteration to minor ephemeral drainage lines that run through the project area. The major drainage in the proposal area is Bellary Creek however there is no requirement to disturb the creek for this proposal. Impacts to regional surface water surface flow regimes are not expected to be significant as the area of catchment being disturbed is minor compared to the total catchment size. There is potential for contamination of surface water resources from surface disturbance and chemical use associated with the proposal. Management measures to reduce the likelihood of impacts are detailed in the Rio Tinto Turee Syncline Surface Water Management Plan 2012.	**Department of Mines and Petroleum** • Further detail needs to be provided on flood levels or localised drainage patterns around the proposed infrastructure, pits and constructed landforms. • DMP has concerns about surface water management around pits 4 and 5. A significant drainage line appears to exist between these pits which may impact on the pits themselves or be obstructed by other infrastructure. Specific management of surface water in this area should be discussed with strategies for avoiding ponding or bottlenecking of surface water and discharging of	There is no surface water discharge from dewatering, as the mine will be above water table. Disturbance is restricted to minor drainage lines. The proponent will implement appropriate management measures outlined in the Surface Water Management Plan to prevent surface water contamination. Therefore, the potential impacts to the hydrological regimes and quality of surface water are not considered to be significant. **Surface water is not considered to be a Key Environmental Factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
		surface water into the pits.	
Groundwater	Hydrogeological investigations by the proponent indicate that mine pits for Turee Syncline will all be above the water table so dewatering is not required for the proposal, except for relatively small quantities of water that accumulate in the pits following rainfall events. As minimal water is available from dewatering, the proponent needs to develop a water source to meet the projects operational water requirements of 2.5 GL/a. Two water supply options have been considered, either utilising the existing Greater Paraburdoo Scheme or development of a local borefield. The Greater Paraburdoo Scheme currently has the capacity within its existing approvals to meet the water requirements of Turee Syncline Potential local groundwater supply options are: • Fractured rocks of the Wittenoom Formation, between the Brockman and Marra Mamba Iron Formation ridges.	**Department of Water** • The Department of Water (DoW) commented that neither water supply option has been sufficiently assessed. The DoW will assess options for both the Wittenoom Formation and Kalkamunda borefield on presentation of further information. The proponent will need to provide a full impact assessment of each option before a water license could be approved. • Should the mine be redesigned to go below water table the DoW expects a separate referral to the EPA addressing potential impacts.	The DoW can assess the acceptability of the proposed water supply options and regulate abstraction through the *Rights in Water and Irrigation Act 1914.* The pits are above water table, so dewatering is only required when water accumulates in the pits after rainfall events. Therefore, the potential impacts to hydrological regimes of groundwater are not considered to be significant. **Groundwater is not considered to be a Key Environmental Factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	• Fractured Boolgeeda Iron Formation basement connection with alluvial sediments, underlying the Turee Creek catchment (referred to in the PER as the Kalkamunda Borefield). The proponent is continuing hydrogeological investigations to determine if these two options can provide sufficient water to meet project demand. They have committed to only developing these sources if it can be demonstrated that it can be done so sustainably. The company believes that vegetation around the proposed water sources is not groundwater dependent due to the depth to the water table, which is 35 m below ground level for the Wittenoom Formation and 40 m for the Boolgeeda Formation. Impacts to groundwater from mining are expected to be minimal as no dewatering is required. The development of a local borefield (should it occur) is the most likely source of significant impacts to groundwater.	**Department of Environment and Conservation** • That the proponent consider additional options for water supply, such as reuse of dewater from surrounding mines. • That proponent determines background groundwater quality and implements a groundwater monitoring program.	

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Conservation areas	The Turee Syncline project sits adjacent to the southern end of the Karijini National Park and the Rocklea proposed 2015 addition to the conservation reserve. The potential impacts of the project on the conservation areas are increased visitation from employees, spread of weeds, introduction of feral animals, altered fire regimes and visual amenity impacts. The proponent has developed the Turee Syncline Operational Environmental Management Plan to help manage the impacts of the project, including on conservation areas. The project area has been redefined to avoid direct impacts through clearing on the proposed Rocklea Conservation Reserve.	**Department of Environment and Conservation** • The proponent should recognise that the Rocklea conservation area includes the area of Rocklea identified for proposed joint management adjacent to the railway line as well as the 2015 proposed reserve area. • That the proponent manages weeds to avoid impacts on DEC managed land. • That the proponent develops and implements communication and cooperation protocols with DEC in the Turee Syncline Project fire management plan.	The proponent has altered the proposal boundary to avoid direct impacts on the proposed Rocklea conservation reserve and will implement management plans to prevent project impacts on conservation reserves. **Conservation areas is not considered to be a Key Environmental Factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
		• That the proponent ensures that potential impacts on Karijini National Park are avoided through development of a workforce management plan in consultation with DEC.	
Pollution			
Greenhouse gas emissions	Greenhouse gas emissions for the proposal are 389,365 tonnes of CO_2 equivalents (CO_2-e). This equates to 9.1 t CO_2-e per kilo-tonne of product. This is comparable with the rate for other Rio Tinto mines in the Pilbara.	**No submissions received on this factor**	The proponent is committed to minimising emissions to levels as low as reasonably practicable through a wide range of management actions as listed in the PER (Section 18.5). **Greenhouse gas emissions is not considered to be a Key Environmental Factor.**
Dust and atmospheric emissions	Dust will be generated through mechanical disturbances from blasting, vegetation clearing, earthmoving and vehicle movement on unsealed surfaces. Dust may also be generated through	**Department of Health** • The distance of the mining operations to the nearest permanent regional town	Dust would be controlled by implementation of a range of management measures outlined in the PER (Section

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	transport and handling of ore and waste including processing and transport. Cleared areas can also generate dust during dry windy conditions. Potential dust impacts are on human health, smothering of vegetation and increased risk of vehicles striking fauna through poor visibility. Main human health risks are to workers. Impacts to members of the public are not expected as nearest residence (Yinhawangka community) is 15 km away. Background levels of dust in the Pilbara are naturally high due to relatively sparse nature of vegetation, so plants are expected to be tolerant of dust deposition.	and individual residence is significant enough to ensure that dust will not present a health issue. **Department of Environment and Conservation** • That the proponent conduct dust modeling for the proposed operations. • That the accommodation camp is treated as a sensitive receptor and its location determined with consideration of adequate separation distances, prevailing winds and modeling data. Ongoing dust monitoring should be carried out at the accommodation camp.	18.4) that will be included in the Construction Environmental Management Plan and the Cleaner Air Management Plan. **Dust and atmospheric emissions is not considered to be a Key Environmental Factor.**
Noise	Due to the remoteness of the site, impacts will primarily be restricted to the health and safety of the workforce, and to a lesser extent, fauna disturbance in the immediate vicinity.	**No submissions received on this factor**	Accommodation facilities would be located at sufficient distance to achieve appropriate noise

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
			control and/or may require inclusion of noise attenuation within the design to ensure compliance with assigned levels. The proposal will comply with the *Environmental Protection (Noise) Regulations 1997*, administered by DEC. **Noise is not considered to be a Key Environmental Factor.**
Other			
Aboriginal heritage	The proposal sits within the Yinhawangka Part A Native Title claim (WC10/16). The proponent is negotiating a claim wide participation agreement with the Yinhawangka people and has a heritage protocol in place for undertaking heritage surveys. Since 2003, surveys undertaken with the participation of representatives of the	**No submissions received on this factor**	The Department of Indigenous Affairs can regulate the proposal under the *Aboriginal Heritage Act 1972* and the proponent will adhere to the finalised Agreement with the Yinhawangka people. **Aboriginal heritage is not**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	Yinhawangka people have occurred across the proposal area and surrounds. The surveys have identified approximately 110 Aboriginal heritage sites in the proposal area, most of which are artifact scatters. Some of the heritage sites consist of rock shelters which may be of significance. No ethnographic sites have been identified during these surveys. The clearing, mining and development of the proposal are likely to disturb Aboriginal heritage site, principally artifact scatters. The proponent has committed to avoiding disturbance of significant heritage sites where possible. If impact to sites is considered unavoidable, the proponent will consult with the Traditional Owners and the Department of Indigenous Affairs and seek approvals under Section 18 of the *Aboriginal Heritage Act 1972* before sites are disturbed.		**considered to be a Key Environmental Factor.**
Rehabilitation and Mine Closure	As the proposal will involve the loss of vegetation and habitat and disturbance of landforms, soil profiles and drainage features, careful mine closure planning will be required.	**Department of Mines and Petroleum** • The mine closure plan is based on the satellite option utilising existing	Parts of the project are not subject to the mine closure provisions of the *Mining Act 1978* and therefore not able to be regulated by the DMP.

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	Opportunities for in-pit backfilling will be considered during mine scheduling, however complete or partial backfill of most pits is not proposed as mining is above the water table, so mine void pit lakes are not expected to form. Geochemical characterisation testing carried out by the proponent has indicated that potential risk of acid and metalliferous drainage occurring is low. The proposed end of mine land use is to rehabilitate the mine footprint and prevent livestock access from surrounding pastoral stations, and then allow a self-sustaining ecosystem to form. As the project is adjacent to Karijini National Park and the proposed Rocklea Conservation Area, closure and rehabilitation will need to ensure there are no significant adverse impacts on the conservation estate. Parts of the proposal, particularly the mine pits, occur on tenements granted under a State Agreement Act and not the Mining Act. DMP has	infrastructure at Paraburdoo. As there is potential for the project to be operated on a standalone basis, the mine closure plan must include closure strategies for both options. • The PER recognises that poorly designed landforms can lead to failure in meeting closure objectives. The PER needs to provide further justification for chosen landform design, particularly waste dumps having a concave slope. • Closure objectives and criteria appear to be vague and process based. The completion criteria section of the mine closure plan should follow the format laid out in the DMP/EPA *Guidelines for Preparing*	**Rehabilitation and closure is considered to be a Key Environmental Factor. See Section 3.4**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
	no legislative role in managing mine closure on State Agreement Act tenements.	*Mine Closure Plans*. **Department of Environment and Conservation** • That any mine voids be backfilled to a level that will prevent the formation of permanent surface water. Should any permanent water-filled mine voids be created as result of this proposal, management measures should be in place to avoid the voids becoming a management legacy issue for the state.	
Residual impacts (offsets)	The proposal involves the clearing of up to 1,050 ha of vegetation, of which 985 ha is considered to be in 'good to excellent' condition. Due to cumulative impacts of clearing large areas of vegetation in the Pilbara due to the multiple mining projects, the EPA considers that there are significant residual impacts from clearing high quality vegetation that requires offsetting.	**No submissions were received on this factor**	The proposal is clearing a large area of 'good to excellent' quality vegetation. **Offsets is considered to be a Key Environmental Factor. See Section 3.5.**

PRINCIPLES		
Principle	**Relevant Yes/No**	**If yes, Consideration**
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by –* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*		
	YES	In considering this principle, the EPA notes the following: • Investigations of the biological and physical environment should provide background information to assess risks and identify measures to avoid or minimise impacts. • The assessment of these impacts and management is provided in Section 3 of this report. • Conditions have been recommended as considered necessary.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*		
	YES	The proposal would result in the loss of vegetation and alteration of landforms that require rehabilitation. Vegetation and flora are relevant environmental factors discussed in this report and conditions have been recommended to ensure minimal impact. Mine closure and rehabilitation is a relevant environment factor and conditions have been recommended to ensure appropriate closure and rehabilitation measures are undertaken.

3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*		
	YES	The proposal would result in impacts on priority flora species and threatened fauna species. These impacts have the potential to affect biological diversity/integrity. Vegetation and flora and terrestrial fauna are key environmental factors discussed in this report.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(3) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.* *(4) 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 maximize benefits and/or minimize costs to develop their own solution and responses to environmental problems.*		
	YES	The proposal would require decommissioning and rehabilitation. The proponent should bear the cost of any potential pollution, containment, monitoring, management, decommissioning, rehabilitation and closure.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimize the generation of waste and its discharge into the environment.*		
	YES	In considering the proposal, the EPA notes that some waste from the proposal is to be used to partially backfill some pits, however not all pits will be backfilled and waste rock landforms will be created. Other waste products created as a result of implementation of the proposal will be disposed of according to relevant regulations and legislation.

Appendix 4

Identified Decision-making Authorities
and
Recommended Environmental Conditions

Identified Decision-making Authorities

Section 44(2) of the *Environmental Protection Act 1986* (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 for this consultation:

Decision-making authority (DMA)	Approval
1. Minister for Water	Groundwater abstraction licences; *Rights in Water and Irrigation Act 1914.*
2. Minister for State Development	*Iron Ore (Mount Bruce) Agreement Act 1972;* *Iron Ore (Hamersley Range) Agreement Act 1963*
3. Minister for Mines and Petroleum	*Mining Act 1978*
4. Minister for Indigenous Affairs	*Aboriginal Heritage Act 1972* – s18 approval
5. CEO, Department of Mines and Petroleum	Storage and handling of hazardous materials and mines safety *Dangerous Goods Safety Act 2004;* *Mines Safety and Inspection Act 1994*
6. Director General Department of Environment and Conservation	Part V EP Act Works approval and Licence

Note: In this instance, agreement is only required with DMAs 1, 2, 3 and 4 since these DMAs are Ministers.

Statement No. XXX

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)

Turee Syncline Iron Ore Project

Proposal: The proposal is to develop an open-cut iron ore mine and associated infrastructure at the Turee Syncline deposit, located approximately 30 kilometres north-east of Paraburdoo.

The Proposal is further documented in Schedule 1 of this statement

Proponent: Hamersley Iron Pty. Limited
Australian Company Number 004 558 276

Proponent Address: Level 22
152-158 St Georges Terrace
PERTH WA 6000

Assessment Number: 1839

Report of the Environmental Protection Authority Number: 1479

This Statement authorises the implementation of the Proposal described and documented in Columns 1 and 2 of Table 2 of Schedule 1. The implementation of the Proposal is subject to the following implementation conditions and procedures and Schedule 2 details definitions of terms and phrases used in the implementation conditions and procedures.

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Column 3 of Table 2 in Schedule 1, unless amendments to the proposal and the authorised extent of the Proposal has 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 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 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after the expiration of 5 years from the date of this statement, and any commencement, within this 5 year period, must be substantial.

3-2 Any commencement of implementation of the proposal, within 5 years from the date of this statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of 5 years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the CEO.

4-2 The proponent shall submit to the CEO the compliance assessment plan required by condition 4-1 at least six months prior to the first compliance assessment report required by condition 4-6, or prior to implementation, whichever is sooner.

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.

4-3 The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven days of that non-compliance being known.

4-6 The proponent shall submit an annual compliance report to the CEO by 30 April each year addressing compliance in the previous calendar year. The first compliance assessment report shall be submitted by 30 April 2014 addressing 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 Managing Director / General Manager / Chief Executive Officer or a person delegated to sign on the Managing Director's / General Manager's / Chief Executive Officer'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 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, 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.

5-2 If any data referred to in condition 5-1 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 this data publically available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publically available.

6 Priority Flora

6-1 The proponent shall ensure that the clearing of priority flora species for all the components of the proposal only occurs where it is deemed unavoidable.

6-2 Prior to the commencement of ground disturbing activities or as otherwise agreed by the CEO the proponent shall implement the Vegetation and Flora Management Plan in Chapter 3 of the Turee Syncline Iron Ore Project Operational Environmental Management Plan April 2012 provided as Appendix C to the *Turee Syncline Iron Ore Project Public Environmental Review* or its revisions as approved by the CEO and continue implementation until otherwise agreed by the CEO.

7 Trapped fauna in trenches

7-1 If a water supply pipeline is constructed below ground, the proponent shall ensure that open trenches associated with construction of the water supply pipeline are cleared of trapped fauna by fauna-rescue personnel at least twice daily. Details of all fauna recovered shall be recorded, consistent with condition 11-5. The first daily clearing shall be completed prior to any construction or backfilling or no later than three hours after sunrise, whichever event occurs first, and shall be repeated between the hours of 3:00pm and 6:00pm of that same day.

The open trenches shall also be cleared, and fauna details recorded, by fauna-rescue personnel no more than one hour prior to backfilling of trenches.

Note: "fauna-rescue personnel" means employees of the proponent who meet the requirements of condition 7-2 and whose responsibility it is to walk the open trench to recover and record fauna found within the trench.

7-2 The fauna-rescue personnel shall obtain the appropriate licences required for fauna rescue under the *Wildlife Conservation Act 1950* and be trained in the following:

(1) fauna identification, capture and handling (including specially protected fauna and venomous snakes likely to occur in the area);
(2) identification of tracks, scats, burrows and nests of conservation-significant species;
(3) fauna vouchering (of deceased animals);
(4) assessing injured fauna for suitability for release, rehabilitation or euthanasia;
(5) familiarity with the ecology of the species which may be encountered in order to be able to appropriately translocate fauna encountered; and
(6) performing euthanasia.

7-3 Open trench lengths shall not exceed a length capable of being inspected and cleared by the fauna-rescue personnel within the required times as set out in condition 7-1.

7-4 Ramps providing egress points and/or fauna refuges providing suitable shelter from the sun and predators for trapped fauna are to be placed in the trench at intervals not exceeding 50 metres.

7-5 The proponent shall produce a report on fauna management within the open trenches associated with construction of the water supply pipeline at the completion of pipeline construction. The report shall include the following:

(1) details of all fauna inspections;
(2) the number and type of fauna cleared from trenches;
(3) fauna mortalities; and
(4) all actions taken.

The report shall be provided to the CEO and the Department of Environment and Conservation 21 days after the completion of pipeline construction or at a timeframe agreed by the CEO, and shall be made publicly available in a manner approved by the CEO.

8 Conservation Significant Fauna

8-1 The proponent shall ensure that the proposal is constructed within the development envelopes defined in Figure 2 of Schedule 1 and geographic coordinates defined in Schedule 2 to avoid and minimise impacts to conservation significant fauna.

8-2 Prior to the commencement of ground disturbing activities or as otherwise agreed by the CEO the proponent shall implement the Rio Tinto Significant Species Management Plan September 2011 provided as Appendix D to the *Turee Syncline Iron Ore Project Public Environmental Review* or its revisions as approved by the CEO and continue implementation until otherwise agreed by the CEO.

9 Stygofauna

9-1 The proponent shall locate any new borefield to avoid and minimise impacts to stygofauna.

9-2 Prior to abstraction of groundwater from any new borefield developed for the proposal the proponent shall undertake a Borefield and Stygofauna Survey and submit results to the CEO to demonstrate that condition 9-1 is being met.

9-3 The Borefield and Stygofauna Survey required by condition 9-2 shall:

(1) identify and map the predicted drawdown zone as a result of groundwater abstraction from implementation of the borefield;

(2) survey for stygofauna in accordance with the EPA Draft Guidance Statement No. 54a Technical Appendix to Guidance Statement No.54: Sampling Methods and Survey Considerations for Subterranean Fauna in Western Australia or its revisions;

(3) be to the requirements of the CEO;

(4) record the presence of stygofauna inside and outside of the drawdown zone; and

(5) identify the species and number of individuals recorded both within and outside the drawdown zone;

9-4 Prior to groundwater abstraction, and if stygofauna are recorded by the Borefield and Stygofauna required by condition 9-2, the proponent shall prepare a Stygofauna Management Plan.

9-5 The Stygofauna Management Plan required by condition 9-4 shall:

(1) when implemented, manage the drawdown of groundwater as a result of implementation of the proposal to meet the requirements of condition 9-1;

(2) demonstrate that the stygofauna habitat extends outside the drawdown zone in accordance with the EPA draft *Environmental Assessment Guideline for consideration of subterranean fauna in environmental impact assessment in Western Australia* or its revisions, where stygofauna species are only recorded inside the drawdown zone;

(3) provide mitigation and management measures to demonstrate condition 9-1 is being met; and

(4) identify criteria to trigger implementation of contingency measures to prevent the drawdown zone being greater than predicted to ensure the protection of stygofauna species outside the drawdown zone.

9-6 Prior to groundwater abstraction the proponent shall implement the approved Stygofauna Management Plan required by condition 9-4 and continue implementation until otherwise agreed by the CEO.

9-7 Revisions to the Stygofauna Management Plan required by condition 9-4 may be approved by the CEO.

9-8 The proponent shall implement revisions of the Stygofauna Management Plan required by condition 9-7.

10 Rehabilitation and closure

10-1 The proponent shall ensure that the mine is closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed post-mining outcomes and land uses, and without unacceptable liability to the State of Western Australia.

10-2 The proponent shall prepare a Mine Closure Plan for the Turee Syncline Iron Ore Project.

10-3 The Mine Closure Plan required by condition 10-2 shall:

(1) when implemented, manage the implementation of the proposal to meet the requirements of condition 10-1;

(2) be prepared in accordance with the *Guidelines for Preparing Mine Closure Plans, June 2011* (Department of Mines and Petroleum and Environmental Protection Authority) or its revisions; and

(3) be to the requirements of the CEO on advice of the Department of Mines and Petroleum.

10-4 Within 12 months of commissioning of the first mine pit or as otherwise agreed by the CEO the proponent shall implement the approved Mine Closure Plan and continue implementation until otherwise agreed by the CEO.

10-5 Revisions to the Mine Closure Plan may be approved by the CEO on the advice of the Department of Mines and Petroleum.

10-6 The proponent shall implement revisions of the Mine Closure Plan required by condition 10-5.

11 Residual Impacts and Risk Management Measures

11-1 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, including the loss of habitat for conservation significant species, and calculated pursuant to condition 11-2. This funding shall be provided to a strategic regional conservation initiative for the Pilbara as determined by the Minister on advice of the EPA.

11-2 The proponent's contribution to the initiative identified in condition 11-1 shall be paid biennially, the first payment due two years after ground disturbance. The amount of funding will be made on the following basis and in accordance with the approved Impact Reconciliation Procedure:

(1) $750 AUD (excluding GST) per hectare of good-to-excellent condition native vegetation cleared within the area delineated in Figure 2.

11-3 The proponent shall prepare an Impact Reconciliation Procedure and submit it for approval of the CEO prior to ground disturbance.

11-4 The Impact Reconciliation Procedure required by condition 11-3 shall:

(1) include details of a methodology to identify clearing;

(2) include a methodology for calculating the amount of clearing undertaken during each biennial time period;

(3) 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.

11-5 The real value of contributions described in condition 11-2 will be maintained through indexation to the Perth Consumer Price Index (CPI), with the first adjustment to be applied to the first contribution.

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	Turee Syncline Iron Ore Project
Short Description	The proposal will involve the construction and operation of a greenfield mine site and associated infrastructure (roads, administration buildings, accommodation camp and potential borefield) approximately 30 kilometres north-east of Paraburdoo

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

Column 1	Column 2	Column 3
Element	**Location**	**Authorised Extent**
Mining Area	Figure 2	Clearing of no more than 725 ha within the Mining development envelope of 3,698 ha. Excavation for all pits to be above the water table.
Infrastructure Corridor and Access Roads; Accommodation Camp and Borefield	Figure 2	Clearing of no more than 325 ha within the Infrastructure and Access Roads; Accommodation Camp and Borefield development envelopes of 7,630 ha Abstraction of groundwater at a rate of no more than 2.5 GL/a for operational purposes

Table 3: Abbreviations

Abbreviation	Term
ha	hectares
CPI	Consumer Price Index

Abbreviation	Term
GL/a	Gigalitres per annum

Figures (attached)

Figure 1 Regional location
Figure 2 Turee Syncline proposal boundary and development envelopes

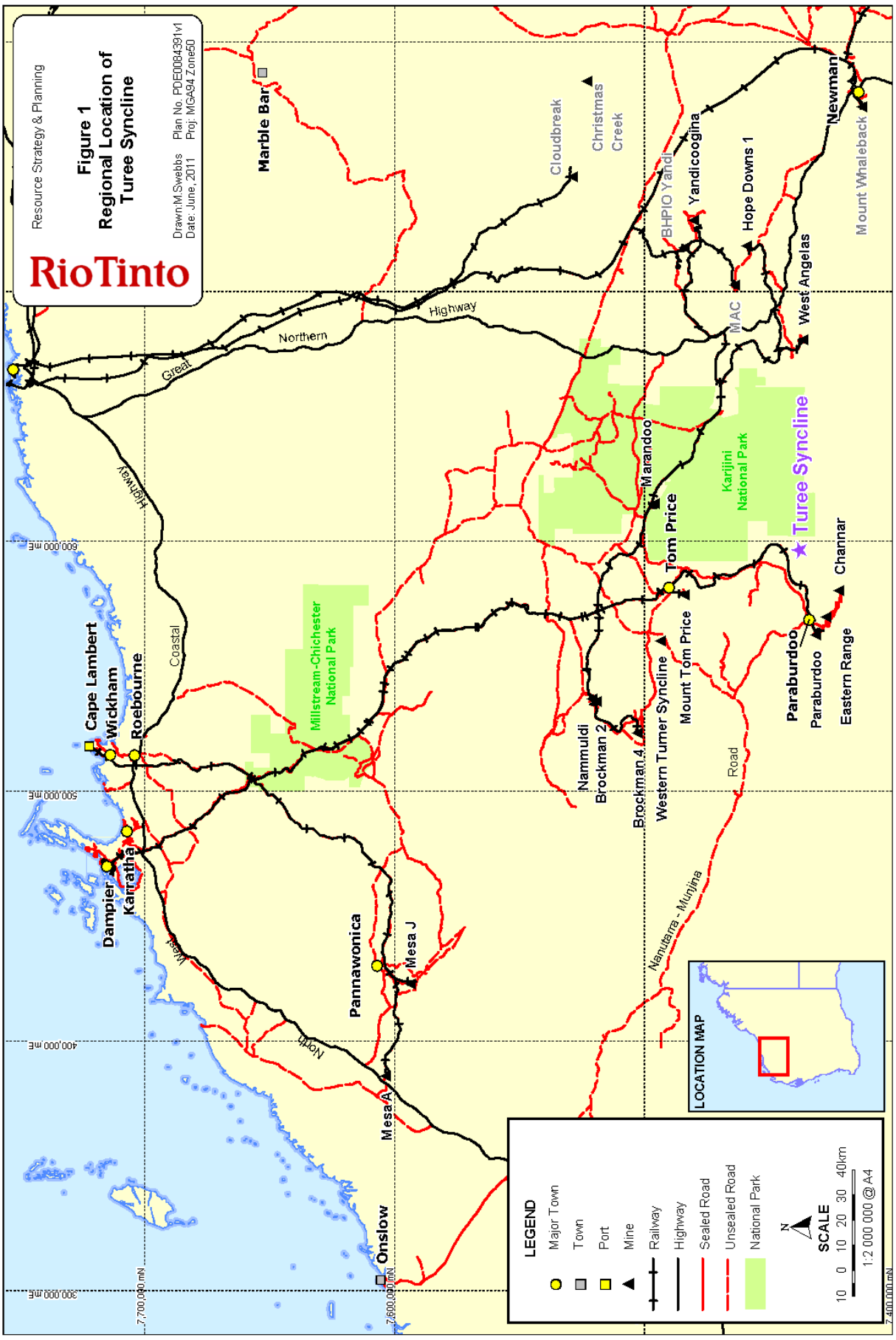

Figure 1 Regional location

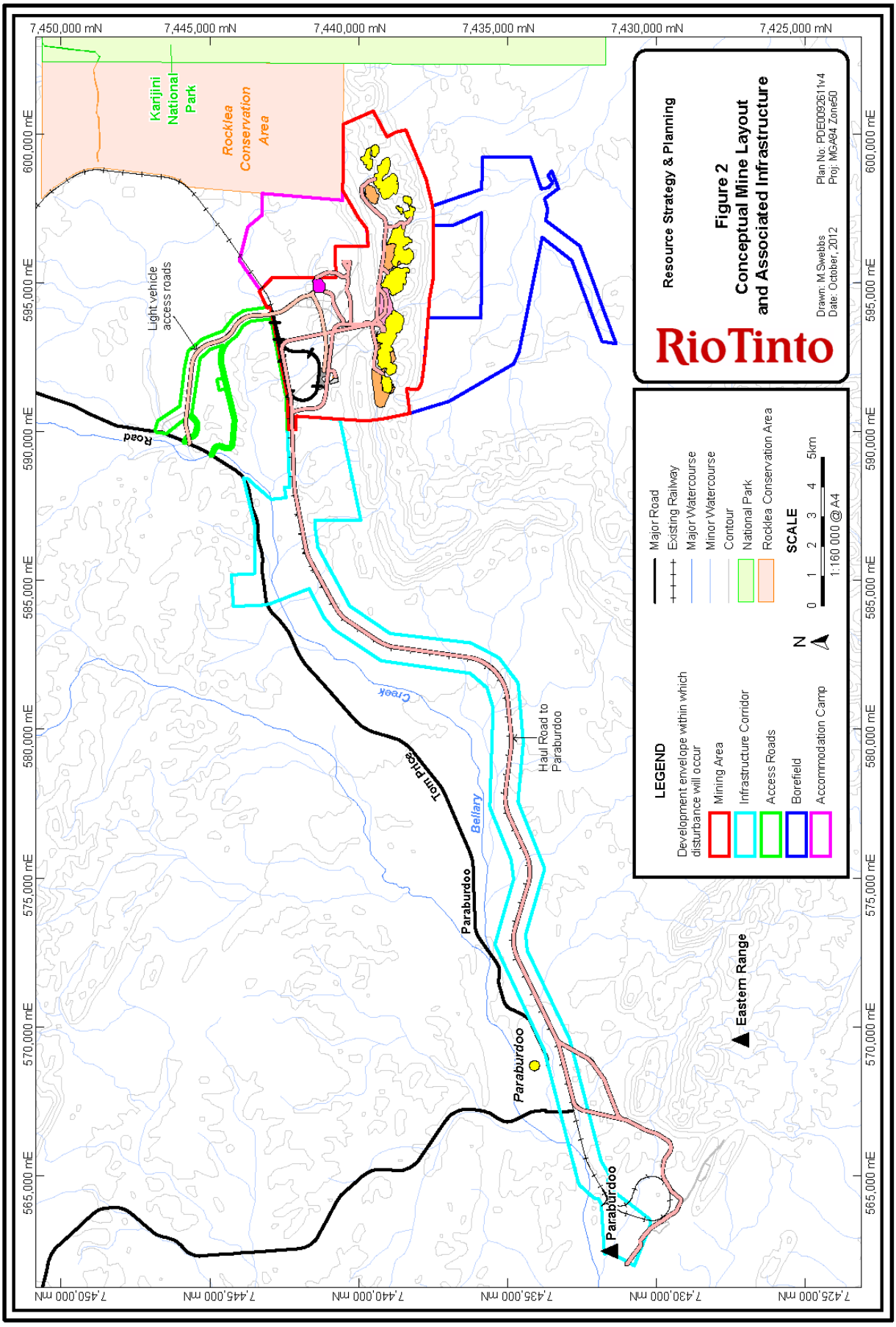

Figure 2 Turee Syncline proposal boundary and development envelopes

Schedule 2

Turee Syncline Iron Ore Project

Coordinates defining the Mining Area development envelope and Infrastructure Corridor and Access Roads; Accommodation Camp and Borefield envelopes are held by the Office of the EPA, dated 10 June 2013.

Schedule 3

Term or Phrase	Definition
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
Approved Impact Reconciliation Procedure	The Impact Reconciliation Procedure for which the proponent has received written notification from the CEO that it meets the requirements of Condition 11-4.
AUD	Australian Dollar
GST	Goods and Services Tax
Biennial	every two years
CPI	Consumer Price Index
Mine	Has the same meaning as in the *Mining Act 1978*
Approved Mine Closure Plan	The Mine Closure Plan for which the proponent has received written notification from the CEO that it meets the requirements of Condition 10-3.

Notes

The following notes are provided for information and do not form a part of the implementation conditions of the Statement:

- The proponent for the time being nominated by the Minister for Environment under section 38(6) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal unless and until that nomination has been revoked and another person is nominated.
- If the person nominated by the Minister, ceases to have responsibility for the proposal, that person is required to provide written notice to the Environmental Protection Authority of its intention to relinquish responsibility for the proposal and the name of the person to whom responsibility for the proposal will pass or has passed. The Minister for Environment may revoke a nomination made under section 38(6) of the *Environmental Protection Act 1986* and nominate another person.
- To initiate a change of proponent, the nominated proponent and proposed proponent are required to complete and submit *Post Assessment Form 1 – Application to Change Nominated Proponent*.
- The General Manager of the Office of the Environmental Protection Authority was the Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986* at the time the Statement was signed by the Minister for Environment.

Appendix 5

Summary of Submissions and
Proponent's Response to Submissions

Provided on CD in hardcopies and available on the EPA's website