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9 January 2015

Our Ref: RTIO-HSE-0247383

Your Ref: AC01-2014-0174  
2014-0001000162

Attention: Sally Bowman / Peter Tapsell

Dear Mr Sutton

### MARANDOO IRON ORE PROJECT – Revised Proposal

Thank you for your letter dated 18 December 2014 requiring additional information in relation to referral of the above mentioned proposal.

Rio Tinto, on behalf of Hamersley Iron Pty Limited (HI), met with Peter Tapsell on 6 January 2015 to ensure we appropriately understood the queries. Based on this meeting, the referral application and supporting documents have been amended to address the following:

- adequate definition of the scope of the referral;
- clarity in relation to clearing approved and undertaken for the Marandoo Project;
- provision of a conceptual footprint for the proposed new clearing;
- adequacy of stakeholder consultation; and
- additional information in relation to flora and vegetation and fauna survey coverage.

This additional information is provided for your reference in the attached Proponent Response to Initial OEPA Queries.

All relevant Decision Making Authorities have been consulted with regards the referral and provided with a copy of the Revised Proposal. These DMAs have indicated that they will provide any feedback to the OEPA.

We are keen to ensure that the referral meets OEPA requirements and will continue to work with the OEPA to address any further queries. If you require any further information in relation to this proposal please do not hesitate to contact Tammy Souster on 6211 6985 in the first instance.

Yours sincerely



pp Hermione Scott

Manager Government and Environmental Approvals

Office of the Environmental Protection Authority	
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Rio Tinto

## Marandoo Iron Ore Project

Revised Proposal

Hamersley Iron Pty Limited (a member of the Rio Tinto Group)

152 – 158 St Georges Terrace, Perth

GPO Box A42, Perth, WA 6837

January 2015

Final (V3)



## Disclaimer and Limitation

This report has been prepared by Rio Tinto, on behalf of Hamersley Iron Pty Limited, specifically for the Marandoo Iron Ore Project. Neither the report nor its contents may be referred to without the express approval of Rio Tinto, unless the report has been released for referral and assessment of proposals.

Document Status					
Rev	Author	Reviewer/s	Date	Approved for Issue	
				To Whom	Date
A - C	T. Souster/ F. Bell				
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## TABLE OF CONTENTS

<b>PART 1 - INTRODUCTION .....</b>	<b>1</b>
<b>1. MARANDOO IRON ORE PROJECT.....</b>	<b>1</b>
1.1 PROPONENT DETAILS .....	1
1.2 PURPOSE OF THIS DOCUMENT .....	2
<b>2. EXISTING OPERATIONS .....</b>	<b>3</b>
2.1 MARANDOO MINE PHASE 1 .....	3
2.2 MARANDOO HYDROLOGICAL RESEARCH PROJECT .....	7
2.3 MARANDOO MINE PHASE 2 .....	11
2.4 CLEARING UNDER PART V OF THE EP ACT .....	14
<b>PART 2 – REVISED PROPOSAL .....</b>	<b>16</b>
<b>3. PROPOSAL DESCRIPTION.....</b>	<b>16</b>
3.1 DEVELOPMENT ENVELOPES .....	16
3.2 APPROVED CLEARING FOR MARANDOO.....	20
3.3 INCREASE IN CLEARING LIMIT FOR MARANDOO .....	20
3.3 ADMINISTRATIVE CHANGES TO SCHEDULE 1 OF THE MARANDOO PROJECT.....	23
<b>4. STAKEHOLDER CONSULTATION .....</b>	<b>27</b>
<b>PART 3 – ENVIRONMENTAL MANAGEMENT .....</b>	<b>30</b>
<b>5. ENVIRONMENTAL APPROVALS PROCESS.....</b>	<b>30</b>
5.1 ASSESSMENT OF ENVIRONMENTAL FACTORS .....	30
5.2 ENVIRONMENTAL MANAGEMENT OVERVIEW .....	31
5.3 PRINCIPALS OF ENVIRONMENTAL PROTECTION AND EIA .....	33
5.4 PRINCIPLES OF EIA FOR THE PROPONENT .....	35
5.5 CRITERIA FOR API CATEGORY A .....	36
5.6 PROPOSED ENVIRONMENTAL CONDITIONS .....	37
<b>PART 4 – ENVIRONMENTAL IMPACT ASSESSMENT OF THE REVISED PROPOSAL .....</b>	<b>38</b>
<b>6. FLORA AND VEGETATION.....</b>	<b>38</b>
6.1 FLORA AND VEGETATION STUDIES .....	38
6.2 IBRA BIOREGIONS AND SUBREGIONS .....	40

6.3	BEARDS VEGETATION MAPPING .....	40
6.4	LAND SYSTEMS .....	40
6.5	VEGETATION .....	43
6.6	CONSERVATION SIGNIFICANT VEGETATION .....	44
6.7	CONSERVATION SIGNIFICANT FLORA .....	45
<b>7.</b>	<b>TERRESTRIAL FAUNA.....</b>	<b>53</b>
7.1	TERRESTRIAL FAUNA STUDIES.....	53
7.2	FAUNA OF CONSERVATION SIGNIFICANCE .....	57
<b>8.</b>	<b>RESIDUAL IMPACTS: IMPACT ASSESSMENT AND MANAGEMENT .....</b>	<b>65</b>
8.1	DETERMINATION OF CRITICAL AND HIGH VALUE ASSETS .....	65
8.2	OFFSET REQUIREMENT FOR THE REVISED PROPOSAL .....	66
<b>9.</b>	<b>OTHER ENVIRONMENTAL FACTORS.....</b>	<b>69</b>
<b>10.</b>	<b>CUMULATIVE IMPACTS .....</b>	<b>75</b>
<b>PART 5 – MARANDOO MINISTERIAL STATEMENT RATIONALISATION.....</b>		<b>76</b>
<b>11.</b>	<b>MODERNISATION OF PROJECT CHARACTERISTICS .....</b>	<b>76</b>
<b>12.</b>	<b>RATIONALISATION OF MINISTERIAL CONDITIONS AND COMMITMENTS .....</b>	<b>77</b>
<b>13.</b>	<b>CONCLUSION .....</b>	<b>79</b>
<b>14.</b>	<b>REFERENCES.....</b>	<b>80</b>

## TABLES

Table 2-1:	Summary of Marandoo Mine Phase 1 Project.....	3
Table 2-2:	Key Characteristics of the Marandoo Mine Phase 1 Project .....	3
Table 2-3:	Summary of the Marandoo Hydrogeological Research Project (MS 598) .....	7
Table 2-4:	Key Characteristics of the Marandoo Hydrogeological Research Project (MS 598) .....	7
Table 2-5:	Summary of MMP2 Project.....	11
Table 2-6:	Key Characteristics of the MMP2 Project .....	11
Table 2-7:	Clearing at Marandoo approved via Part V of the EP Act .....	14
Table 3-1:	Estimate of total clearing approved and clearing completed as of 31 December 2013...	20
Table 3-2:	Changes ( <i>italicised</i> ) to the Key Characteristics of the Marandoo Project .....	24
Table 3-3:	Summary of the Revised Proposal .....	26
Table 3-4:	Location and authorised extent of physical and operational elements .....	26
Table 4-1:	Stakeholder Consultation Table.....	28
Table 5-1:	Principles of Environmental Protection .....	34
Table 5-2:	Principles of EIA for the Proponent .....	35
Table 5-3:	Criteria for API Category A.....	37
Table 6-1:	Summary of Relevant Flora and Vegetation Studies .....	39
Table 6-2:	Land Systems in the Marandoo Mine/Plant Development Envelope.....	41
Table 6-3:	Vegetation Types within the Marandoo Mine/Plant Development Envelope .....	43
Table 6-4:	Priority flora recorded within the Marandoo Mine/Plant Development Envelope .....	46
Table 6-5:	Flora and Vegetation: Description of Factor, Impact Assessment and Management .....	51
Table 7-1:	Summary of Key Terrestrial Fauna Studies .....	53
Table 7-2:	Fauna species of conservation significance recorded (or potentially occurring) in the Marandoo Mine/Plant Development Envelope.....	57
Table 7-3:	Terrestrial Fauna: Description of Factor, Impact Assessment and Management .....	63
Table 8-1:	Environmental Offsets Reporting Form .....	67
Table 9-1:	Invertebrate Fauna: Not a Key Environmental Factor to this Revised Proposal.....	70
Table 9-2:	Amenity (Visual): Not a Key Environmental Factor to this Revised Proposal .....	71
Table 9-3:	Air Quality (Dust): Not a Key Environmental Factor to this Revised Proposal.....	72
Table 9-4:	Heritage: Not a Key Environmental Factor to this Revised Proposal.....	73
Table 9-5:	Rehabilitation and Closure.....	74
Table 10-1:	Assessment of Potential for Cumulative Impacts .....	75



## FIGURES

Figure 2-1: Marandoo Mine Phase 1 Project Conceptual Mine Layout .....	6
Figure 2-2: Marandoo Hydrogeological Research Project Layout .....	10
Figure 2-3: Marandoo Mine Phase 2 Conceptual Layout.....	13
Figure 2-4: Clearing Approved via Part V of the EP Act.....	15
Figure 3-1: Proposed Marandoo Development Envelopes .....	17
Figure 3-2: Marandoo Linear Infrastructure Development Envelope.....	19
Figure 3-3: Mine/Plant Development Envelope Approved Clearing Areas.....	21
Figure 3-4: Proposed Marandoo Mine/Plant Development Envelope and Conceptual Footprint .....	22
Figure 5-1: Environmental Factors for the Revised Proposal (EAG 8/EAG 9) .....	30
Figure 6-1: Land Systems of the Proposed Marandoo Mine/Plant Development Envelope .....	42
Figure 6-2: Priority Flora and Vegetation within the Proposed Mine/Plant Development Envelope .....	47
Figure 7-1: Fauna Habitats of the Conceptual Footprint .....	55
Figure 7-2: Location of Marandoo Fauna Survey Sites .....	61

## APPENDICES

Appendix 1: Existing Ministerial Statements for the Project (MS 286, MS 598, and MS 833).....	83
Appendix 2: Referral Form for Revised Proposal .....	83
Appendix 3: Justification for Rationalisation of Conditions of MS 286, MS 598 and MS 833.....	83
Appendix 4: Proposed Ministerial Statement for the Revised Proposal (Marandoo Project) .....	83

## PART 1 - INTRODUCTION

### 1. MARANDOO IRON ORE PROJECT

The Marandoo Iron Ore Project (**the Marandoo Project**) is located in the central Pilbara region of Western Australia, approximately 37 km east of Tom Price and 77 km north-east of Paraburdoo. The Marandoo Project has been developed over two phases and has the following approvals under Part IV and Part V of the *Environmental Protection Act 1986* associated with it:

- Ministerial Statement (**MS**) 286 Marandoo Iron Ore Mine and Central Pilbara Railway (**MMP1**), 6 October 1992.
- MS 598 Hydrogeological Research Programme at Marandoo Trial Dewatering and Re-injection Test Karijini National Park, 2 July 2002.
- MS 833 Marandoo Mine Phase 2 (**MMP2**), 7 July 2010.
- MS 883 Hamersley Agriculture Project (**HAP**), 2 December 2011.
- Native Vegetation Clearing Permits (**NVCPs**) to support minor and preliminary works and investigation works undertaken within the Marandoo Project area.

Rio Tinto, on behalf of the proponent Hamersley Iron Pty Limited (**Hamersley Iron**), is seeking approval to make changes to the existing operation at Marandoo and create one contemporised MS to manage the Marandoo Project, and all associated clearing, in its entirety.

The existing operations are described Section 2 and the associated MSs are provided in Appendix 1.

The following terminology is used throughout this document:

- Proposal – the changes proposed in this document.
- Revised Proposal – all components of the Marandoo Project that are currently authorised under MS 286, MS 598, and MS 833 plus the changes that are described in this Proposal that will be authorised by a new Ministerial Statement, in the event of acceptance of the Proposal by the Minister of the Environment.

Rio Tinto has excluded MS 883 from this Environmental Review document and the Referral application as it is considered that the Hamersley Agriculture Project (**HAP**) is best managed under its own Statement and separate specific conditions relating to irrigated agriculture.

#### 1.1 PROPONENT DETAILS

The Proponent is Hamersley Iron Pty Limited a member of the Rio Tinto Group.

The Rio Tinto Iron Ore contact for the Proposal is:

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## 1.2 PURPOSE OF THIS DOCUMENT

This document is a submission for approval under section 38 of the *Environmental Protection Act 1978 (EP Act)* for the following:

- Revised Proposal to implement changes to the Marandoo Iron Ore Project.
- Statement rationalisation to combine the MS 286, MS 598, and MS 833 in to one new contemporised Ministerial Statement for the Marandoo Project.

The description and implementation conditions will reflect the proposed changes (sought via Part 2 of this document) and the new Statement will bring the Revised Proposal in line with contemporary presentation (refer to Part 5 of this document) respectively.

- Rationalisation of all clearing historically completed, within the Marandoo Development Envelopes, as of 31 December 2013. This includes all clearing completed under MS 286 and MS 833; and under Native Vegetation Clearing Permits (**NVCPs**) approved under Part V of the EP Act. This will result in a new overall Part IV clearing limit for the Marandoo Iron Ore Project which will assist in managing and tracking of all future clearing and progressive rehabilitation on the site.

A proposed Ministerial Statement for the Revised Proposal is included in Appendix 4 for consideration. Rio Tinto proposes that this Ministerial Statement supersedes MS 286, MS 598, and MS 833.

## 2. EXISTING OPERATIONS

### 2.1 MARANDOO MINE PHASE 1

On 23 March 1991 Hamersley Iron referred the first phase of the Marandoo Project (**MMP1**) to the Office of the Environmental Protection Authority (**OEPA**)<sup>1</sup>, for formal assessment under Part IV of the EP Act. The MMP1 was assessed at an Environmental Review and Management Programme (**ERMP**) (O'Brien 1992) level of assessment and was approved by the Minister for Environment on 6 October 1992 via MS 286. A summary of the MMP1 is provided below in Table 2-1.

**Table 2-1: Summary of Marandoo Mine Phase 1 Project**

Project Title	Marandoo Mine Phase 1
Short Description	<p>The Marandoo Mine Phase 1 is located in the central Pilbara region of Western Australia, approximately 37 km east of Tom Price and 77 km north-east of Paraburdoo. The mining component of the Project is confined to the existing Marandoo mine lease which was excised from Karijini National Park in 1991. The mining rate is approximately 15 Mtpa and all mining is confined to above the water table. Mining is conducted within a defined area of approximately 4km by 2km.</p> <p>Water for dust suppression and on-site use is sourced from a groundwater aquifer with the Southern Fortescue Borefield (<b>SFB</b>) designed in a linear arrangement with up to eight production bores over 7km in length.</p> <p>The Central Pilbara railway line of approximately 115km will extend from Rosella Siding to Homestead Junction with a spur loop at Marandoo, including three sidings.</p>

Whilst MS 286 does not identify the Key Characteristics, Rio Tinto considers that the characteristics provided in Table 2-2, and illustrated in Figure 2-1, are appropriate for the MMP1.

**Table 2-2: Key Characteristics of the Marandoo Mine Phase 1 Project**

Element	Description
Conceptual mining area	<p>Refer to Figure 2-1. Conceptual mining area within a 4 km by 2 km area.</p> <p>Extension to Mine Trail Pit eastwards over an area of 157 ha.</p>
Mining rate	15 Mtpa
Waste dump	Five areas of overburden
Borrow Sources	<ul style="list-style-type: none"> <li>Whundo Mine waste rock overburden</li> <li>Green Pool Siding Borrow Pit</li> </ul>

<sup>1</sup> At the time, MMP1 was referred to the Environmental Protection Authority Service Unit, now called the OEPA.



Element	Description
	<ul style="list-style-type: none"> <li>• Fox Radio Hill Site</li> <li>• Seven Mile landfill, Karratha</li> </ul>
Central Pilbara Railway	<p>Refer to Figure 2-1. 115 km heavy railway from Rosella Siding to Homestead Junction with a spur loop at Marandoo. Average width of disturbance of 14 metres.</p> <p>Inclusive of the following sidings on the existing Rosella to Yandi line:</p> <ul style="list-style-type: none"> <li>• Eagle Siding from 284.8 km to 287.5 km mark.</li> <li>• Juna Downs Siding from 359.7km to 363.1 km mark.</li> </ul> <p>And on the Dampier to Tom Price line:</p> <ul style="list-style-type: none"> <li>• Dove Siding from 50.6 km to 53.6 km mark.</li> </ul>
Fibre optic cable	<p>Located on the existing Rosella to Yandi line:</p> <ul style="list-style-type: none"> <li>• From 284.8 km to 287.5 km mark</li> <li>• From 359.7 km to 363.1 km mark</li> </ul>

### 2.1.1 Environmental factors relevant to the MMP1 Project

The environmental aspects of the MMP1 Project, as considered by the EPA (EPA 643), were:

- protection of conservation values of Karijini National Park;
- the railway line;
- drainage;
- construction, including the workforce;
- weeds;
- rehabilitation;
- fire;
- visual amenity; and
- waste disposal.

The EPA considered that these aspects could be managed via an Environmental Management Programme, which draws together Rio Tinto's commitments and the EPA's recommended conditions as adopted by MS 286.

Rio Tinto considers that the following key environmental aspects remain relevant to the ongoing operation of the Revised Proposal, and can be managed via the conditions proposed in Appendix 4:

- protection of conservation values of Karijini National Park;

- surface water and groundwater;
- weeds; and
- rehabilitation and closure.

### **2.1.2 Status of MMP1 Project**

As of 21 April 2011 (the date of implementation of MMP2) ~932 ha has been cleared to support construction and operation of the above water table (**AWT**) mine for the MMP1 Project under authorisation of MS 286.

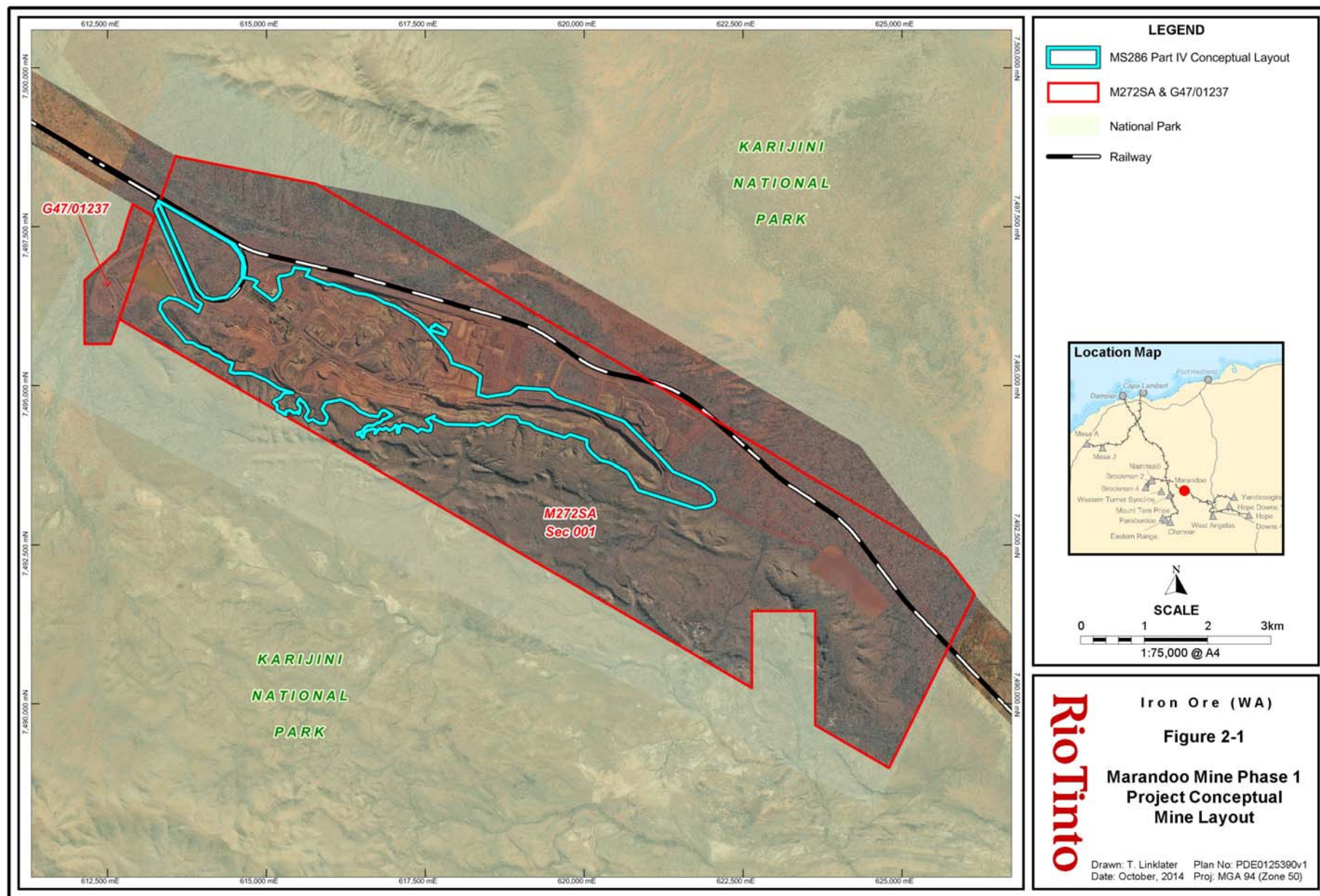


Figure 2-1: Marandoo Mine Phase 1 Project Conceptual Mine Layout

## 2.2 MARANDOO HYDROLOGICAL RESEARCH PROJECT

In 2002 Hamersley Iron referred a proposal to the OEPA in order to conduct hydrogeological test work on groundwater aquifers at Marandoo and within the Karijini National Park (**KNP**). The proposal was approved by the Minister of the Environment on 2 July 2002 via Ministerial Statement 598. A summary of the Marandoo Hydrogeological Research Project (as per MS 598) is provided below in Table 2-3.

**Table 2-3: Summary of the Marandoo Hydrogeological Research Project (MS 598)**

Project Title	Marandoo Above Water Table Project
<b>Short Description</b>	<p>The research programme seeks to clarify the extent of connection of the Marra Mamba orebody aquifer with a deep Wittenoom Dolomite aquifer that extends beneath the Karijini National Park (KNP) and the connection between this Wittenoom Dolomite aquifer and two shallow un-named calcrete aquifers.</p> <p>Understanding the connectivity of the Marra Mamba aquifer with and between these aquifers will provide the basis for:</p> <ul style="list-style-type: none"> <li>Evaluating the feasibility of dewatering the orebody to access the BWT Marandoo ore.</li> <li>Predicting the environmental impacts of dewatering on the aquifers and significant vegetation inside the KNP.</li> </ul> <p>The research programme incorporates a 60-day trial dewatering programme from the Marra Mamba orebody aquifer during which water will be re-injected into the deep Wittenoom Dolomite aquifer.</p> <p>The production bores will be located in the Marandoo Mining Lease and the re-injection bores will be located in KNP. A temporary pipeline will supply the water from the production bores to the re-injection bores. Piezometers will be used to monitor responses in groundwater levels during the programme.</p>

The key characteristics of the Marandoo Hydrogeological Research Project (as per MS 598) are listed in Table 2-4 and illustrated in Figure 2-2.

**Table 2-4: Key Characteristics of the Marandoo Hydrogeological Research Project (MS 598)**

Element	Description
<b>Dewatering Bores</b>	
Number of new bores	Five
Location of bores	Marandoo Mining Lease (M272SA)
Aquifer targeted	Marra Mamba (orebody) aquifer
Depth of bores	Between 120 – 240 metres
Diameter of bore holes	Approximately 300 mm inside diameter
Activities to be undertaken	Drill, construct and short term (3 days) test pumping



Element	Description
<b>Re-injection bores</b>	
Number of new bores	Two
Location of bores	Approximately 1.2km inside Karijini National Park
Aquifer targeted	Wittenoom Dolomite
Depth of bores	Between 130 – 150 metres
Diameter of bore holes	Approximately 300 mm inside diameter
Activities to be undertaken	Drill, construct and short term (3 days) test pumping
<b>Piezometers</b>	
Number of new piezometers	Eight sets of multi-aquifer piezometers (i.e. some sets will have three separate monitoring holes)
Location of piezometers	<ul style="list-style-type: none"> <li>Two sets in Karijini National Park (existing sets will also be used)</li> <li>Two sets in Transport Corridor</li> <li>Four sets in Mining Lease (existing sets will also be used)</li> </ul>
Aquifers targeted	Two shallow calcrete aquifers, deep Wittenoom Dolomite aquifer and Marra Mamba (where they occur)
Activities to be undertaken	Monitor water level fluctuations during and after the trial
<b>Temporary Pipeline</b>	
Length	Approximately 5.2 kms, of which approximately 3 kms is in the Mining Lease, 1 km in the Transport Corridor and 1.2 kms in the KNP.
Diameter of pipeline	Between 300 – 400 mm
Type of pipeline	Black poly
Arrangement	Pipeline will link 3 or 4 production bores to each other and then feed water to the re-injection bores
<b>Trial dewatering and re-injection</b>	
Activities to be undertaken	Pumping of water from the Marra Mamba aquifer and re-injection of discharge into Wittenoom Dolomite Aquifer./ monitoring of dewatering and re-injection impacts via piezometers
Duration of test	60 days
Volumes to be dewatered/re-injected	Up to 12 million litres per day
<b>Other Infrastructure</b>	
Track	A temporary track that runs alongside the pipeline will be established to allow access to the piezometers and re-injection bores
Drill pads	Drill pads will be required at each bore and piezometer site to enable drilling to occur
Pumps/generators	A generator will be placed next to each production bore to pump water to the re-injection bore

Element	Description
<b>Decommissioning and Rehabilitation</b>	
Infrastructure to be removed post-trial	Pipeline, vehicular track, down-hole instrumentation and generators/pumps
Infrastructure to be retained post-trial (until Marandoo is decommissioned)	Production bores (in Mining Lease), re-injection bores (in Karijini National Park) and piezometers (all)
Rehabilitation	Disturbed areas (drill pads, track, and pipeline) inside of Karijini National Park and Transport Corridor will be rehabilitated in the manner agreed with CALM.

### 2.2.1 Environmental factors relevant to the Hydrological Research Project

The environmental factor considered by the EPA (EPA 1048) during the assessment of the Hydrological Research Project (HI 2002) was:

- Groundwater – changes to groundwater levels and effects on groundwater dependent ecosystems.

The EPA concluded that the Project was unlikely to have any adverse impact on groundwater dependent ecosystems in the Karijini National Park, provided it was implemented in accordance with the description provided in the referral document and the environmental commitments made by the Rio Tinto. These commitments were subsequently adopted by the Minister as legally binding environmental conditions under Part IV of the EP Act via MS 598.

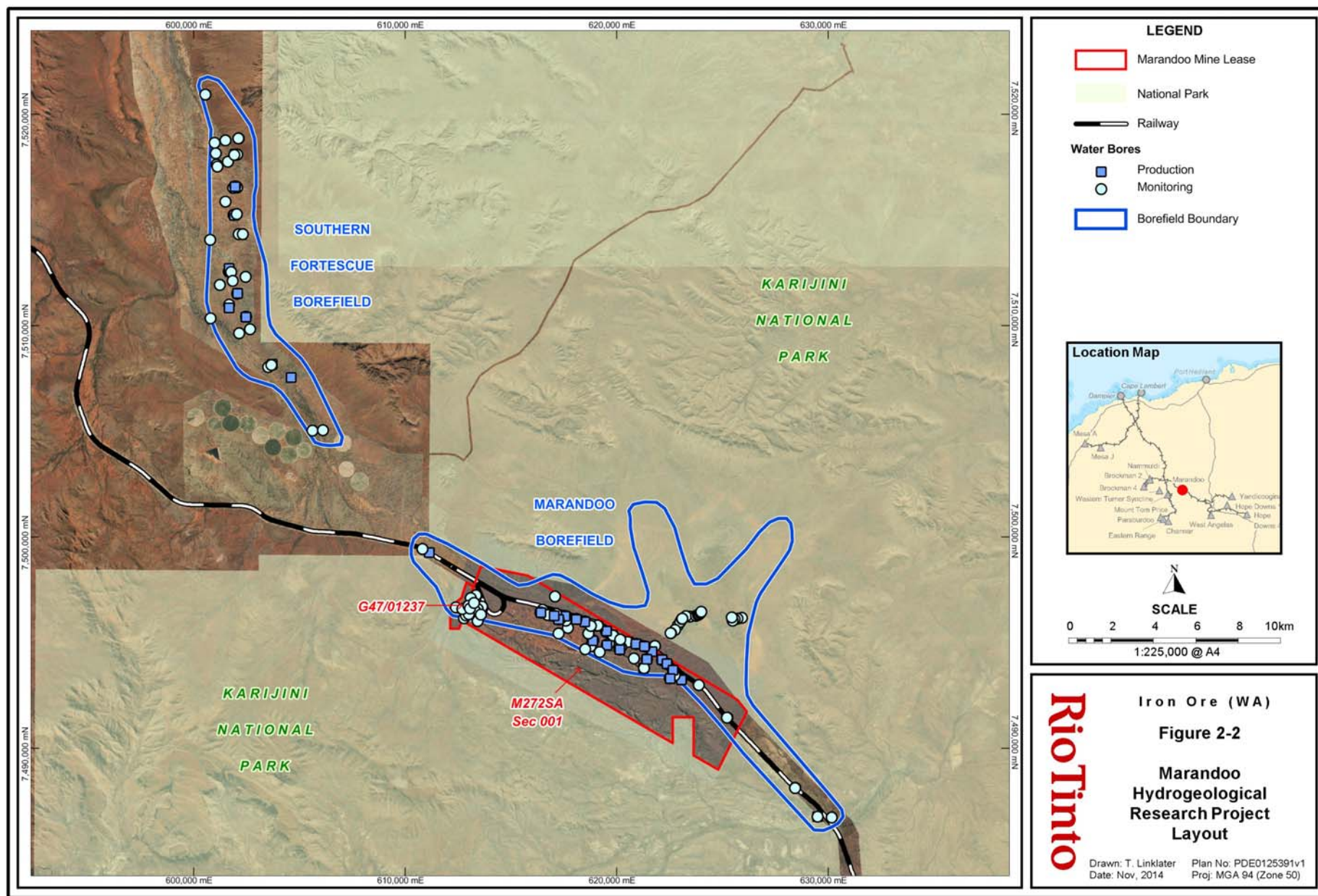
The remaining aspect of this Project relates to decommissioning and rehabilitation. Rio Tinto considers that this commitment can be adequately managed as part of the overall Marandoo Closure Plan and relevant conditions proposed in Appendix 4.

### 2.2.2 Status of the Hydrogeological Research Project

Activities associated with this Hydrogeological Research Project commenced in 2002 and were completed in August 2005. The majority of the rehabilitation has been completed with the exception of the Coolibah Western Stand access track which is still in use to support monitoring activities required under MS 833. All pipelines, pumps and in-bore instruments have been removed and decommissioned.

The outcome of this Research Project demonstrated that the confined and unconfined aquifers are not hydraulically connected. This information was used to support studies for the development of the MMP2 Project – now approved and being implemented under MS 833.

As such, Rio Tinto considers that MS 598 is no longer required and should be closed out.



**Figure 2-2: Marandoo Hydrogeological Research Project Layout**

### 2.3 MARANDOO MINE PHASE 2

The MMP2 Project was referred to the OEPA on 3 July 2007 and was assessed at the Public Environmental Review (**PER**) level of assessment with an eight week public review period. The MMP2 Project was approved by the Minister for Environment on 7 July 2010 via MS 833. Clearing and construction activities commenced on 21 April 2011 and below water table (**BWT**) mining commenced in 2012. A summary of the MMP2 Project (as per MS 833 and attachments) is provided below in Table 2-5.

**Table 2-5: Summary of MMP2 Project**

Project Title	Marandoo Mine Phase 2
<b>Short Description</b>	<p>The Marandoo Mine Phase 2 Project expands on the AWT Project by mining below the water table, which entails expansion of the existing mine pit and development of new waste dumps. The mining component of the MMP2 Project is confined to the existing Marandoo mine lease which was excised from Karijini National Park in 1991.</p> <p>The MMP2 Project includes the operation of the dewatering infrastructure and the operations camp.</p> <p>The existing SFB will be adapted to include four new re-injection bores and associated infrastructure to allow for disposal of surplus dewater.</p>

The key characteristics of the MMP2 Project (as per MS 883 and attachments) are listed in Table 2-6 and illustrated in Figure 2-3.

**Table 2-6 Key Characteristics of the MMP2 Project**

Element	Authorised Extent
Project life	15 to 20 years
Area of disturbance	Up to 1,000 hectares direct disturbance, localised impact to riparian vegetation along drainage lines. Refer to Figure 2-3.
Ore production rate	16 Mtpa
Pit	Single pit, Marra Mamba ore, mining below the water table
Waste rock disposal	Surface dumps; expansion of existing stockpiles and progressive backfilling of pits.
Dewatering	Peak dewatering of up to 36.5 GL per annum
Dewater disposal	<p>Dewater disposal through water use hierarchy including:</p> <ul style="list-style-type: none"> <li>• use on site;</li> <li>• transfer to Tom Price;</li> <li>• re-injection at SFB; and</li> <li>• discharge to the environment.<sup>2</sup></li> </ul>
Processing	Wet processing of ore

<sup>2</sup> Subsequent to the issue of MS 833, Hamersley Iron sought approval for the Hamersley Agriculture Project (HAP) as part of the water use hierarchy for the Marandoo BWT Project. This was approved via MS 883 and irrigated agriculture commenced in 2012.



Element	Authorised Extent
Residue	Construction and operation of residue storage facility.
Greenhouse gases	Up to 190,000 tonnes of CO <sub>2</sub> -e per year, plus one off emission of 50,000 tonnes CO <sub>2</sub> -e resulting from clearing. Up to 15.3 tonnes CO <sub>2</sub> -e/Kt of ore.
Water supply	All water requirements supplied from dewatering activities.
Product transport	By existing rail facilities to Dampier and Cape Lambert.

### 2.3.1 Environmental factors relevant to the MMP2 Project

The key environmental factors considered by the EPA (EPA 2010) during the assessment of the MMP2 Project (Rio Tinto 2008) were:

- Flora and Vegetation
- Groundwater
- Rehabilitation and Decommissioning.

The EPA concluded that the project could be managed to meet the EPA's objectives with several recommendations adopted as conditions in MS 833.

Rio Tinto considers that these key environmental factors remain relevant to the ongoing operation of the Revised Proposal, and can be managed via the rationalised conditions proposed in Appendix 4.

### 2.3.2 Status of the MMP2 Project

As of 31 December 2013, ~361 ha have been cleared to support construction and operation of the MMP2 Project under authorisation of MS 833.

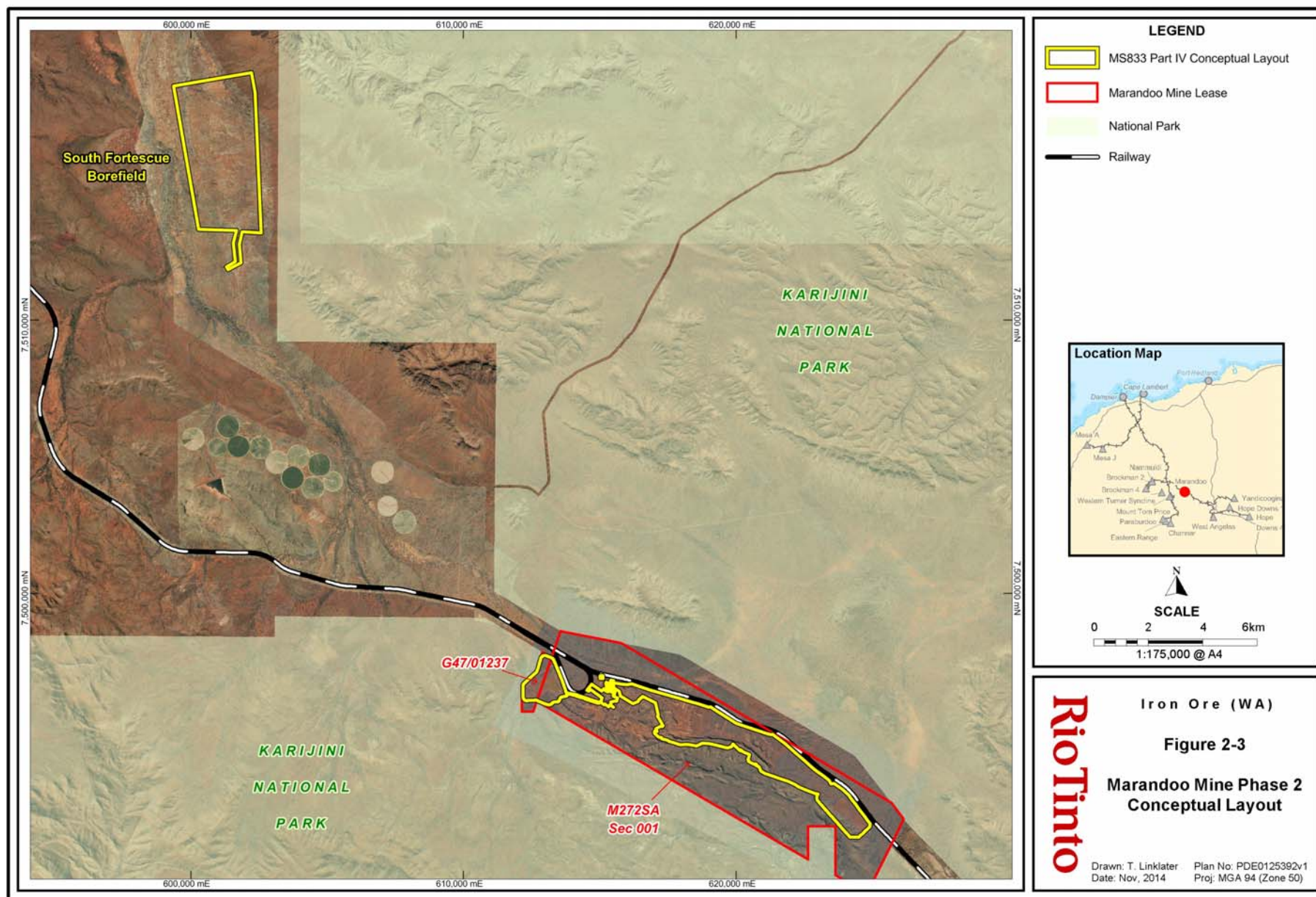


Figure 2-3: Marandoo Mine Phase 2 Conceptual Layout

## 2.4 CLEARING UNDER PART V OF THE EP ACT

As part of the rationalisation of the existing MSs associated with the Marandoo Project, Rio Tinto considers this an opportunity to rationalise all clearing approved within the Mine/Plant Development Envelope and to consolidate this into one overall new clearing limit for Marandoo.

Numerous NVCPs have been approved for the purposes of minor, preliminary or investigative works within the Marandoo Mine/Plant Development Envelope to support development of the MMP2 Project. The overall spatial footprint (~1,158 ha) associated with these NVCPs is presented in Figure 2-4 and the combined approved clearing limit is 450 ha (refer to Table 2-7).

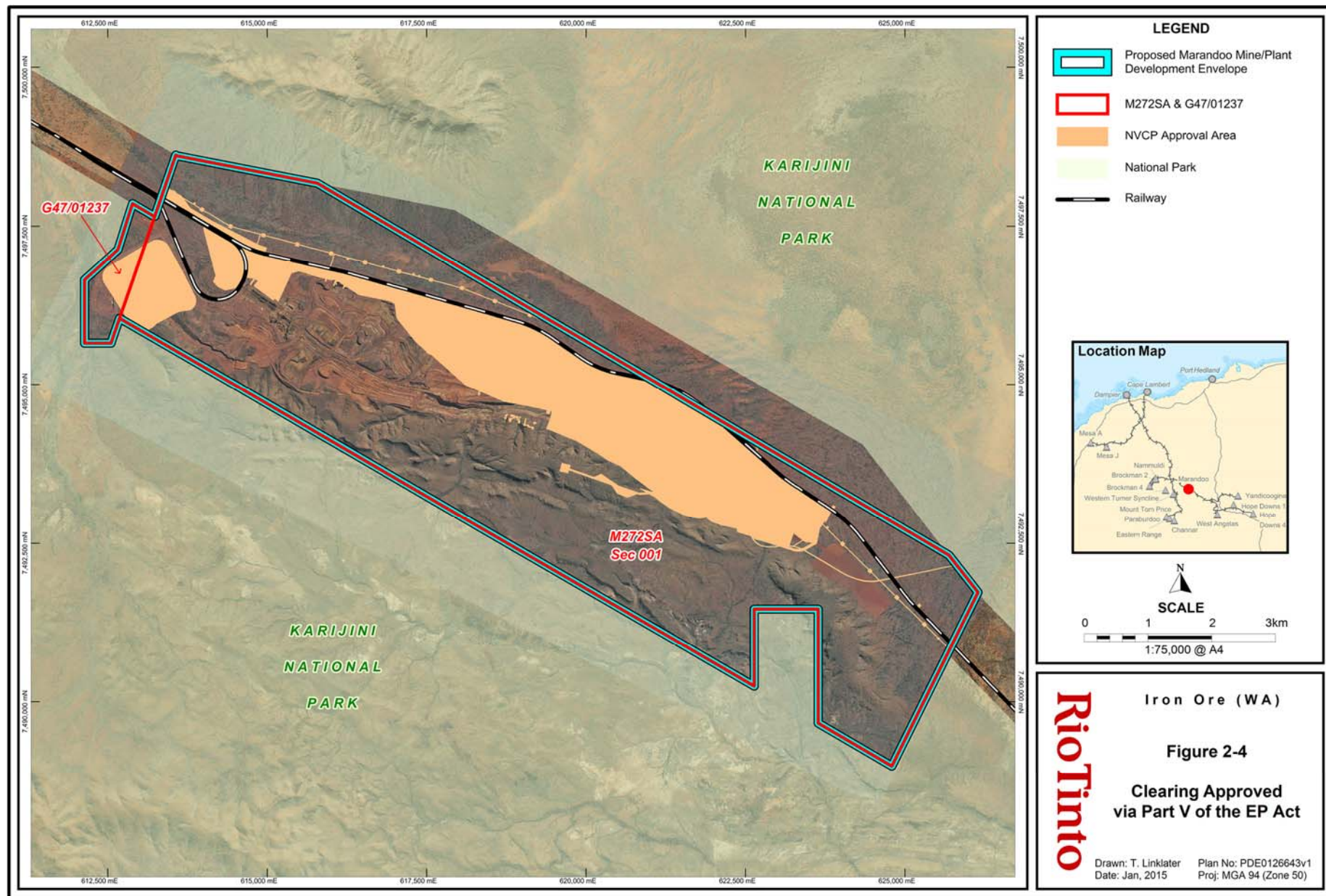
In addition, an NVCP is currently under assessment (CPS 6014/1) with the Department of Mines and Petroleum (**DMP**) which includes a clearing limit of 6 ha. This Clearing Permit will be revised (CPS 6014/2) in early 2015 in order to increase the overall clearing limit to 18 ha. Therefore, the combined (approved and pending) clearing approved via NVCPs within the Mine/Plant Development Envelope is ~468 ha

**Table 2-7: Clearing at Marandoo approved via Part V of the EP Act**

CPS Number	Clearing Limit (ha)
<b>Approved Clearing Permits</b>	
1658	45
2525/2	12
3200/1	1.7
3273/2	4.9
3344/1	1.6
3550/2	1.075
3734/3	110
3933/2	260
5039/2	4.98
5918	8.65
<b>Sub Total</b>	<b>449.90</b>
<b>Clearing Permits Currently Under Assessment</b>	
6014/1	6
6014/2	12
<b>Grand Total</b>	<b>467.9</b>

As of 31 December 2013, 146 ha have been cleared under approved NVCPs within the Mine/Plant Development Envelope.





**Figure 2-4: Clearing Approved via Part V of the EP Act**

## **PART 2 – REVISED PROPOSAL**

### **3. PROPOSAL DESCRIPTION**

Part 2 of this Environmental Review document details the following proposed changes to the Marandoo Project:

- definition of Development Envelopes for the entire Marandoo Iron Ore Project;
- additional clearing within the proposed Marandoo Mine/Plant Development Envelope; and
- changes to Schedule 1 for the Revised Proposal.

#### **3.1 DEVELOPMENT ENVELOPES**

Rio Tinto proposes Development Envelopes for all relevant aspects of the Marandoo Project:

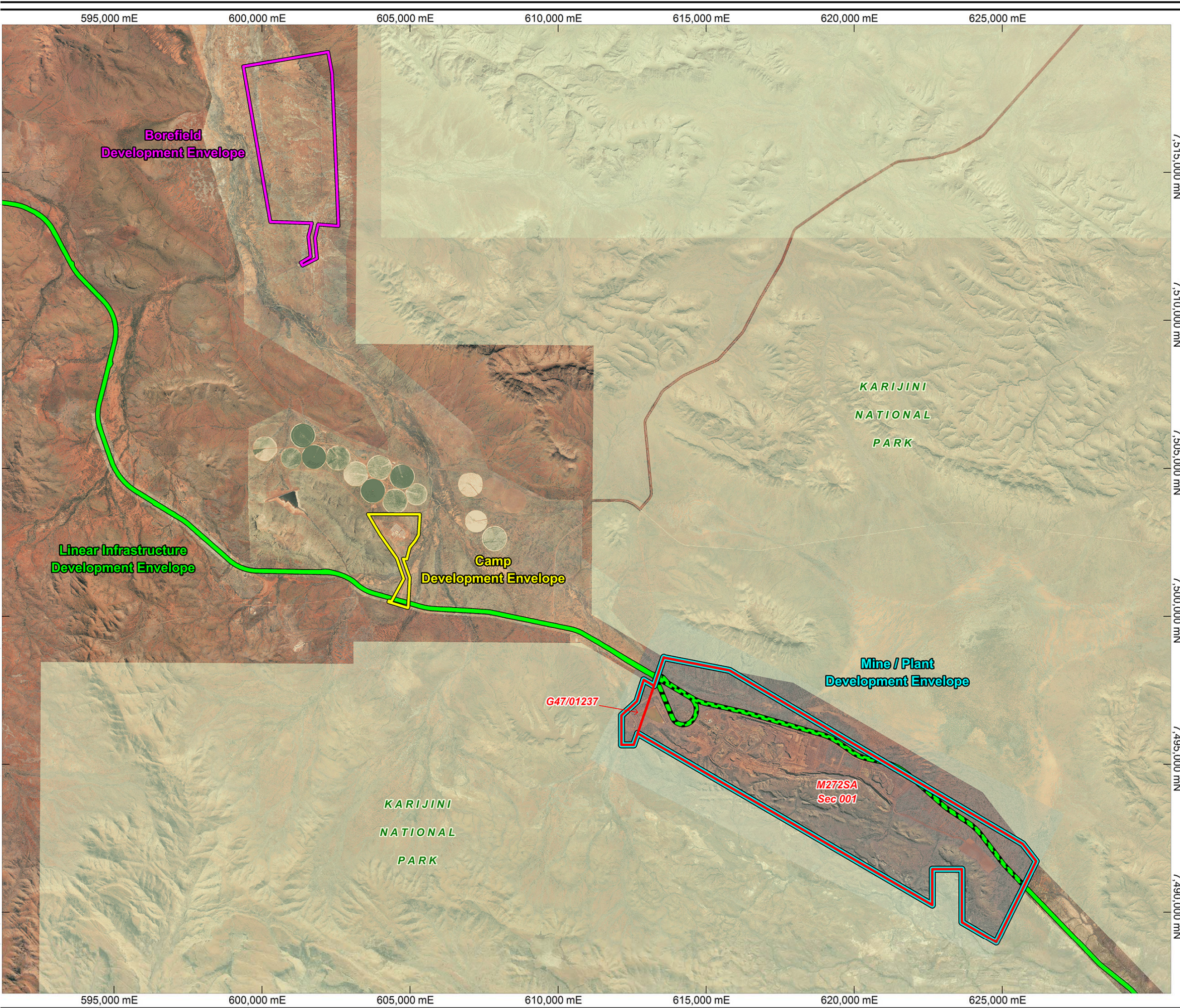
- Mine/Plant Development Envelope (of 3,277 ha) which includes all mine and plant elements approved under MS 286 and MS 833.
- SFB Borefield Development Envelope (1,501 ha) as approved under MS 833; and
- Marandoo Operation Camp Development Envelope (221 ha) as approved under MS 833; and
- Linear Infrastructure Development Envelope (629 ha) which includes the Central Pilbara Railway and infrastructure as built under MS 286.

Figure 3-1 illustrates the spatial extent of the Development Envelopes for the Mine/Plant, Operation Camp and Borefield, and Figure 3-2 illustrates the extent of the Marandoo Linear Infrastructure Development Envelope.

Rio Tinto acknowledges the environmental constraints associated with the Marandoo Project's proximity to the Karijini National Park and the potential for long term impact to visual amenity. As such, the Mine/Plant Development Envelope has been designed to provide more flexibility than is currently possible under the 'conceptual footprints' approved under MS 286 and MS 833 (refer to Figure 2-1 and Figure 2-3 respectively) whilst upholding the environmental considerations by restricting the location of mining activities in certain areas. The actual location of the proposed activities may differ from the conceptual layout presented in Figure 3-1 to Figure 3-3. However, any disturbance will be undertaken within the Mine/Plant Development Envelope and approved clearing limit.

This approach is consistent with the OEPA's position taken towards recent comparable proposals and is in line with the EPA's Environmental Assessment Guideline No. 1 (EAG 1) (EPA 2012) which allows for clearing of a proposal to be defined within a broader development envelope provided that appropriate biological surveys and an environmental impact assessment has been conducted for the entire area.





**LEGEND**

**Proposed Development Envelope**

- Proposed Marandoo Mine/Plant Development Envelope
- Proposed Marandoo Borefield Development Envelope
- Proposed Marandoo Camp Development Envelope
- Proposed Marandoo Linear Infrastructure Development Envelope
- M272SA & G47/01237
- National Park

**Location Map**

**SCALE**

0 1 2 3 4 5km

1:125,000 @ A3

**RioTinto**

**Iron Ore (WA)**

**Figure 3-1**

**Proposed Marandoo Development Envelopes**

Drawn: T. Linklater  
Date: Jan, 2015

Plan No: PDE0128276v2  
Proj: MGA 94 (Zone 50)



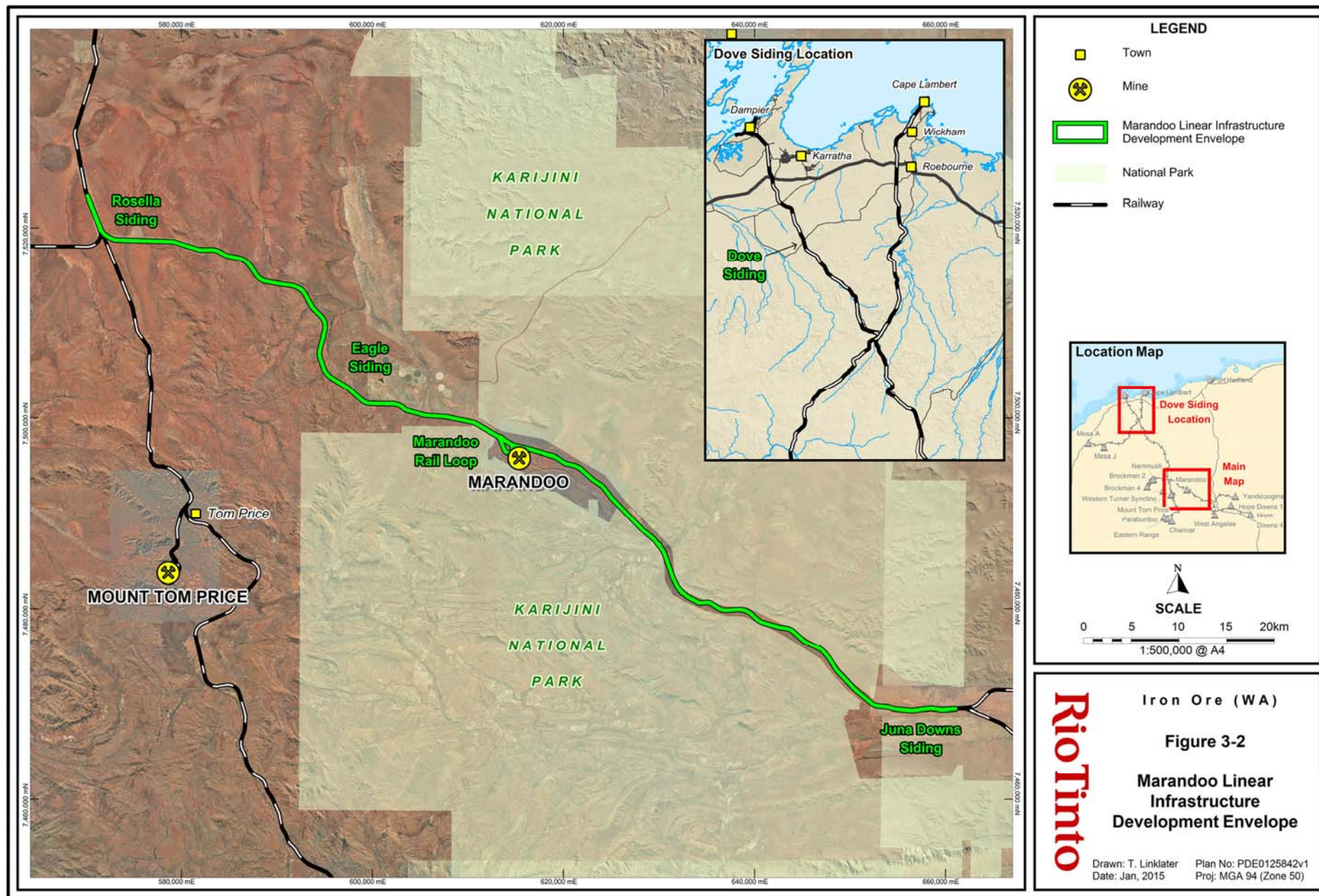


Figure 3-2: Marandoo Linear Infrastructure Development Envelope

### 3.2 APPROVED CLEARING FOR MARANDOO

Table 3-1 below summarises the clearing limits currently approved under MS 286, MS 833 and the various NVCP's within the Marandoo Mine/Plant Development Envelope. The clearing completed under these approvals (up to 31 December 2013) is also presented in Table 3-1. Figure 3-3 provides a spatial representation of this information.

**Table 3-1: Estimate of total clearing approved and clearing completed as of 31 December 2013**

Element	Approved	Clearing as of 31 Dec 2013
<b>Mine/Plant Development Envelope</b>		
MS 286	Conceptual AWT footprint = 950 ha	932 ha
MS 833	Approved limit = 1,000 ha	361 ha
NVCPs Polygons	450 ha	146 ha
<b>Sub Total</b>	<b>2,400 ha</b>	
	MS combined boundary (less overlaps) – 1,829 ha NVCP (outside of MS combined boundary) – 273 ha	
<b>TOTAL</b>	<b>2,102 ha</b>	<b>1,439 ha</b>

### 3.3 INCREASE IN CLEARING LIMIT FOR MARANDOO

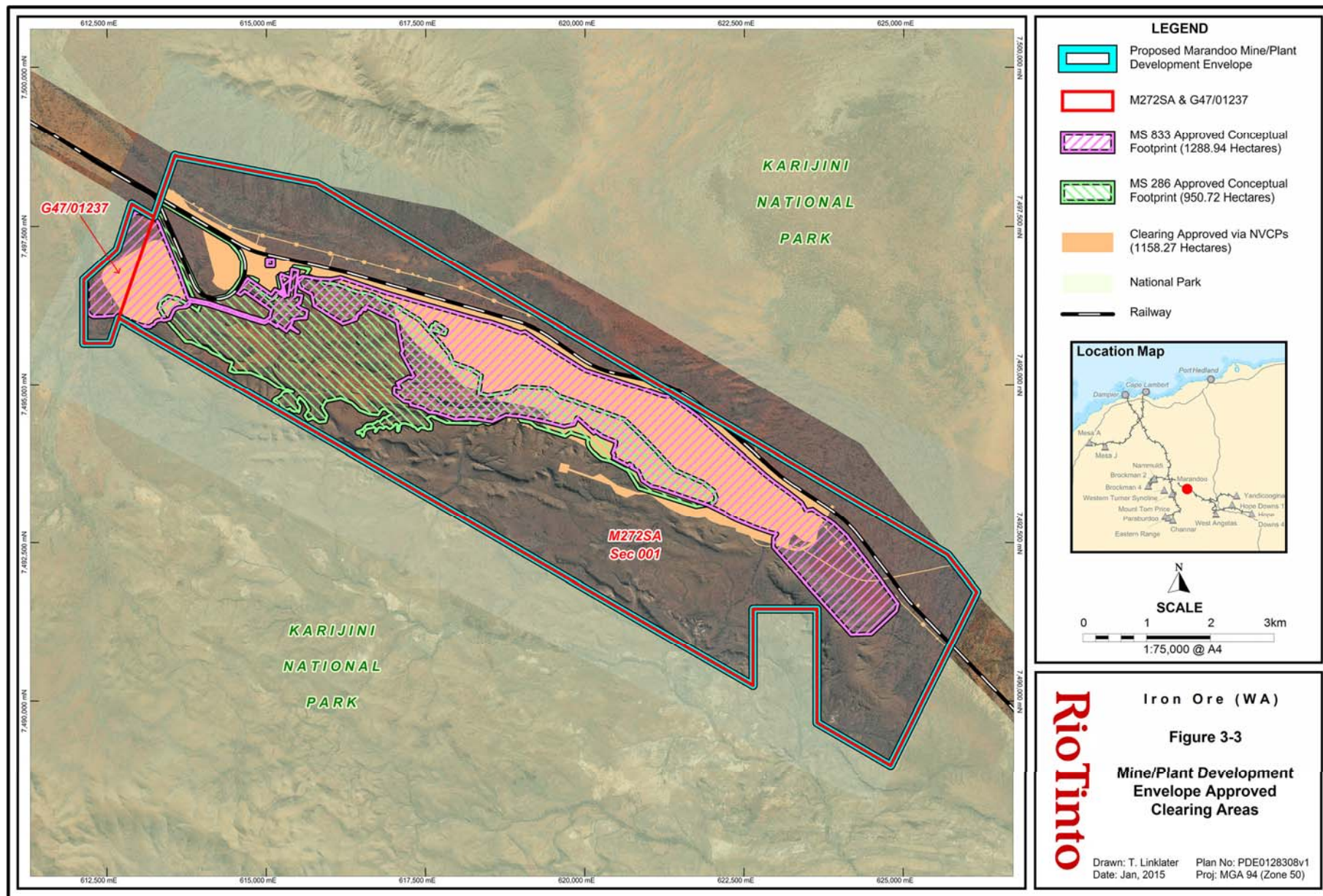
Rio Tinto, as a result of the recent review of the Marandoo Closure Plan, requires up to 400 ha of additional clearing for the ongoing management of subsoil (**SS**) and topsoil (**TS**) resources, surface water management, and operational requirements across the Marandoo mine (refer to Figure 3-4).

The Life of Mine (**LoM**) planning has confirmed that access to additional areas outside of the currently approved conceptual footprints of MS 286, MS 833 and the NVCPs is required to support the long term storage of these additional resources until they are required for rehabilitation and closure. These additional areas will also support ongoing mining operations for the Revised Proposal.

Rio Tinto therefore seeks approval to increase the overall maximum clearing limit for the Marandoo Project to 2,502 ha within the Marandoo Mine/Plant Development Envelope. This increase in the clearing limit includes 400 ha of new disturbance; of which 383 ha is considered to be in Good to Excellent condition (Biota 2008a).

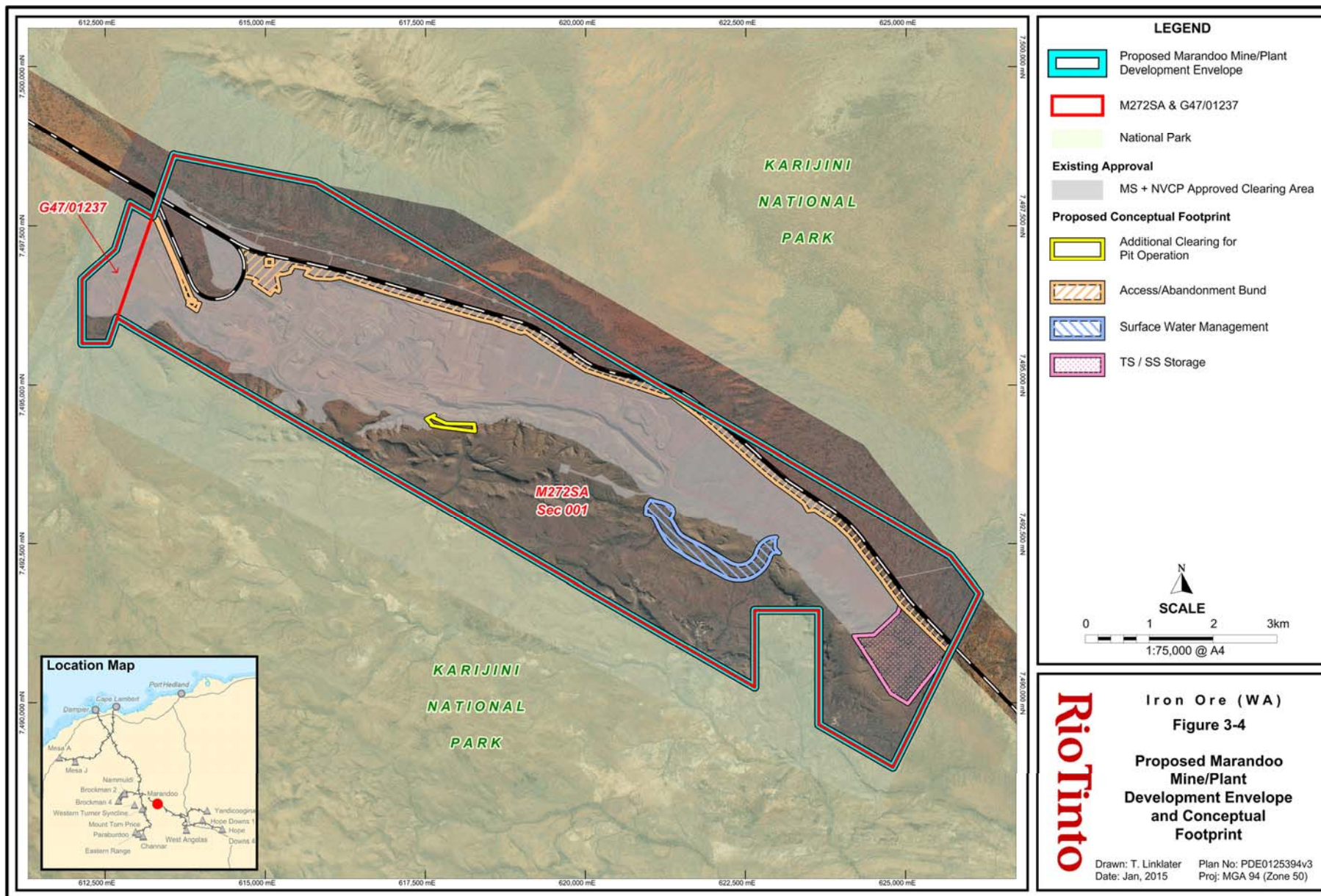
Section 6 and 7 (in Part 4 of this document) addresses the potential environmental impacts associated with the proposed new clearing.





**Figure 3-3: Mine/Plant Development Envelope Approved Clearing Areas**





**Figure 3-4: Proposed Marandoo Mine/Plant Development Envelope and Conceptual Footprint**

### 3.3 ADMINISTRATIVE CHANGES TO SCHEDULE 1 OF THE MARANDOO PROJECT

Rio Tinto requires several changes to key characteristics of the Marandoo Project as provided for in Schedule 1. The following administrative changes are proposed (refer to Table 3-2).

- Elements that provide contextual information about the MMP2 Project are not key characteristics as defined in the EPA Guidance for Defining the Key Characteristics of a Proposal (EPA 2012). Rio Tinto understands the need for broader contextual information about the MMP2 Project however this type of information differs from the “key elements of the proposal for which the proponent is seeking approval that are likely to have a significant impact on the environment” (EPA 2012).

Rio Tinto considers that the key characteristics which remain relevant to MS 833 are: clearing; dewatering; and waste dump management. Therefore these aspects should be retained in Schedule 1 of MS 833 and all other elements are requested to be removed.

- Removal of elements that are adequately managed under other processes. For example:
  - Water supply is managed under the *Rights in Water and Irrigation Act 1914 (RiWi Act)* so this element is requested to be removed.
  - Greenhouse Gas Emissions are managed under the *National Greenhouse and Energy Reporting Act 2007 (NGER Act)* so this element is requested to be removed.
- Inclusion of irrigated agriculture to the dewater disposal water use options. Irrigated agriculture for the HAP was approved and is implemented under MS 883. Rio Tinto proposes that the HAP be included as a water management option in Schedule 1 of the MMP2 Project.

These proposed changes are provided in a consolidated Schedule 1 of the proposed MS for the Revised Proposal (Appendix 4).

Rio Tinto submits that the above proposed changes are administrative and that the intent of, and commitments within, the original environmental impact assessment and approval for MMP2 remains unchanged and still relevant to the Revised Proposal.

**Table 3-2: Changes (*italicised*) to the Key Characteristics of the Marandoo Project**

Proposal Characteristic	Description (MS 286 – as implemented)	Description (MS 833 – as implemented)	Revised Description (Revised Proposal)
<b>Proposal life</b>	-	15 – 20 years	<i>Remove project life</i>
<b>Conceptual Footprint</b>	Within a 4km by 2km area.	-	<i>Remove</i>
<b>Development Envelopes</b>	-	-	<p><i>Marandoo Development Envelopes:</i></p> <ul style="list-style-type: none"> <li><i>Mine/Plant (3,277 ha)</i></li> <li><i>Marandoo Operation Camp (221 ha)</i></li> <li><i>Borefield (1,501 ha)</i></li> <li><i>Linear Infrastructure (629ha).</i></li> </ul>
<b>Clearing limits</b>	Not stated	Up to 1,000 ha, localised impact riparian vegetation along drainage lines	Up to 2,502 ha direct disturbance <i>including</i> localised impact to riparian vegetation along drainage lines within the Mine/Plant Development Envelope.
	-	-	Up to 221 ha direct disturbance within the Marandoo Operation Camp Development Envelope.
	-	-	Up to 200 ha direct disturbance within the Borefield Development Envelope.
<b>Central Pilbara Railway</b>	<p>115 km railway from Rosella Siding to Homestead Junction with spur loop at Marandoo. Average width of disturbance of 14 metres.</p> <p>Inclusive of the following sidings:</p> <ul style="list-style-type: none"> <li>Eagle Siding</li> <li>Juna Downs Siding</li> <li>Dove Siding</li> </ul>		<p><i>Up to 161 ha direct disturbance within the Linear Infrastructure Development Envelope (629 ha).</i></p> <ul style="list-style-type: none"> <li>115 km railway from Rosella Siding to Homestead Junction with spur loop at Marandoo</li> <li>Average width of disturbance 14 metres.</li> </ul> <p>Three sidings include:-</p> <ul style="list-style-type: none"> <li>Eagle Siding 284.8 km to 287.5 km mark (Rosella to Yandi line).</li> <li>Juna Downs Siding 359.7km to 363.1 km mark (Rosella to Yandi line).</li> <li>Dove Siding 50.6 km to 53.6 km mark (Dampier to Tom Price line).</li> </ul>

Proposal Characteristic	Description (MS 286 – as implemented)	Description (MS 833 – as implemented)	Revised Description (Revised Proposal)
Mining rate	15 Mtpa	16 Mtpa	<i>Remove mining rate.</i>
Maximum pit depth	AWT	BWT	<i>AWT and BWT.</i>
Waste rock disposal	-	Surface dumps; expansion of existing stockpiles and progressive backfilling of pits.	Surface dumps; expansion of existing stockpiles and progressive backfilling of pits.
Processing	-	Wet processing of ore	<i>Wet and dry processing of ore</i>
Residue	-	Construction and operation of residue storage facility.	<i>Operation of residue storage facilities and associated infrastructure.</i>
Dewatering	-	Peak dewatering of up to 36.5GL/a	Peak dewatering of up to 36.5GL/a.
Water supply	-	Dewatering	<i>Remove water supply</i>
Surplus water management	-	Dewater disposal through water use hierarchy including: <ul style="list-style-type: none"> <li>• use on site;</li> <li>• transfer to Tom Price;</li> <li>• re-injection at SFB; and</li> <li>• discharge to the environment.</li> </ul>	<i>Management of surplus dewater through water use options including:</i> <ul style="list-style-type: none"> <li>• use on site including <i>Marandoo Camp</i>;</li> <li>• transfer to Tom Price <i>for water supply</i>;</li> <li>• re-injection at SFB;</li> <li>• <i>irrigated agriculture</i>; and</li> <li>• discharge to the environment.</li> </ul>
Hydrological Research programme	-	-	<ul style="list-style-type: none"> <li>• Infrastructure and track to be retained post trial (until Marandoo is decommissioned).</li> <li>• Rehabilitation.</li> </ul>
Fibre optic cable	Located on the existing Rosella to Yandi line: <ul style="list-style-type: none"> <li>• From 284.8km to 287.5km mark</li> <li>• From 359.7km to 363.1km mark</li> </ul>		Located on the existing Rosella to Yandi line: <ul style="list-style-type: none"> <li>• From 284.8km to 287.5km mark</li> <li>• From 359.7km to 363.1km mark</li> </ul>
Greenhouse Gas Emissions	-	Up to 190,000 tonnes of CO <sub>2</sub> -e per year, plus one off emission of 50,000 tonnes CO <sub>2</sub> -e resulting from clearing. Up to 15.3 tonnes CO <sub>2</sub> -e/Kt of ore.	<i>Remove GHG limit</i>

Subject to approval of this Proposal, Rio Tinto proposes the following summary for the Revised Proposal:

**Table 3-3: Summary of the Revised Proposal**

<b>Proposal Title</b>	Marandoo Iron Ore Project
<b>Proponent Name</b>	Hamersley Iron Pty Limited
<b>Short Description</b>	<p>Development and operation of an open cut iron ore mine and associated infrastructure at the Marandoo iron Ore Mine, 37 km east of Tom Price in the Pilbara region.</p> <p>Surplus dewater management options include use on site and camp, transfer to Tom Price town, re-injection to Southern Fortescue Borefield; irrigated agriculture and discharge to the environment.</p> <p>115 km Railway and associated infrastructure from Rosella Siding to Homestead Junction with spur loop at Marandoo and three sidings (Eagle, Juna Downs, and Dove).</p>

**Table 3-4: Location and authorised extent of physical and operational elements**

Column 1	Column 2	Column 3
Element	Location	Authorised Extent
Mining Area (AWT and BWT)	Figure 3-1	Clearing of up to 2502 ha of localised impact including riparian vegetation along drainage lines within the Marandoo Mine/Plant Development Envelope (3,277 ha).
Marandoo Camp	Figure 3-1	Clearing of up to 221 ha within the Camp Development Envelope (221 ha).
Borefield	Figure 3-1	Clearing of up to 200 ha within the Borefield Development Envelope (1,501 ha).
Linear Infrastructure	Figure 3-1	Clearing of up to 161 ha within the Linear Infrastructure Development Envelope (629 ha).

## 4. STAKEHOLDER CONSULTATION

Consultation with relevant stakeholders has been ongoing since Marandoo operations commenced and has included the following government agencies and non-government organisations:

- Government agencies:
  - Office of the Environmental Protection Authority (**OEPA**);
  - Department of Parks and Wildlife (**Parks and Wildlife**);
  - Department of Environment and Regulation (**DER**);
  - Department of Water (**DoW**);
  - Department of Mines and Petroleum (**DMP**);
  - Department of State Development (**DSD**);
  - Department of Aboriginal Affairs (**DAA**); and
  - Shire of Ashburton
- Community:
  - Eastern Guruma people;
  - Yinhawangka Bunjima People;
  - Banjima People; and
  - Tom Price and Paraburdoo communities.

Consultation specific to this Revised Proposal has been undertaken with the following relevant Decision Making Authorities (**DMAs**): OEPA, Parks and Wildlife, DER, DoW and DMP. Details of this consultation are provided below in Table 4-1.

**Table 4-1: Stakeholder Consultation Table**

Stakeholder	Date	Topics/issued raised	Proponent response/outcome
Office of the Environmental Protection Authority	August 2014 Rio Tinto / OEPA Managers Monthly meeting	Rio Tinto discussed the proposed request and expected timing for referral to the OEPA.	OEPA noted this.
Department of Parks and Wildlife	2 September 2014 Rio Tinto / Parks and Wildlife Quarterly meeting	Rio Tinto explained the requirement for additional area to manage subsoil and topsoil resources and the proposal to submit a s45c application to the OEPA.	Parks and Wildlife did not raise any significant concerns with the proposed works or approvals pathway.  A copy of this Revised Proposal has been submitted to Parks and Wildlife and comments will be addressed in subsequent versions during the assessment process.
Office of the Environmental Protection Authority	September 2014 Rio Tinto / OEPA Managers Monthly meeting	Rio Tinto discussed the proposed request and sought advice from the OEPA regarding an appropriate approvals application (referral via s45c or s38 of the EP Act).  The OEPA requested a letter from RTIO explaining the proposed scope of works.	Rio Tinto provided further details regarding the scope of works to the OEPA (on 2 September 2014) and proposed submission of a s45c application.
Office of the Environmental Protection Authority	17 September 2014	OEPA considered that the new clearing would more than likely require an offset which is a new factor for the MMP2 Project. Therefore Rio Tinto was requested to refer the proposal via s38 of the EP Act instead of s45c.	This was noted.  Rio Tinto withdrew the s45c application.
Office of the Environmental Protection Authority	30 October 2014	Rio Tinto met with OEPA to discuss the scope of the s38 referral and proposed that it form a Revised Proposal to MS 833 and an opportunity to rationalise the existing Ministerial Statements associated with the Marandoo Project.	The OEPA accepted this proposed approach and sort clarity from Rio Tinto regarding timing of referral.
Department of Parks and Wildlife	30 October 2014	Rio Tinto provided an update on the scope of the proposed works and the revised approvals pathway to Parks and Wildlife.	Parks and Wildlife noted this and will review the Revised Proposal once referred to the OEPA.



Stakeholder	Date	Topics/issued raised	Proponent response/outcome
Office of the Environmental Protection Authority	17 December 2014 Rio Tinto/OEPA Managers	OEPA discussed high level queries regarding the Referral Document and requested additional information regarding approved and actual clearing, fauna surveys, and stakeholder consultation. This was requested in writing dated 18 December 2014 with a request for this additional information to be provided by the 9 January 2015.	Rio Tinto met with the OEPA on 6 January 2015 to clarify the request for additional information in the referral.  Rio Tinto addressed the queries and submitted a revised referral on 9 January 2015.
Department of Parks and Wildlife	6 January 2015	Rio Tinto provided an update on the referral document and sought Parks and Wildlife advice regarding management measures for fauna and potential impacts to fauna habitats.	Rio Tinto amended the referral document to minimise impacts to fauna habitats.  The referral document was provided to Parks and Wildlife on 9 January 2015.
Department of Environmental Regulation	7 January 2015	Rio Tinto provided a brief summary of the scope of the referral document and approvals pathway to the DER.	The referral document will be provided to DER by 9 January 2015.
DoW	7 January 2015	Rio Tinto provided a brief summary of the scope of the referral document and approvals pathway to the DoW.	The referral document will be provided to DoW by 9 January 2015.
Department of Mines and Petroleum	8 January 2015	Rio Tinto provided a brief summary of the scope of the referral document and approvals pathway over the phone to Matt Boardman from the Operations, Environment at the DMP.  On receiving a copy of the referral the DMP will review and provide comment to the OEPA.  Rio Tinto offered to meet with DMP to discuss any queries regarding the referral document.	The referral document will be provided to DMP by 9 January 2015.

## PART 3 – ENVIRONMENTAL MANAGEMENT

### 5. ENVIRONMENTAL APPROVALS PROCESS

This Proposal is a revision to the existing Marandoo Project. This Environmental Review document has been provided to the OEPA to support the referral of the Revised Proposal and has been prepared in accordance with the EPA's Environmental Assessment Guidelines (EAGs): specifically Defining the Key Characteristics of a Proposal *Environmental Protection Act 1986* (**EAG 1**) (EPA 2012b), EAG for Environmental factors and objectives (**EAG 8**) (EPA 2013a) and EAG for Application of a significance framework in the environmental impact assessment process (**EAG 9**) (EPA 2013b).

The referral form for this Revised Proposal has been prepared in accordance with Section 38(1) of the EP Act and is provided in Appendix 2.

Subject to approval of this Revised Proposal it is proposed that a new Ministerial Statement be issued for the Revised Proposal which will supersede MS 286, MS 598, and MS 833. It is intended that the Revised Proposal will be managed in accordance with the existing legislative requirements and the existing Marandoo OEMP.

#### 5.1 ASSESSMENT OF ENVIRONMENTAL FACTORS

The environmental factors and objectives adopted by the EPA are listed EAG 8. Rio Tinto has identified and assessed the key environmental factors that are relevant to this Revised Proposal, based on EAG 8 and EAG 9. The outcome of the assessment is illustrated below in Figure 5-1.

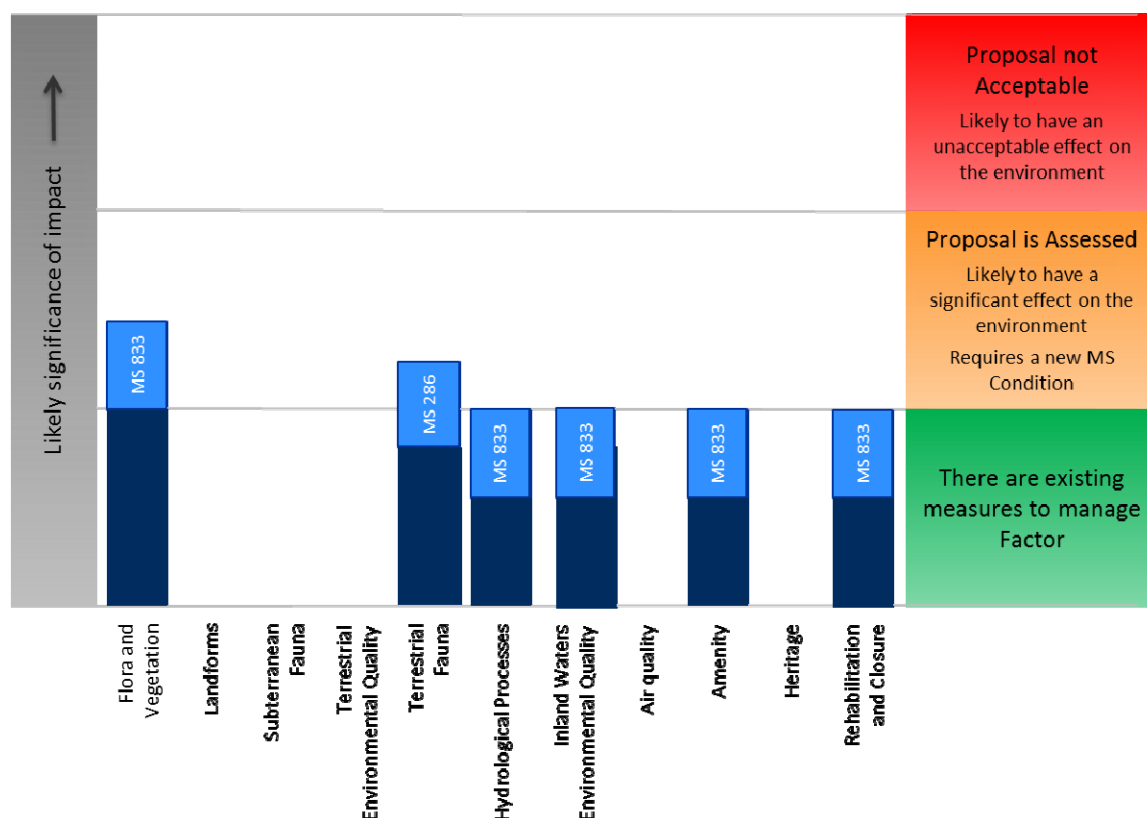


Figure 5-1: Environmental Factors for the Revised Proposal (EAG 8/EAG 9)

The key environmental factors relevant to this Revised Proposal are flora and vegetation and terrestrial fauna.

The above assessment included consideration of existing legislative controls for each identified environmental factor (shown in Figure 5-1) which determined that flora and vegetation and terrestrial fauna are the key environmental factors for this Revised Proposal.

Rio Tinto considers that the remaining environmental factors the Revised Proposal will not result in any significant change in addition to, or different from, that originally assessed and approved under MS 286, MS 598, and MS 833. These factors are addressed in Section 9.

As such, Rio Tinto believes that the Revised Proposal meets the EPA's Objectives and should be assessed at an Assessment on Proponent Information (**API**) - A level of assessment where the existing conditions of MS 286, MS 598, and MS 833 are appropriate to continue managing the Revised Proposal to meet the EPA's objectives.

## 5.2 ENVIRONMENTAL MANAGEMENT OVERVIEW

Rio Tinto has developed and refined environmental management objectives, systems and procedures over decades of operational mining experience in the Pilbara region that are successfully applied at multiple iron ore mine sites.

The key components of the environmental management approach that will continue to be implemented for the Revised Proposal include:

1. The Rio Tinto Iron Ore Group Health, Safety, Environment, Communities and Quality (**HSECQ**) Policy which is the guiding document for environmental management and provides context and direction for continuous improvement.
2. The Rio Tinto Iron Ore (WA) Environmental Management System (**EMS**) contained within the HSEQ Management System which is a continuous improvement model covering:
  - systematic assessment of environmental risk and legal requirements; systems for training, operational control, communication, emergency response and corrective actions;
  - the development of objectives and targets for improvements; and
  - audits and review.
3. MS 833 includes the following conditions relevant to the Flora and Vegetation:
  - Condition 6 MS 833 for the Coolibah Woodlands;
  - Condition 7 MS 833 for Springs, Pools and Creeklines of Karijini National Park;
  - Condition 8 of MS 833 for Dewater Discharge;
  - Condition 10 MS 833 for Rehabilitation; and
  - Condition 11 and 12 MS 833 for Closure.

4. The Marandoo OEMP was prepared for the MMP1 Project, and will be updated to only include management plans for the following:
  - Coolibah Woodland
  - Minthicoondunna Spring
  - Dewatering MP
5. Two existing licences issued under Part V of the EP Act:
  - Operating Licence L6869/1992/11 for processing, dewatering, screening, sewage treatment facility and landfill.
  - Operating Licence L8507/2010/1 for the Marandoo Camp sewage treatment facility.

Note that these two licences will be amalgamated by February 2015, resulting in:

  - Operating Licence L6869/1992/12 for processing, dewatering, screening, sewage treatment facility and landfill.
6. Four existing licences<sup>3</sup> issued under the *Rights in Water Irrigation Act 1914 (RIWI Act)*:
  - i. RiWI Act Groundwater Licence GWL107420(14) for abstraction of 36,500,000 kL/annum for dewatering, dust suppression for earthworks and construction, general campsite use, recovery of water for environmental purposes, water use for industrial processing, *mineral exploration activities*, earthwork and construction use, water requirements to maintain pool and lake levels and general water supply purposes.
  - ii. RiWI Act Groundwater Licence GWL163229(3) for abstraction of 12,000 kL/annum for exploration related activities, namely dust suppression for earthwork and construction purposes, exploratory drilling operations, geotechnical investigation, potable water supply and general campsite purposes. The mineral exploration activities have subsequently been added to GWL107420(14) with plans to relinquish GWL163229(3) in 2015.
  - iii. RiWI Act Groundwater Licence GWL167317(3) for abstraction of 300,000 kL/annum for dust suppression for earthwork and construction *purposes, earthworks and construction of the Marandoo camp*, and potable water supply.
  - iv. RiWI Act Groundwater Licence GWL158662(2) for abstraction of 400 kL/annum for exploratory drilling operations purposes.
7. The Rio Tinto closure approach will continue to guide closure planning for the Revised Proposal. This approach governs:
  - commencement of planning for closure prior to project commencement;

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<sup>3</sup> GWL163229(3), GWL167317(3) and GWL158662(2) were applied and approved for water use required for the Marandoo Camp whilst in Construction Phase and for resource evaluation and exploration works in the broader Marandoo area. GWL163229(3) is now captured under GWL107420(14), and will therefore be relinquished in 2015.

The remaining abstraction limit of 300,400 kL/annum is therefore in addition to the 36.5 GL/a limit approved for the dewatering and operating activities of the Marandoo mine, but is required for exploration activities and camp purposes.

- stakeholder consultation regarding closure;
- financial provisioning for closure;
- the review of closure plans; and
- the development of Decommissioning Plans five years prior to scheduled closure.

Consideration of existing legislative controls for Flora and Vegetation is illustrated in Figure 5-1.

### 5.3 PRINCIPALS OF ENVIRONMENTAL PROTECTION AND EIA

This section describes how the objectives of the EP Act and the principles of Environmental Impact Assessment (**EIA**) have been addressed and how the Revised Proposal meets the criteria for an Assessment of Proponent Information (**API**) (Category A) assessment as described in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012 (2012 Administrative Procedures)* (EPA 2012b).

#### 5.3.1 Principles of Environmental Protection

The concept of sustainable development came to prominence at the World Commission on Environment and Development (1987), in the report entitled *Our Common Future*, which defined sustainable development as; *development that meets the needs of the present without compromising the ability of future generations to meet their own needs*.

In recognition of the importance of sustainable development, the Commonwealth Government developed a National Strategy for Ecologically Sustainable Development (Commonwealth of Australia 1992) that defines Ecologically Sustainable Development (**ESD**) as “...using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased”.

The principles of ESD are incorporated into the EP Act and the EPA’s Position Statement No. 7 - Principles of Environmental Protection (EPA 2004c). These principles are:

- the Precautionary Principle;
- the Principle of Intergenerational Equity;
- the Principle of the Conservation of Biological Diversity and Ecological Integrity;
- principles in relation to Improved Valuation, Pricing and Incentive Mechanisms; and
- the Principle of Waste Minimisation.

These Principles have been considered for the Revised Proposal and are summarised in Table 5-1.

**Table 5-1: Principles of Environmental Protection**

Principle	Consideration Given in Revised Proposal
<p><b>1. Precautionary principle</b></p> <p>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.</p> <p>In the application of the precautionary principle, decisions should be guided by:</p> <ul style="list-style-type: none"> <li>Careful evaluation to avoid, where practicable, serious or irreversible damage to the environment.</li> <li>An assessment of the risk-weighted consequences of various options.</li> </ul>	<p>Rio Tinto has undertaken comprehensive baseline studies and modelling of aspects of the Revised Proposal that may affect the environment.</p> <p>Where significant potential environmental impacts were identified, management and mitigation measures have been, and will continue to be, implemented in design and operation of the Revised Proposal in order to avoid or minimise these potential environmental impacts.</p>
<p><b>2. Intergenerational equity</b></p> <p>The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.</p>	<p>The Rio Tinto Iron Ore HSECQ Policy incorporates the principle of sustainable development and includes the following commitments:</p> <ul style="list-style-type: none"> <li>Prioritising research and implementation programs through technology to reduce impacts to land, enhancing our contribution to biodiversity and improving our efficiency in water and energy use.</li> <li>Identifying climate change improvement solutions through dedicated optimisation work programs.</li> <li>Contributing to the health and well-being of local communities.</li> </ul>
<p><b>3. Conservation of biological diversity and ecological integrity.</b></p> <p>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</p>	<p>Biological investigations are undertaken by the Proponent during the Proposal planning process to identify aspects of the environment that are of conservation significance. Where significant potential environmental impacts are identified, measures have been, and will continue to be, incorporated into Proposal design and management to avoid or minimise these impacts where practical.</p> <p>The Rio Tinto HSEQ Management System has well established rehabilitation procedures for restoring disturbed environments.</p>

Principle	Consideration Given in Revised Proposal
<p><b>4. Improved valuation, pricing and incentive mechanisms</b></p> <ul style="list-style-type: none"> <li>Environmental factors should be included in the valuation of assets and services.</li> <li>The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement.</li> <li>The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.</li> <li>Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentives structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</li> </ul>	<p>Environmental factors have been considered during the design phase of the Revised Proposal, and will continue to be considered during the operational and closure phases of the Proposal.</p> <p>Proposal design and operational management will continue to investigate and implement opportunities to reduce impact to land, and improve efficiency in water and energy use, in accordance with the Rio Tinto Iron Ore Group HSECQ Policy.</p>
<p><b>5. Waste minimisation</b></p> <p>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</p>	<p>All reasonable and practicable measures are taken to minimise the generation of waste and its discharge into the environment through the existing EMP and procedures.</p>

#### 5.4 PRINCIPLES OF EIA FOR THE PROPONENT

Table 5-2 outlines the principles of EIA as described in clause 5 of the 2012 Administrative Procedures.

**Table 5-2: Principles of EIA for the Proponent**

The principles of EIA for the Proponent		Discussed in the Document
1.	Consult with all stakeholders, including the EPA, DMAs, other relevant government agencies and the local community as early as possible in the planning of their proposal, during the environmental review and assessment of their proposal, and where necessary during the life of the project.	Rio Tinto will continue to consult with relevant stakeholders throughout the environmental approval process and implementation of the Revised Proposal.
2.	Ensure the public is provided with sufficient information relevant to the EIA of a proposal to be able to make informed comment, prior to the EPA completing the assessment report.	This EIA has been prepared to provide sufficient information about the Revised Proposal, its potential environmental impacts and proposed management measures.

	The principles of EIA for the Proponent	Discussed in the Document
3.	Use best practicable measures and genuine evaluation of options or alternatives in locating, planning and designing their proposal to mitigate detrimental environmental impacts and to facilitate positive environmental outcomes and a continuous improvement approach to environmental management.	Avoiding and minimising impacts to the environment where practical is a key management commitment for the Revised Proposal, and has been implemented during design and operation. As detailed in Section 5, continuous improvement is a key aspect of the Rio Tinto Iron Ore (WA) HSEQ Management System.
4.	Identify the environmental factors likely to be impacted and the aspects likely to cause impacts in the early stages of planning for their proposal. The onus is on the proponent through the EIA process to demonstrate that the unavoidable impacts will meet the EPA objectives for environmental factors and therefore their proposal is environmentally acceptable.	Figure 5-1 identifies the key environmental factor relevant to the Revised Proposal, potential environmental impacts, proposed management measures, and how the EPA objective relevant to this environmental factor can be met.  Table 9-1 to Table 9-5 provide a brief EIA of the Revised Proposal for other environmental factors.
5.	Consider the following, during project planning and discussions with the EPA, regarding the form, content and timing of their environmental review:  a. The activities, investigations (and consequent authorisations) required to undertake the environmental review.  b. The efficacy of the investigations to produce sound scientific baseline data about the receiving environment.  c. The documentation and reporting of investigations.  d. The likely timeframes in which to complete the environmental review;  e. Use best endeavours to meet assessment timelines.	Rio Tinto plans to discuss any concerns once the OEPA have had an opportunity to review the Revised Proposal. The content of this environmental review will incorporate advice provided by the OEPA.  Comprehensive studies have been undertaken to support the environmental review, and are provided as appendices.  Project design has considered the expected timeframes for completion of supporting studies, environmental review preparation and assessment, and timings for key milestones are regularly discussed with the OEPA.
6.	Identify in their environmental review, subject to EPA guidance:  a. Best practicable measures to avoid, where possible, and otherwise minimise, rectify, reduce, monitor and manage impacts on the environment.  b. Responsible corporate environmental policies, strategies and management practices, which demonstrate how the proposal can be implemented to meet the EPA environmental objectives for environmental factors.	Table 6-5 and Table 7-3 identify the key management measures to avoid where possible, and otherwise minimise impacts on the environment.  These tables also provide an assessment of how the Revised Proposal meets the EPA environmental objective for the key environmental factor, based on implementation of key management measures, and corporate environmental policies.

## 5.5 CRITERIA FOR API CATEGORY A

Clause 10.1.1 in the 2012 Administrative Procedures states that the OEPA applies an API-A level of assessment where the proponent has provided sufficient information about the proposal, its environmental impacts, proposed management, and it appears that the proposal is consistent with Category A criteria. Consistency of the Proposal with these criteria is addressed in Table 5-3.



**Table 5-3: Criteria for API Category A**

Category A Criteria	Discussion
The proposal raises a limited number of key environmental factors that can be readily managed and for which there is an established condition-setting framework.	<p>The Revised Proposal raises two key environmental factors:</p> <ul style="list-style-type: none"> <li>• flora and vegetation; and</li> <li>• terrestrial fauna.</li> </ul> <p>These are assessed in Table 6-3 and Table 7-3.</p> <p>These factors are typical of iron ore mining in the Pilbara and can be readily managed under the existing conditions of the MS 286 and MS 833. However a new Condition is required for the significant residual impact of clearing.</p>
The proposal is consistent with established environmental policies, guidelines and standards.	The Revised Proposal is consistent with established environmental policies, guidelines and standards.
The proponent can demonstrate that it has conducted appropriate and effective stakeholder consultation, in particular with DMAs.	<p>Stakeholder consultation has been, and will continue to be undertaken throughout the approvals process and implementation of the Revised Proposal.</p> <p>Section 4 details the stakeholder consultation that has been undertaken to date, issues raised, and Proponent response to issues raised.</p>
There is limited or local concern only about the likely effect of the proposal, if implemented, on the environment.	The location of the Proposal is very remote, with no neighbouring mining. The Revised Proposal is adjacent to the Karijini National Park but will not result in direct impact to the Park.

## 5.6 PROPOSED ENVIRONMENTAL CONDITIONS

Rio Tinto proposes to maintain and adhere to the existing environmental conditions (where still relevant) of MS 286 and MS 833 to address the environmental aspect of the Revised Proposal. It is proposed that these environmental conditions be applied to the Revised Proposal.

These environmental conditions do not duplicate other regulatory controls that are, or will be, applied under other existing legislation. A condition has not been proposed if the environmental factor is already adequately addressed by other environmental control instruments.

## PART 4 – ENVIRONMENTAL IMPACT ASSESSMENT OF THE REVISED PROPOSAL

This section has been prepared in accordance with the EPA's Environmental Assessment Guidelines (EAGs), specifically *Defining the Key Characteristics of a Proposal* (**EAG 1**) (EPA 2012b) and EAG for *Environmental Factors and Objectives* (**EAG 8**) (EPA 2013a).

Rio Tinto considers that key environmental factors relevant to the Revised Proposal are flora and vegetation and terrestrial fauna. The Revised Proposal is not expected to affect any other environmental factors different to, or in addition to, that as assessed and approved under the existing MS 286 and MS 833.

### 6. FLORA AND VEGETATION

This Section describes the flora and vegetation that occurs within the Marandoo Mine/Plant Development Envelope and provides details regarding the potential impacts to conservation significant vegetation communities and flora species as a result of this Revised Proposal. The EPA applies the following objective from EAG 8 in its assessment of proposals that may affect vegetation and flora:

*To maintain representation, diversity, viability and ecological function at the species, population and community level.*

#### 6.1 FLORA AND VEGETATION STUDIES

Flora and vegetation studies have been undertaken across the Marandoo Mine/Plant Development Envelope since the 1970s, covering an area in excess of 6,000 ha. The combined coverage of these surveys, with a number of targeted searches for Declared Rare Flora (**DRF**) and Priority Flora in the area, provides a comprehensive understanding of the existing vegetation and flora in the Marandoo Mine/Plant Development Envelope.

Studies relevant to this Proposal are summarised in Table 6-1.

**Table 6-1: Summary of Relevant Flora and Vegetation Studies**

Author	Survey name	Study area, type and timing	Study standard/guidance and limitations
Mattiske 1992	<i>Flora and vegetation: Marandoo Project Area</i>	Development Envelope and surrounds (20,000 ha). Desktop review, reconnaissance and field surveys. May, June, August and September 1991.	Consultation with the Environmental Protection Authority.  Limitation: access to some areas constrained due to lack of tracks and rainfall events during June and July 1991.
Biota 2008a	<i>MMP2 Project Vegetation and Flora Survey,</i>	Development Envelope and surrounds (6,253 ha). Desktop review and baseline field survey.  March and May 2007 and April 2008.	EPA Guidance Statement No. 51. Level 2 survey. Consultation with Parks and Wildlife <sup>4</sup> (EM Branch and Pilbara Region).  Limitations: vegetation sampled within some quadrats was found not to correlate with the mapping unit presented in earlier studies.
Biota 2008c	<i>A Vegetation and Flora Survey of the Rio Tinto Rail Duplication – Bellbird Siding to Juna Downs</i>	Rail Duplication – Bellbird Siding to Juna Downs (120km in length).  23 May to 1 June 2008.	EPA Guidance Statement No. 51. Level 2 survey. Consultation with Parks and Wildlife (EM Branch and Pilbara Region).  Limitations: dry conditions, not optimal for collection of ephemeral flora or cryptic perennial species.

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<sup>4</sup> Conservation and Land Management at the time

## 6.2 IBRA BIOREGIONS AND SUBREGIONS

The Revised Proposal is located in the Pilbara Bioregion as defined in the Interim Biogeographic Regionalisation of Australia (IBRA) Report (Australian Government 2012). The Pilbara bioregion has been divided into 4 sub regions: Chichester (PIL1); Fortescue Plains (PIL2); Hamersley (PIL3); and Roebourne (PIL4). The Marandoo Mine/Plant Development Envelope falls within the Hamersley (PIL3) sub-region which is described as:

‘Mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges. The climate is Semi-desert tropical, average 300 mm rainfall, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon. Drainage is into either the Fortescue (to the north), the Ashburton to the south, or the Robe to the west.’

## 6.3 BEARDS VEGETATION MAPPING

The Marandoo Mine/Plant Development Envelope lies entirely within the Fortescue Botanical District of the Eremaean Botanical Province as defined by Beard (1975). The vegetation of this Province is typically open and frequently dominated by spinifex, wattles and occasional eucalypts. Beard (1975) mapped the vegetation of the Marandoo Mine/Plant Development Envelope as four main vegetation units:

- Mulga (*Acacia aneura*) continuous low woodland;
- Mulga (*Acacia aneura*) sparse low woodland;
- Scattered Snappy Gums (*Eucalyptus leucophloia*) over a Hard Spinifex (*Triodia wiseana*) hummock grassland; and
- Scattered shrubs of Mulga (*Acacia aneura*) and *Acacia pyrifolia* over a *Triodia pungens*, *T basedowii* hummock grassland.

Beard (1975) mapped these units at 1:1,000,000 therefore these mapping units correlate only broadly with the vegetation mapping that has been conducted specifically for the Marandoo operation and surrounds.

## 6.4 LAND SYSTEMS

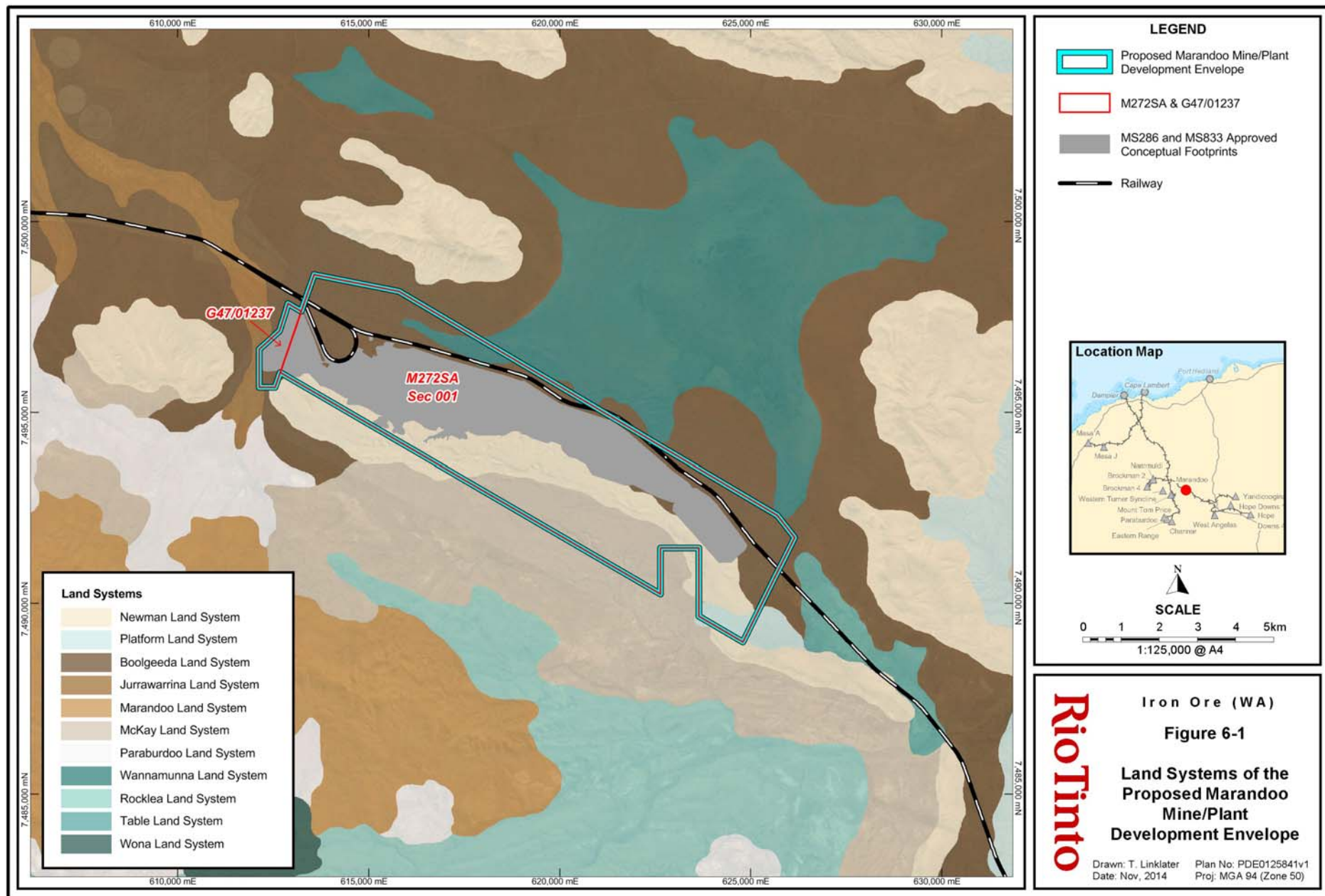
Land Systems (Rangelands) mapping covering the Marandoo Mine/Plant Development Envelope has been prepared by the Western Australian Department of Agriculture (van Vreeswyk *et al.* 2004). Land systems comprise a series of ‘land units’ that occur on characteristic physiographic types within the land system. Of the 107 Land Systems that have been identified in the Pilbara, six occur within the Marandoo Mine/Plant Development Envelope as described in Table 6-2 and illustrated in Figure 6-1.

**Table 6-2: Land Systems in the Marandoo Mine/Plant Development Envelope**

Land System	Description
Boolgeeda	<p>Stony lower slopes and plains found below hill systems supporting hard and soft spinifex grasslands and mulga shrublands.</p> <p>Occurs on the stony plains on the northern side of the Marandoo Ridge.</p>
Jurrawarrina	<p>Hardpan plains and alluvial tracts supporting mulga shrublands with tussock and spinifex grasses.</p> <p>Occurs on the western boundary of the proposed Mine/Plant Development Envelope.</p>
McKay	<p>Hills, ridges, plateau remnants and breakaways of meta-sedimentary and sedimentary rocks supporting hard spinifex grasslands.</p> <p>Located on the southern side of the Marandoo Ridge, in the southern part of the proposed Mine/Plant Development Envelope.</p>
Newman	<p>Rugged jasperite plateaux, ridges and mountains supporting hard spinifex grasslands.</p> <p>Dominates the hills of the Marandoo Ridge.</p>
Platform	<p>Dissected slopes and raised plains supporting hard spinifex grasslands.</p> <p>Occurs on the south-eastern corner of the proposed Mine/Plant Development Envelope.</p>
Wannamunna	<p>Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands).</p> <p>Occurs on the northern boundary of the proposed Mine/Plant Development Envelope.</p>

Most of the Land Systems occurring within the Marandoo Mine/Plant Development Envelope are widespread throughout the Hamersley subregion and well represented within the adjacent Karijini National Park.

However, the Jurrawarrina and Wannamunna Land Systems have a smaller area of representation than the other units and the Jurrawarrina Land System occurs only in small areas along the western boundary of Karijini National Park.



**Figure 6-1: Land Systems of the Proposed Marandoo Mine/Plant Development Envelope**

## 6.5 VEGETATION

Twenty-seven vegetation types were recorded (Biota 2008a, Mattiske 1992) study areas of the Marandoo Mine/Plant Development Envelope, infrastructure corridor and surrounds. Twenty-six of these vegetation types are relevant to this Revised Proposal as summarised in Table 6-3 and illustrated in Figure 6-2.

**Table 6-3: Vegetation Types within the Marandoo Mine/Plant Development Envelope**

Vegetation Mapping Code	Vegetation Description
<b>Broad Drainage Areas and Basins</b>	
1a	<i>Acacia aneura</i> woodland on broad flat alluvial and colluvial areas
1b	Open grassland
1c	<i>Triodia melvillei</i> hummock grassland
<b>Major Flowlines and Creeks</b>	
2a	<i>Acacia aneura</i> – <i>A. pruinocarpa</i> woodland in major flowlines
2b	<i>Eucalyptus xerothermica</i> – <i>Acacia aneura</i> woodland in major flowlines
3c	<i>Eucalyptus xerothermica</i> – <i>Acacia aneura</i> woodland over <i>Acacia citrinoviridis</i> tall shrubland in major flowlines
2e	<i>Eucalyptus victrix</i> woodland in secondary creeklines
<b>Minor Creeks</b>	
3a	<i>Acacia</i> species shrubland in minor flowlines
<b>Flats</b>	
4a	<i>Acacia aneura</i> – <i>A. pruinocarpa</i> woodland
4b	<i>Acacia synchronicia</i> – <i>*Vachellia farnesiana</i> tall shrubland
4c	<i>Acacia aneura</i> scattered low trees over open grassland
4d	<i>Acacia xiphophylla</i> low woodland
4e	<i>Triodia wiseana</i> , <i>T. pungens</i> hummock grassland
4f	<i>Triodia wiseana</i> , <i>T. sp.</i> Shovelanna Hill, <i>T. angusta</i> hummock grassland
<b>Ridges and Erosional Spurs</b>	
5a	<i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia</i> spp. scattered shrubs over <i>Triodia brizoides</i> , <i>T. wiseana</i> hummock grassland
5b	<i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia</i> spp. scattered shrubs over <i>Triodia wiseana</i> ( <i>T. brizoides</i> , <i>T. sp.</i> Shovelanna Hill) hummock grassland
5c	<i>Eucalyptus leucophloia</i> scattered low trees over <i>Acacia</i> spp. scattered shrubs over <i>Triodia sp.</i> Shovelanna Hill ( <i>T. wiseana</i> ) hummock grassland

Vegetation Mapping Code	Vegetation Description
5d	<i>Eucalyptus gamophylla</i> scattered low mallees over <i>Acacia</i> spp. scattered tall shrubs over <i>Triodia</i> sp. Shovelanna Hill ( <i>T. wiseana</i> ) hummock grassland
5e	Mixed community supporting a range of structural formations from <i>Acacia aneura</i> low woodlands to sheer rock faces with <i>Astrotricha hamptonii</i> scattered shrubs to <i>Eriachne mucronata</i> open grasslands
5f	<i>Acacia aneura</i> low woodland to woodland on rocky ledges and upper slopes of ranges
5g	<i>Eucalyptus gamophylla</i> scattered low mallees over <i>Triodia wiseana</i> hummock grassland
5h	<i>Triodia wiseana</i> hummock grassland with mixed <i>Acacia</i> spp. emergent shrubs
<b>Low Foothills and Escarpments</b>	
6a	Mixed <i>Triodia</i> spp. hummock grassland on upper slopes and ridges of small foothills and escarpments
6b	Mixed <i>Acacia aneura</i> , <i>Acacia</i> spp. low woodland to woodland on upper slopes of low foothills
6c	<i>Acacia aneura</i> low woodland to woodland on breakaways of low foothills
6d	<i>Eucalyptus trivalva</i> , <i>E. socialis</i> low mallee woodland with pockets of <i>Triodia angusta</i> , <i>T. wiseana</i> hummock grassland on shallow calcrete soils

Based on the vegetation condition scale developed by Trudgen (1988) as cited in Biota (2008a, 2008c), the vegetation of the Marandoo Mine/Plant Development Envelope is considered to generally be in Very Good to Excellent condition. The exceptions to this are: sections of Mulga vegetation on the clayey flats that show signs of repeated burns and were considered to be in Good condition; and areas in close proximity to the existing mine and associated infrastructure that were considered to be typically in Poor to Good condition (Biota 2008a, 2008c). Approximately 383 ha of the Proposal area is considered to be in Good to Excellent condition.

Twenty weed species were recorded by Biota (2008a). None of the species recorded are Declared Plants under the *Agriculture and Related Resources Protection Act 1976*, however *Cenchrus* species and *\*Acetosa vesicaria* are considered to be serious environmental weeds. Where present, weeds typically occurred as scattered individuals with occasional dense infestations (Biota 2008a).

## 6.6 CONSERVATION SIGNIFICANT VEGETATION

No Threatened Ecological Communities (TECs), Priority Ecological Communities (PECs) or vegetation types of high conservation significance were recorded in the Marandoo Mine/Plant Development Envelope.

All of the vegetation types (Table 6-3) recorded in the Marandoo Mine/Plant Development Envelope occur more broadly in the Marandoo locality and none are expected to be restricted to the locality, given the landforms and dominant species (Biota 2008a, Mattiske 1992).

Vegetation types considered to be of moderate conservation significance comprise (Biota 2008a, Mattiske 1992):

- Vegetation units 1a, 2a, 2b, 2c, 2e and 4a are species rich and support some restricted taxa, including some Priority Flora species.



- Vegetation units 4f and 6d comprise vegetation of calcretes; this substrate has a small area of representation and potentially supports restricted taxa.
- Vegetation units 5e, 5f and 6c comprise vegetation of breakaways and cliff habitats; these landforms have a small area of representation and support habitat restricted taxa.

The remainder of the vegetation types are considered to be of low conservation significance.

## 6.7 CONSERVATION SIGNIFICANT FLORA

Three Threatened Flora species (*Thryptomene wittweri*, *Lepidium catapycnon* and *Aluta quadrata*) are known from the Pilbara bioregion. *Thryptomene wittweri* and Hamersley *Lepidium catapycnon* are listed as Threatened flora under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* as well as the WA *Wildlife Conservation Act 1950 (WC Act)*. *Aluta quadrata* is listed as a Threatened species in WA and is recognised as such under the WC Act. None of these species has been recorded within the Marandoo Mine/Plant Development Envelope (Biota 2008a).

*T. wittweri* occurs in the Hamersley subregion on hilltops at high altitude. *T. wittweri* is not expected to occur in the Marandoo Mine/Plant Development Envelope due to a lack of suitable habitat (Biota 2008a).

*L. catapycnon* occurs in hummock grasslands on low stony hills and occasionally stony plains in the Hamersley subregion. It is thought to be short-lived and is generally found on recently disturbed ground. Suitable habitat for *L. catapycnon* occurs throughout the Marandoo Mine/Plant Development Envelope; however, this species has not been recorded from the Marandoo locality despite relatively intensive sampling both at Marandoo and in the surrounding Karijini National Park (Biota 2008a).

*A. quadrata* occurs mainly in rocky gullies and sometimes also along the creeklines downstream or on adjacent ridge slopes and crests. Recorded only at Paraburdoo (approximately 80 km south-west of Marandoo), this species has not been recorded in the Marandoo Mine/Plant Development Envelope.

Five Priority (P) flora species were recorded in the Marandoo Mine/Plant Development Envelope (Biota 2008a) as shown in Table 6-4 and Figure 6-2. These species occur relatively broadly throughout the Pilbara and are not restricted to the Marandoo locality (Maier 2008, Parks and Wildlife 2014).<sup>5</sup>

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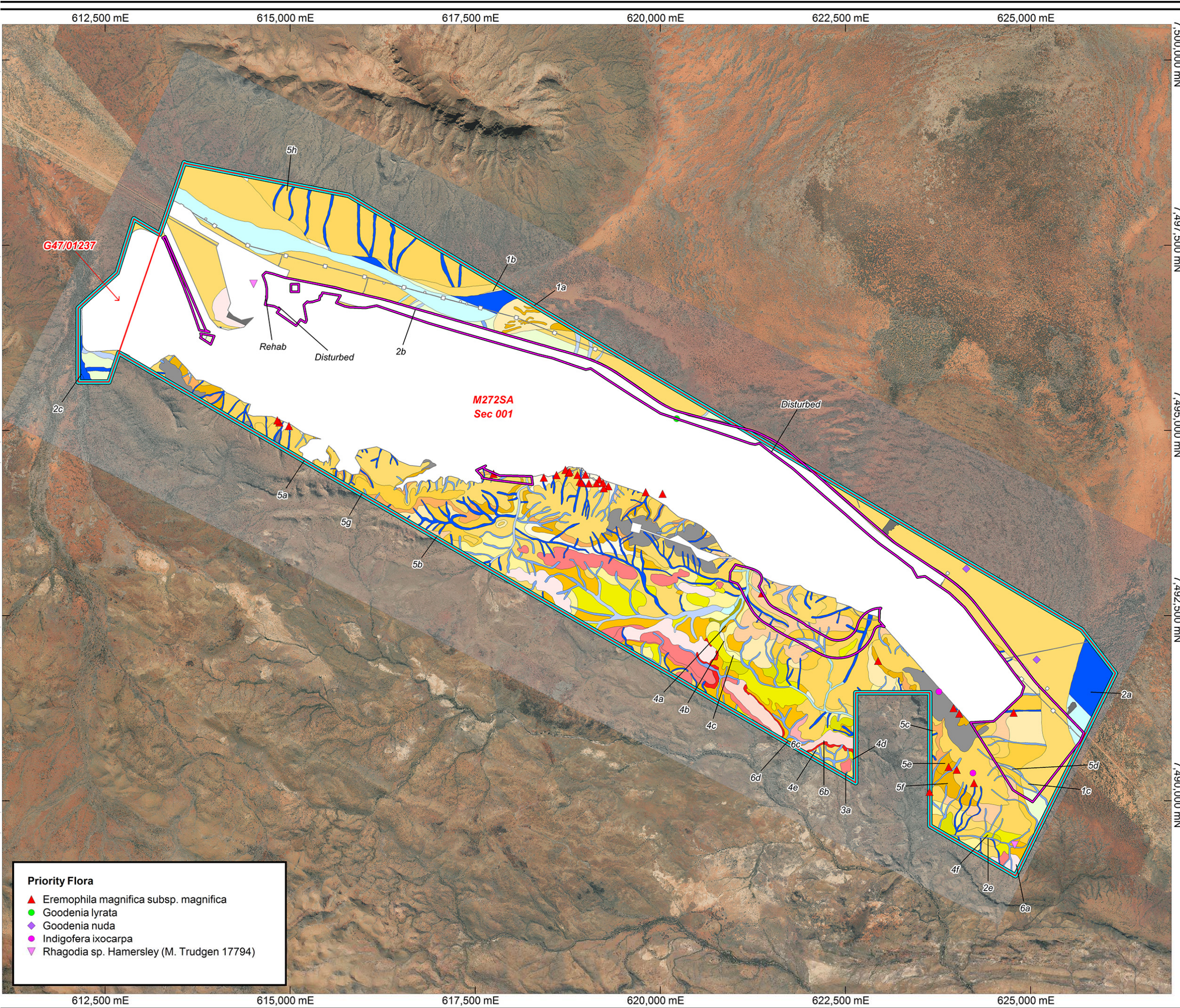
<sup>5</sup> Michi Maier (Biota Environmental Science) 2008 pers. comm., 19 August

**Table 6-4: Priority flora recorded within the Marandoo Mine/Plant Development Envelope**

Species	Priority	Regional Distribution
<i>Indigofera ixocarpa</i>	2	This species extends over a range of >250 km across the Pilbara bioregion, including locations within both the Hamersley and Chichester sub-regions (Maier 2008).
<i>Goodenia lyrata</i>	3	This species extends over a range of >250 km within the Hamersley sub-region of the Pilbara and also occurs >400 km east in the Gibson Desert bioregion and 600 km in the Murchison bioregion (Maier 2008).
<i>Rhagodia</i> sp. Hamersley (M.E. Trudgen 17794)	3	This species has a relatively broad distribution through the Pilbara and is not uncommon in Mulga and <i>Acacia xiphophylla</i> vegetation; it has been recorded numerous times in the vicinity of Tom Price to Newman (Maier 2008).
<i>Goodenia nuda</i>	4	This species has a widespread distribution of approximately 720 km across the Pilbara and inland desert regions, including populations in Karijini and Millstream-Chichester National Parks (Parks and Wildlife 2014).
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	4	This species extends over a range >150 km within the Hamersley sub-region of the Pilbara, including numerous records from the Tom Price locality (Maier 2008).

An assessment of the potential impacts to Flora and vegetation as a result of this Revised Proposal is presented in Table 6-5.





**LEGEND**

Proposed Marandoo Mine/Plant Development Envelope

M272SA & G47/01237

**Existing Approval**

MS + NVCP Approved Clearing Area

**Proposed Conceptual Footprint**

**Location Map**

**SCALE**

0 0.5 1 1.5 2 2.5km

1:50,000 @ A3

- Priority Flora**
- Eremophila magnifica subsp. magnifica
  - Goodenia lyrata
  - Goodenia nuda
  - Indigofera ixocarpa
  - Rhagodia sp. Hamersley (M. Trudgen 17794)

**Iron Ore (WA)**

**Figure 6-2**

**Priority Flora and Vegetation within the Proposed Marandoo Mine/Plant Development Envelope**

Drawn: T. Linklater  
Date: Jan, 2015

Plan No: PDE0125395v2  
Proj: MGA 94 (Zone 50)



	5c Eucalyptus leucophloia scattered low trees over Acacia spp. scattered shrubs over Triodia sp. Shovelanna Hill, (T. wiseana) hummock grassland
	5d Eucalyptus gamophylla scattered low mallees over Acacia spp. scattered tall shrubs over Triodia sp. Shovelanna Hill (T. wiseana) hummock grassland
	3a Acacia species shrubland in minor flowlines
	1c Hummock Grassland of Plectrachne melvillei
	6a Mixed Triodia spp. hummock grassland on upper slopes and ridges of small foothills and escarpments
	4f Hummock grassland of Triodia wiseana, Triodia basedowii and Triodia angusta on shallow calcrete soils
	4d Acacia xiphophylla low woodland
	4e Triodia wiseana, T. pungens hummock grassland
	5b Hummock Grassland of Triodia wiseana, with occasional mixtures of T. brizoides, T. basedowii and emergent shrubs of mixed Acacias and Eucalyptus leucophloia
	5f Acacia aneura low woodland to woodland on rocky ledges and upper slopes of ranges
	5e Mixed community supporting a range of structural formations from low woodlands of Acacia aneura to sheer rock faces with Astrotricha hamptonii to open herbfields of Eriachne mucronata
	2e Woodland of Eucalyptus coolabah on the secondary flow and creek lines
	5a Hummock Grassland of Triodia brizoides - Triodia wiseana, with emergent shrubs of mixed Acacias and Eucalyptus leucophloia
	2a Acacia aneura – A. pruinocarpa woodland in major flowlines
	2c Woodland of Eucalyptus patellaris - Acacia aneura - Acacia citrinoviridis on the major flow lines
	5h Hummock grassland of Triodia wiseana with emergent shrubs of mixed Acacias
	2b Eucalyptus xerothermica – Acacia aneura woodland
	6c aneura low woodland to woodland on breakaways of low foothills
	6d Low Woodland of mixed mallee species with pockets of Triodia angusta and Triodia wiseana on shallow calcrete soils
	4c Acacia aneura scattered low trees over open grassland
	4b Low shrubland of Acacia victoriae - Acacia farnesiana on fine silty alluvial soils
	6b Mixed Acacia aneura, Acacia spp. low woodland to woodland on upper slopes of low foothills
	4a Woodland of Acacia aneura - Acacia pruinocarpa on the flatter silty alluvial areas
	Disturbed
	1a Acacia aneura woodland on broad flat alluvial and colluvial areas
	5g Hummock grassland of Triodia wiseana to low woodland of Eucalyptus gamophylla, on shallow gravelly soils
	1b Open grassland
	Disturbed Highly disturbed Acacia shrubland
	Rehab Planted wetland

**RioTinto**

**Iron Ore (WA)**

## **Vegetation Legend**

Drawn: T. Linklater    Plan No: PDE0125395v1  
Date: Nov, 2014

**Table 6-5: Flora and Vegetation: Description of Factor, Impact Assessment and Management**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To maintain representation, diversity, viability and ecological function at the species, population and community level.	<ul style="list-style-type: none"> <li>No TECs or PECs present.</li> <li>No vegetation of high conservation significance present.</li> <li>Vegetation generally in Good to Excellent condition. Exceptions are sections of Mulga on the clayey flats that are in Good condition and areas in close proximity to the existing operations that are in Poor to Good condition.</li> <li>No DRF or plant species listed under the EPBC Act present.</li> <li><i>Indigofera ixocarpa</i> (P2), <i>Goodenia lyrata</i> (P3), <i>Rhagodia</i> sp. Hamersley (M.E. Trudgen 17794) (P3), <i>Goodenia nuda</i> (P4) and <i>Eremophila magnifica</i> subsp. <i>magnifica</i> (P4) present.</li> <li>Weeds are present typically as scattered individuals.</li> </ul>	<p><u>Impact 1</u></p> <p>Up to 400 ha of additional clearing of vegetation of low and moderate conservation significance, which supports one P2, two P3 and two P4 species. Of the 400ha, 383 ha is generally in Good to Excellent condition.</p>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of topsoil and subsoil and to support ongoing mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>An internal Permit will be obtained for all areas to be cleared in accordance with Rio Tinto's internal approvals system.</li> <li>Known locations of DRF and Priority flora will be avoided as far as practicable.</li> <li>Disturbed areas will be progressively rehabilitated with native flora species where possible.</li> </ul>	<p><u>Regulation of Aspect 1</u></p> <p>Existing MS 286 and MS 833 and new MS for Revised Proposal - with specified clearing limit, defined Mine/Plant Development Envelope and a Condition relating to Rehabilitation.</p>	<p>The Revised Proposal can be managed to meet the EPA objective for this factor, in summary:</p> <ul style="list-style-type: none"> <li>No TECs, PECs, vegetation of high conservation significance or DRF have been recorded.</li> <li>Flora and vegetation potentially affected by the Proposal is well represented outside the Mine/Plant Development Envelope.</li> <li>Appropriate, and existing, management measures to avoid, minimise and mitigate potential impacts of the Revised Proposal will continue to be implemented.</li> </ul>

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
		<u>Impact 2</u> Spread of existing weeds and/or introduction of new weeds that compete with native vegetation.	<u>Aspect 2</u> Vehicle and earth movements.	<u>Management of Aspect 2</u> <ul style="list-style-type: none"> <li>The distribution of target weed species within and adjacent to the Mine/Plant Development Envelope will continue to be mapped and controlled.</li> <li>Weed hygiene procedures for mining machinery entering and leaving the Mine/Plant Development Envelope will continue to be implemented.</li> </ul>	Existing MS 286 and MS 833 and new MS for the Revised Proposal - includes Conditions relating to Rehabilitation and Weeds.	
		<u>Impact 3</u> Increase in fire frequency which may favour establishment of weeds and prevent re-generation of native species	<u>Aspect 3</u> Vehicle and personnel movements and hot work.	<u>Management of Aspect 3</u> <ul style="list-style-type: none"> <li>Basic fire awareness and firefighting training will continue to be provided to all personnel prior to commencing work on site.</li> <li>Fire breaks will continue to be maintained across the mine site and around working areas where required.</li> </ul>	Bush Fires Act, FESA Act and LG Act.	

## 7. TERRESTRIAL FAUNA

This Section describes the terrestrial fauna and fauna habitats that occur within the Marandoo Mine/Plant Development Envelope and provides details regarding the potential impacts to conservation significant fauna and fauna habitats as a result of this Revised Proposal. The EPA applies the following objective from EAG 8 in its assessment of proposals that may affect terrestrial fauna:

*To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.*

### 7.1 TERRESTRIAL FAUNA STUDIES

Fauna studies have been undertaken across the Marandoo Mine/Plant Development Envelope since the 1970s, covering an area in excess of 4,500 ha. The combined coverage of these surveys provides a comprehensive understanding of the existing terrestrial fauna in the Marandoo Mine/Plant Development Envelope. Table 7-1 provides a summary of these studies.

**Table 7-1: Summary of Key Terrestrial Fauna Studies**

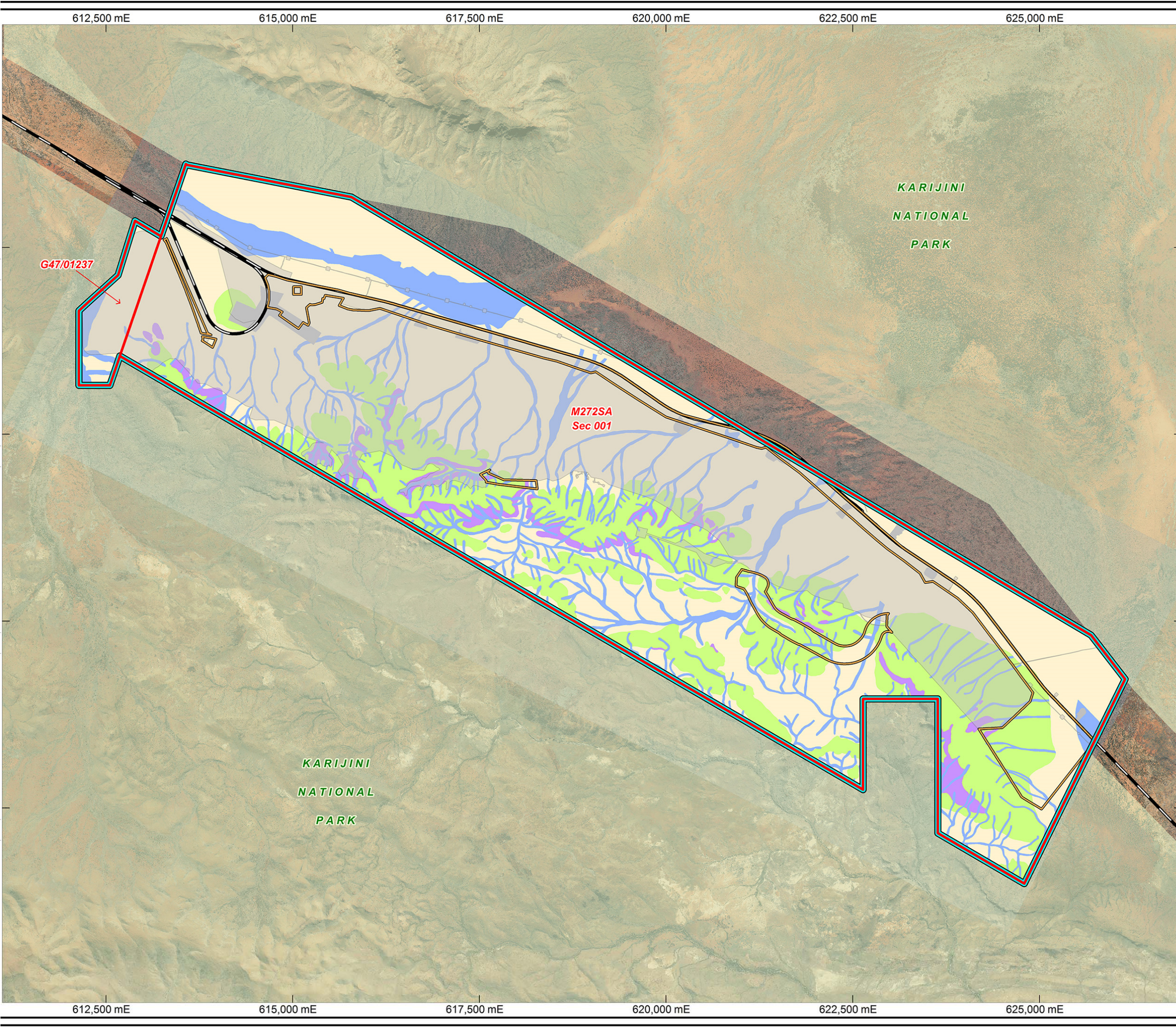
Consultant	Survey name	Study area, type and timing	Study standard/guidance and limitations
Ninox 1992	<i>Marandoo Project Area Vertebrate Fauna Assessments (1975-1991)</i>	Development Envelope and surrounds (>4,500 ha). Desktop review, site reconnaissance and field surveys. September 1990, June and August 1991.	Consultation with the Department of Conservation and Land Management
Biota 2008b	<i>MMP2: Seasonal Fauna Survey</i>	Large proportion of the Development Envelope (5,000 ha). Desktop review and two phase field survey. April and November 2007.	EPA Guidance Statement No. 56. Level 2 survey. Consultation with WA Museum and the Parks and Wildlife (EM Branch and Pilbara region). Limitation: funnel traps not deployed due to high temperatures; sampling for bats carried out using harp traps, restriction on night work on the mine site.

Four primary habitat types, largely based on vegetation structure and landforms, have been identified in the Marandoo Mine/Plant Development Envelope (Biota 2008b) (Figure 7-1):

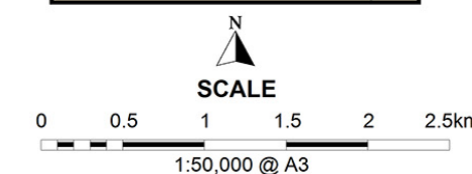
- Small drainage lines vegetated with *Acacia aneura* over tussock grasses on loamy substrates;
- Stony hill slopes vegetated with *Acacia* shrubs over *Triodia* on stony loam substrates;
- Flat outwash plains vegetated with *Acacia* shrubs on loamy substrates; and
- Rocky gorges vegetated with scattered *Acacia* shrubs and spinifex.







- LEGEND**
- Proposed Marandoo Mine/Plant Development Envelope
  - M272Sa & G47/01237
  - National Park
  - Existing Approval**
    - MS + NVCP Approved Clearing Area
  - Proposed Conceptual Footprint**
    -
  - Fauna Habitat**
    - Disturbed
    - Gorges/Gullies
    - Flowlines
    - Hills
    - Plains
    - Railway



**RioTinto**

Iron Ore (WA)

**Figure 7-1**

**Fauna Habitats of the Conceptual Footprint**

Drawn: T. Linklater  
Date: Jan, 2015  
Proj: MGA 94 (Zone 50)

Plan No: PDE0128300v1



These fauna habitats are typical of the area surrounding the Marandoo Mine Plant Development Envelope and are well represented across the Pilbara (Biota 2008b).

A total of 125 vertebrate species were recorded in the survey area (Biota 2008a), comprising 54 avifauna species, 20 mammal species and 51 herpetofauna species. Fauna assemblages recorded are comparable to those recorded during earlier work and are typical of assemblages occurring where similar habitats are found elsewhere in the Pilbara (Biota 2008b).

Three groups of invertebrate fauna were also recorded during the Biota (2008b) survey.

## 7.2 FAUNA OF CONSERVATION SIGNIFICANCE

### 7.2.1 Vertebrate Fauna

Six species of State conservation significance were recorded by Ninox (1992) and/or Biota (2008b) in the Marandoo locality. Two additional species, the Orange Leaf-nosed Bat and the Bush Stone-curlew, were not recorded in the surveys but on the basis of the known distribution and available habitat may occur periodically in the Marandoo area. The Little North-western Mastiff Bat (*Mormopterus loriae cobourgiana*) (Priority 1) was reportedly recorded at Marandoo by Ninox (1992), however, it is considered that records of this species at Marandoo represent misidentification as this species is restricted to mangrove forest and adjacent areas (Biota 2008b).

Table 7-2 provides a summary of fauna species of State conservation significance recorded or with potential to occur in the Marandoo locality. Other species of conservation significance identified from database searches as potentially occurring in the survey area are considered unlikely to inhabit the area due to a lack of suitable habitat (Biota 2008b).

**Table 7-2: Fauna species of conservation significance recorded (or potentially occurring) in the Marandoo Mine/Plant Development Envelope**

Species	State level	Recorded	Habitat and likelihood of occurrence in the Marandoo Mine/Plant Development Envelope
Northern quoll <i>Dasyurus hallucatus</i>	Schedule 1 (Endangered)	Biota (2008b) Ninox (1992)	Recorded in the rocky gorges habitat type on Marandoo ridge (survey site MARE02, Figure 7-2).  Typical habitat comprises rocky gullies and breakaways and is limited in the Marandoo Mine/Plant Development Envelope.
Orange leaf-nosed bat <i>Rhinonictis aurantius</i>	Schedule 1 (Vulnerable)	Not recorded	Due to its poor ability to thermoregulate, the orange leaf-nosed bat requires deep caves or mine adits (horizontal shafts) that have stable, warm and humid microclimates for permanent roost sites (DotE 2014).  No suitable roosts have been recorded in the Marandoo Mine/Plant Development Envelope. However, it is possible that individuals may occur periodically in the area (Biota 2008b).

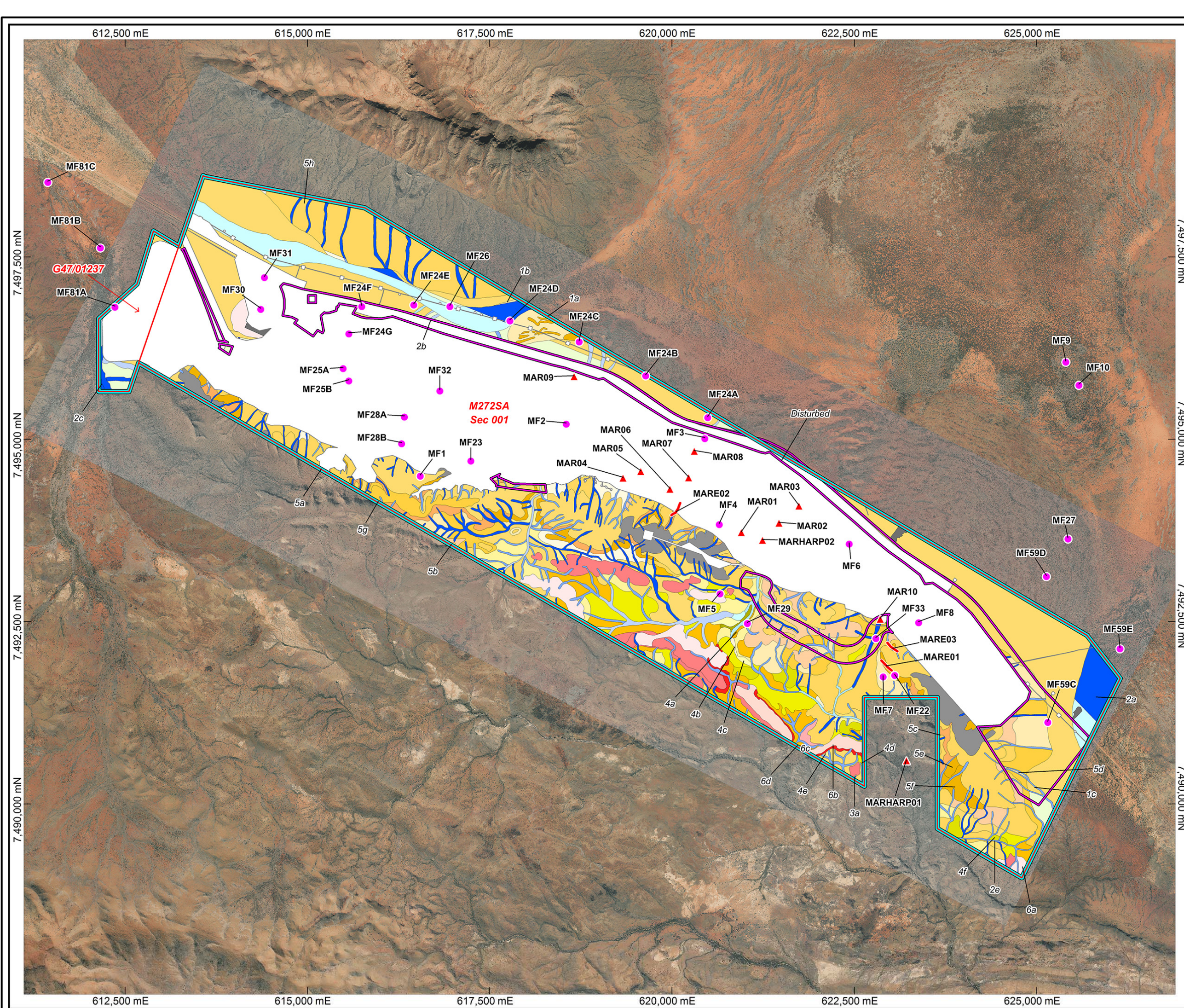
Species	State level	Recorded	Habitat and likelihood of occurrence in the Marandoo Mine/Plant Development Envelope
Pilbara olive python <i>Liasis olivaceus barroni</i>	Schedule 1 (Vulnerable)	Ninox (1992)	Recorded opportunistically in the Marandoo mining tenement during the Ninox (1992) survey.  Occurs in rocky areas in the Pilbara, showing a preference for rocky habitats near water. No core habitat was recorded in the Marandoo Mine/Plant Development Envelope (Biota 2008a).
Peregrine falcon <i>Falco peregrinus</i>	Schedule 4	Ninox (1992)	Recorded on a ridge in the south-western section of the Marandoo mining tenement by Ninox (1992).  The peregrine falcon inhabits a wide range of habitats including forest, woodlands, wetlands and open country (Pizzey and Knight 1997, cited in Biota (2008b)). Prey is almost exclusively birds such as pigeons, parrots and passerines which are captured in flight (Johnson and Storr 1998, cited in Biota (2008b)). The availability of prey appears to be more important than habitat in determining the distribution of the Peregrine Falcon (Biota 2008b).
Western pebble-mound mouse <i>Pseudomys chapmani</i>	Priority 4	Biota (2008a) Ninox (1992)	Recorded in the stony hill slopes habitat type (survey site MAR06, Figure 7-2). Mounds from this species were also recorded scattered throughout the lease.  The western pebble-mound mouse is found on stony hillsides with hummock grassland. In suitable habitats, pebble mounds of this species can be found in large numbers although not all of these mounds are active and occupied. This species is common to very common in suitable habitat within the Hamersley and Chichester subregions of the Pilbara bioregion (Biota 2008b).
Ghost bat <i>Macroderma gigas</i>	Priority 4	Biota (2008a) Ninox (1992)	Recorded in the rocky gorges habitat type (survey site MARE03, Figure 7-2). The rocky gorge where this species was recorded contained no deep caves that might represent permanent roosts; likely that the gorge contains only temporary roosts (Biota 2008b).  The ghost bat occurs in a broad range of habitats, with its distribution being influenced by the availability of suitable caves and mines for roost sites (Churchill 1998, cited in Biota 2008b).
Australian bustard <i>Ardeotis australis</i>	Priority 4	Ninox (1992)	Recorded on a plain to the north of the Marandoo Ridge by Ninox (1992).  The Australian bustard occurs in a relatively broad range of habitats with a preference to open or lightly wooded grassland (Biota 2008b). This species is nomadic and has a large home range (Marchant and Higgins 1993, cited in Biota 2008b).

Species	State level	Recorded	Habitat and likelihood of occurrence in the Marandoo Mine/Plant Development Envelope
Bush stone-curlew <i>Burhinus grallarius</i>	Priority 4	Not recorded	The bush stone-curlew is widespread in Australia and southern New Guinea. This species occurs in sparsely grassed, light timbered forest or woodland. Since bush stone curlews are a ground-dwelling, they are considered susceptible to predation, with predation by foxes usually considered to be the primary cause for their decline (Biota 2008b).

An assessment of the potential impacts to Terrestrial Fauna as a result of this Revised Proposal is presented in Table 7-3.







**LEGEND**

- Proposed Marandoo Mine/Plant Development Envelope
- M272SA & G47/01237
- Existing Approval**
  - MS + NVCP Approved Clearing Area
- Proposed Conceptual Footprint**
  -
- Fauna Trapping Sites**
  - Ninox Site
  - Biota Site

**Location Map**

**SCALE**

0 0.5 1 1.5 2 2.5km

1:50,000 @ A3

**RioTinto**

**Iron Ore (WA)**

**Figure 7-2**

**Location of Marandoo Fauna Survey Sites**

Drawn: T. Linklater  
Date: Jan, 2015

Plan No: PDE0126054v2  
Proj: MGA 94 (Zone 50)



**Table 7-3: Terrestrial Fauna: Description of Factor, Impact Assessment and Management**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	<ul style="list-style-type: none"> <li>Four primary habitat types have been identified in the Development Envelope. These are typical of the surrounding area and are well represented in the Pilbara.</li> <li>Fauna assemblages are typical of assemblages occurring where similar habitats are found elsewhere in the Pilbara.</li> <li>Eight vertebrate fauna species of conservation significance were recorded or may occur in the Development Envelope.</li> <li>Suitable habitat for all species of conservation significance exists outside the Development Envelope.</li> <li>Most of the species of conservation significance are highly mobile.</li> <li>Typical habitat for the</li> </ul>	<p><u>Impact 1</u></p> <p>Up to 400 ha of clearing (in addition to that approved under MS 286, MS 833 and NVCPs) potentially resulting in fauna habitat loss and/or fragmentation.</p> <p>The additional clearing will not affect regional population levels or the conservation status of any fauna species.</p>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>An internal Approvals Permit will be obtained for all areas to be cleared in accordance with Rio Tinto's Approvals Request System.</li> <li>Disturbed areas will be progressively rehabilitated with native flora species to restore fauna values where possible.</li> </ul>	<p><u>Regulation of Aspect 1</u></p> <p>Existing MS 286 and new MS for Revised Proposal - with specified clearing limit, defined Development Envelope and a Condition relating to Closure and Rehabilitation.</p>	<p>The Revised Proposal can be managed to meet the EPA objective for this factor, in summary:</p> <ul style="list-style-type: none"> <li>Fauna habitats potentially impacted by the Revised Proposal are well represented outside the Development Envelope on a local and regional scale.</li> <li>Fauna assemblages present in the Development Envelope are typical of assemblages found elsewhere in the Pilbara.</li> <li>The conservation status of species of conservation significance is unlikely to be altered either at the local or regional level.</li> <li>Appropriate management measures to avoid, minimise and mitigate potential impacts of the Revised Proposal will continue to be implemented.</li> </ul>

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
	<p>Northern Quoll is limited in the Development Envelope.</p> <ul style="list-style-type: none"> <li>No caves have been located that would represent suitable roosts for the Orange Leaf-nosed Bat or permanent roosts for the Ghost Bat.</li> <li>No core habitat suitable for the Pilbara Olive Python has been recorded in the Development Envelope.</li> <li>Invertebrate fauna are not considered a key factor for this Revised Proposal and are therefore addressed in Section 9 (Table 9-1).</li> </ul>	<p><u>Impact 2</u></p> <p>Loss of individual fauna through interactions with vehicles and personnel</p>	<p><u>Aspect 2</u></p> <p>Vehicle and personnel movements associated with mining operations</p>	<p><u>Management of Aspect 2</u></p> <ul style="list-style-type: none"> <li>The requirements of the Wildlife Interaction Policy will continue to be communicated to, and implemented by, all personnel.</li> <li>Native animals encountered on-site will be given the opportunity to move on if there is no threat to personnel safety in doing so.</li> <li>Snakes will be relocated from work areas by appropriately trained snake-handlers.</li> </ul>	<p><u>Regulation of Aspect 2</u></p> <p><i>Wildlife Conservation Act 1950.</i></p>	



## 8. RESIDUAL IMPACTS: IMPACT ASSESSMENT AND MANAGEMENT

### 8.1 DETERMINATION OF CRITICAL AND HIGH VALUE ASSETS

EPA Position Statement No. 9: Environmental Offsets (EPA 2006) and EPA Guidance Statement No. 19: Environmental Offsets (EPA 2008) provide guidance to proponents on the approach needed to determine offset requirements for proposals.

The definitions of critical and high value assets EPA Position Statement No. 9 are as follows:

*Critical Assets: represent the State's most important environmental assets that must be fully protected and conserved. Significant adverse impacts to these assets should be avoided at all costs. Therefore, the EPA in providing its advice will adopt a presumption against approval of project proposals where significant adverse impacts affect 'critical assets'. However, where projects have been approved by the State Government, approval should be conditional on the:*

- consideration or demonstration (to the maximum extent possible) of onsite impact mitigation; and*
- development and implementation of an acceptable offsets package for significant, residual adverse impacts.*

*High Value Assets: represents those environmental assets that are in good to excellent condition, are considered valuable by the community and / or government, but are not identified as 'critical assets'. Project proposals and offset activities for these assets may be referred to and assessed by the EPA on a case-by-case basis, but are otherwise considered by relevant environmental government agencies.*

Environmental aspects of the Revised Proposal were assessed for their potential value as critical or high value assets. Environmental aspects meeting the requirements for either category have been included in the determination of appropriate offsets.

The Revised Proposal does not lie within a reserve or protected area. Vegetation mapping has been completed across the entire Marandoo Development Envelope and does not indicate the presence of any vegetation types that qualify for specific legislative protection (i.e. TECs). None of the vegetation types identified were considered to be sufficiently rare or restricted to warrant designating them as being of high conservation significance and are considered likely to be widely distributed and relatively well represented in the region.

The majority of the vegetation communities were generally found to be in Good to Excellent condition despite evidence of weed invasion and nearby mining activities from the existing Marandoo operation.

Whilst some occurrences of Priority listed species (flora and fauna) have been recorded, none of these were found to be restricted to the Marandoo development Envelope and therefore have not been individually classified as 'high value assets'.

## **8.2 OFFSET REQUIREMENT FOR THE REVISED PROPOSAL**

The EPA considers that the increased amount of clearing of native vegetation in the Pilbara Bioregion, combined with the predicted future activities requiring clearing and other impacts from pastoralism and fires, is likely to result in a significant impact on environmental values. Subsequently the EPA has determined that a proactive approach to limiting these impacts is required and that a possible solution is the establishment of a strategic regional conservation initiative for pooling of offset funds the Pilbara.

As a result, offsets for clearing of native vegetation considered in Good to Excellent condition have recently been consistently applied in the Pilbara Bioregion. Where there is an additional level of environmental value, a higher offset has been applied to account for this greater value. This approach has generally applied for all proposals within the Fortescue subregion, as well as some that are in the Hamersley subregion.

An assessment of potential impacts of the Revised Proposal was undertaken in accordance with EPA Position Statement No. 9, Environmental Offsets (EPA 2006) and EPA Guidance Statement No. 19, Environmental Offsets – Biodiversity (EPA 2008). The Revised Proposal is considered unlikely to have significant adverse impacts on any potential ‘critical’ or ‘high value’ assets, however, it is expected that an offset will be required for clearing of native vegetation in Good to Excellent condition.

The Hamersley subregion is fairly well represented (12.6%) within the conservation reserve system. Lower offset rates for clearing of native vegetation in Good to Excellent condition have therefore been applied in recognition of this fair representation (i.e. this is below the target of 15%). It is therefore expected that this lower offset rate is applicable to this Revised Proposal.

Additionally, given that MS 833 does not specify the need for an offset, Rio Tinto considers that it is reasonable that the offset should only apply to the proposed additional clearing (considered to be in Good to Excellent condition) that forms part of this Revised Proposal. This approach is consistent with other recent Ministerial Statements.

The Environmental Offsets Reporting Form is included in Table 8-1.

**Table 8-1: Environmental Offsets Reporting Form**

<b>Section A: Administrative information</b>
<p><b>1. Proposal name:</b> Marandoo Iron Ore Mine – Revised Proposal</p> <p><b>2. Summary of Proposal:</b> The Proponent, Hamersley Iron Pty Limited (a wholly owned subsidiary of Rio Tinto), mines above and below water table at the Marandoo Iron Ore Project. Ore is transported from the Marandoo rail loop to Cape Lambert or Dampier Port via the Central Pilbara Railway.</p> <p>The total area of disturbance for the Marandoo Project is 2,502 ha within the Marandoo Mine/Plant Development Envelope of 3,227 ha. This includes the 400 ha of new clearing in addition to that already approved via MS 286, MS 833 and various NVCPs.</p> <p>Management of the Marandoo’s surplus dewater includes use on site including the camp; transfer to Tom Price for water supply; re-injection at Southern Fortescue Borefield; irrigated agriculture; and discharge to the environment.</p>
<b>Section B: Type of environmental asset(s) – State whether Critical or High Value, describe the environmental values and attributes</b>
<p>The Proposal is a revision to the existing iron ore mine at Marandoo.</p> <p>No ‘Critical’ or ‘High Value’ environmental assets are located within the Marandoo Development Envelope</p>
<b>Section C: Significant impacts (describe the significant adverse environmental impacts related to the proposal or scheme before mitigation measures are applied)</b>
<p>Potential significant impacts on environmental assets from the Proposal are:</p> <ul style="list-style-type: none"> <li>The Revised Proposal requires additional clearing of up to 400 ha of vegetation, including vegetation communities, of which 383 ha is considered to be in Good to Excellent condition.</li> </ul>
<b>Section D: Mitigation measures (describe all measures to Avoid, Minimise, Rectify and Reduce)</b>
<p>Mitigation measures to avoid, minimise, rectify and reduce impacts of the Revised Proposal on environmental assets include:</p> <p><b>Avoid:</b></p> <ul style="list-style-type: none"> <li>The backfill strategy has been adopted to prevent the formation of permanent pit lakes which could affect local or regional groundwater quality.</li> </ul> <p><b>Minimise:</b></p> <ul style="list-style-type: none"> <li>Use of existing facilities will minimise clearing of undisturbed native vegetation.</li> <li>Additional clearing will be minimised as far as practicable and will avoid areas of elevated conservation significance as far as practicable.</li> </ul>

***Rectify and Reduce:***

- Where clearing is unavoidable, areas will be progressively rehabilitated with local native vegetation where possible.
- The Marandoo OEMP will be implemented to manage potential impacts of the Revised Proposal on Key Environmental Factors.
- The Closure Plan will be implemented to ensure that the Revised Proposal can be closed in an ecologically sustainable manner, consistent with agreed outcomes and land uses.

**Section E: Significant residual impacts (describe all the significant adverse residual impacts that remain after all mitigation attempts have been exhausted)**

The Revised Proposal is considered unlikely to have any significant residual impacts to any 'Critical' or 'High Value' environmental assets.

**Section F: Proposed offsets for each significant residual impact (identify direct and contributing offsets). Include a description of the land tenure and zoning / reservation status of the proposed offset site. Identify any encumbrances or other restrictions on the land that may impact the implementation of the proposed offset and provide evidence demonstrating how these issues have been resolved.**

The Revised Proposal is considered unlikely to have any significant residual impacts on any potential 'Critical' or 'High Value' assets, however, it is expected that an offset will be required for the additional clearing of native vegetation in Good to Excellent condition (maximum of 383 ha).

**Section G: Spatial data relating to offset site/s (see *EPA Guidance Statement No. 19: environmental offsets- biodiversity, Appendix 4*)**

Coordinates defining the Marandoo Development Envelope are held by the OEPA. Given that MS 286 and MS 833 do not specify the need for an offset, it is expected that the offset will be only applied to the additional clearing that forms part of this Revised Proposal.

**Section H: Relevant data sources and evidence of consultation (consultation with agencies, relevant stakeholders, community and references to sources of data / information). Include details of specific environmental, technical or other relevant advice and information obtained to assist in the formulation of the offset.**

Vegetation and Flora and Terrestrial Fauna assessments undertaken (refer to Section 6 and 7 respectively).

## 9. OTHER ENVIRONMENTAL FACTORS

As discussed previously the key environmental factors of this Revised Proposal are Flora and Vegetation and Terrestrial Fauna (refer to Sections 6 and 7 respectively).

The following factors, although not considered key, are relevant to this Revised Proposal due to the proposed additional clearing of vegetation:

- Invertebrate fauna
- Visual amenity
- Air quality
- Heritage
- Rehabilitation and Closure

However Rio Tinto considers that the Revised Proposal will not result in any change different from those originally assessed and approved under MS 833 (refer to Table 9-1 to Table 9-5 which outline consideration of these environmental factors).

The remaining environmental factors (Hydrological Processes – Groundwater and Surface Water, Subterranean Fauna, and Terrestrial Environmental Quality) have not been considered in this Revised Proposal as the additional clearing will not result in any environmental impact different to that assessed, and approved, under MS 286 and MS 833.

Part 5 of this document details the rationalisation of these existing MSs relevant to this Revised Proposal and the proposed Ministerial Statement is provided in Appendix 4.

**Table 9-1: Invertebrate Fauna: Not a Key Environmental Factor to this Revised Proposal**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	<p>Three groups of invertebrate fauna potentially containing short-range endemic (SRE) species were recorded during the Biota (2008b) survey. These groups were Pulmonata (terrestrial snails), Scorpionida (scorpions) and Pseudoscorpionida (pseudoscorpions).</p> <p>Invertebrate groups recorded are considered unlikely to harbour SRE taxa due to the extensive distributions of their preferred habitats across the Pilbara Bioregion (Biota 2008b).</p>	<u>The additional clearing is not expected to result in an impact that is significantly different from that of the existing Marandoo operation.</u>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>An internal Approvals Permit will be obtained for all areas to be cleared in accordance with Rio Tinto's Approvals Request System.</li> <li>Disturbed areas will be progressively rehabilitated with native flora species to restore fauna values where possible.</li> </ul>	Existing MS 286 and the new MS for the Revised Proposal - with specified clearing limit, defined Development Envelope and a Condition relating to Rehabilitation and Closure	<p>The Revised Proposal can be managed to meet the EPA objective for this factor, in summary:</p> <ul style="list-style-type: none"> <li>Fauna habitats potentially impacted by the Revised Proposal are well represented outside the Development Envelope on a local and regional scale.</li> <li>Fauna assemblages present in the Development Envelope are typical of assemblages found elsewhere in the Pilbara.</li> <li>The conservation status of species of conservation significance is unlikely to be altered either at the local or regional level.</li> </ul> <p>Appropriate management measures to avoid, minimise and mitigate potential impacts of the Revised Proposal will continue to be implemented.</p>

**Table 9-2: Amenity (Visual): Not a Key Environmental Factor to this Revised Proposal**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To ensure that impacts to amenity are reduced as low as reasonably practicable.	<ul style="list-style-type: none"> <li>Impacts to visual amenity at the Marandoo operation were assessed as a minor environmental factor during assessment of the MMP2 proposal (EPA 2010).</li> <li>The existing Marandoo operation is a highly modified landscape.</li> <li>Visitors to Mount Bruce experience significant impacts to visual amenity.</li> </ul>	<u>The additional clearing is not expected to result in a visual impact that is significantly different from that of the existing Marandoo operation.</u>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>Disturbed areas will be progressively rehabilitated to come as close as possible to local landscape values and surrounding environment.</li> <li>Continuing to select colour schemes for buildings and infrastructure that blend in with the surrounding environment.</li> <li>Continuing to locate infrastructure in or near previously disturbed areas where possible.</li> </ul>	Existing MS 833 and the new MS for Revised Proposal - with specified clearing limit, defined Development Envelope and a Condition relating to Rehabilitation and Closure	<p>The Revised Proposal meets the EPA's objective for this factor given existing impacts on visual amenity and the existing management measures.</p> <p>Visual amenity is, therefore, not considered to be a key environmental factor for the Revised Proposal and where relevant will be addressed through the Marandoo Rehabilitation and Closure Plan in consultation with key stakeholders (Parks and Wildlife).</p>

**Table 9-3: Air Quality (Dust): Not a Key Environmental Factor to this Revised Proposal**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To maintain air quality for the protection of the environment and human health and amenity.	<ul style="list-style-type: none"> <li>Impacts to air quality due to dust emissions at the Marandoo operation were assessed as a minor environmental factor during assessment of the Marandoo Phase 2 proposal (EPA 2010).</li> <li>Dust is generated during mining mainly by mechanical disturbances such as blasting, earthmoving and road traffic on unsealed surfaces.</li> <li>In dry, windy conditions dust particles can be lifted from open or disturbed areas.</li> <li>Due to the remote location of the mine there is unlikely to be any significant impact to health or amenity arising from dust associated from the Revised Proposal.</li> </ul>	<u>The additional clearing is not expected to result in a significant change to dust emissions from the Marandoo operation.</u>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>Disturbed areas will be progressively rehabilitated to minimise total exposed area.</li> <li>Dust control measures will continue to be implemented on haul roads, working surfaces and stockpiles as required.</li> </ul>	<p>Existing MS 833 and new MS for Revised Proposal - with specified clearing limit, defined Development Envelope and a Condition relating to Rehabilitation and Closure.</p> <p>Dust control Condition on Operating Licence issued under Part V of the EP Act</p>	<p>The Revised Proposal meets the EPA's objective for this factor given existing regulation, management measures and the remote location of the Marandoo operation.</p> <p>Air quality is, therefore, not considered to be a key environmental factor for the Revised Proposal.</p>



**Table 9-4: Heritage: Not a Key Environmental Factor to this Revised Proposal**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
To ensure that historical and cultural associations are not adversely affected	<p>This Marandoo Project is located within the traditional lands of the Eastern Guruma people.</p> <p>Archaeological and ethnographic surveys carried out in and around the Marandoo mine lease indicate that there are rock shelters, stone artefact scatters, scarred trees and a quarry within the Marandoo mine lease.</p> <p>Minthicoondunna Spring is located 10km east of the Project and is a registered Aboriginal site and protected by law.</p>	<p><u>The additional clearing is not expected to result in a significant change to heritage from the Marandoo operation.</u></p>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <ul style="list-style-type: none"> <li>The Revised Proposal design has minimised planned clearing to areas necessary for safe construction and operation.</li> <li>If sites cannot be avoided, the impacts will be managed in accordance with the AHA Section 18, and through on-going consultation with Traditional Owners via existing agreements.</li> <li>Additional clearing will only occur within approval boundaries up to a maximum of 400 ha.</li> <li>Disturbed areas will be progressively rehabilitated to minimise total exposed area.</li> </ul>	<p>Existing MS 833 and new MS for Revised Proposal - with specified clearing limit, defined Development Envelope and a Condition relating to Rehabilitation.</p> <p>Heritage is managed under the <i>Heritage Act 1972</i> and Rio Tinto's Indigenous Land use Agreements with the relevant Traditional Owners.</p>	<p>The Revised Proposal meets the EPA's objective for this factor and it is therefore not considered a key environmental factor.</p> <p>It is not expected that Aboriginal Heritage values will be impacted by this Revised Proposal.</p> <p>Ongoing engagement with Traditional Owners is managed and maintained through engagement frameworks established through existing agreements. This ensures all activities occur with ongoing engagement with both groups.</p>

**Table 9-5: Rehabilitation and Closure**

EPA Objective	Context	Potential Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Meets EPA Objective?
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.	<p>The Marandoo Closure Plan has been developed to address closure of the AWT and BWT phases of the Project and associated infrastructure.</p> <p>Based on the current plan, the post closure land use option is to be consistent with Karijini National Park objectives.</p> <p>Key risks related to closure of Marandoo include:</p> <ul style="list-style-type: none"> <li>• Visual impact;</li> <li>• re-establishment of surface water flows;</li> <li>• impacts to groundwater;</li> <li>• future land use; and</li> <li>• rehabilitation.</li> </ul>	<u>The additional clearing is not expected to result in a significant change to rehabilitation and closure of the Marandoo operation.</u>	<p><u>Aspect 1</u></p> <p>Additional clearing required for long term management of surplus topsoil and subsoil and to support ongoing other mining related activities.</p>	<p><u>Management of Aspect 1</u></p> <p>Marandoo is subject to conditions 10, 11 and 12 of MS 833 which requires the preparation and implementation of a Closure Plan.</p> <p>The Closure Plan documents the current closure knowledge base for Marandoo and it outlines the objectives that need to be met at closure, the strategies and plans to be employed to achieve them, and provides an indication of the criteria that will be used to assess closure success.</p> <p>The Closure Plan is not a static document and it will be reviewed throughout the life of the project to ensure that the objectives to which it is working towards remain relevant and aligned to stakeholder expectations, and to revise its strategies and plans where appropriate to achieve improved closure outcomes.</p>	Existing MS 833 and new MS for the Revised Proposal includes a specified clearing limit, defined Development Envelope and a Condition relating to Rehabilitation and Closure.	<p>The Revised Proposal meets the EPA's objective for this factor given existing regulation, management measures and the remote location of the Marandoo operation.</p> <p>Rehabilitation and Closure is therefore not considered to be a key environmental factor for the Revised Proposal.</p>

## 10. CUMULATIVE IMPACTS

Cumulative impacts can arise where operation level impacts act synergistically, cause indirect impacts or combine to exacerbate impacts spatially and/or through time. In the case of Pilbara mining projects, a principal concern is the potential for multiple mining projects to incrementally diminish and degrade environmental values that would otherwise not be significantly affected by each project in isolation.

Given its distance from existing operations in the Pilbara and the relatively small scale of clearing proposed, Rio Tinto does not consider that the Revised Proposal will contribute to significant cumulative impacts. An assessment of the potential for cumulative impacts in relation to the Revised Proposal is summarised in Table 10-1.

**Table 10-1: Assessment of Potential for Cumulative Impacts**

Possible cumulative impact	Description and assessment of significance
Disturbance to landforms	The Revised Proposal does not intersect landforms with elevated conservation significance or other special interest. Whilst existing and potential future operations may affect the same land systems, all of the land systems mapped are widely distributed across the Pilbara. Therefore no significant cumulative impacts are predicted.
Disturbance to vegetation and flora	The Revised Proposal is an extension to existing Marandoo operations. The location is very remote with no neighbouring mining or pastoral activities.  The Revised Proposal does not intersect vegetation of high conservation significance. All vegetation units and Priority Flora species that may potentially be disturbed by this Revised Proposal are well represented in the Pilbara bioregion. Therefore no significant cumulative impacts are predicted.
Disturbance to habitat for fauna species	The Revised Proposal does not intersect habitats of regional significance for rare and endangered fauna species. All of the habitat types that will be disturbed by this Revised Proposal are well represented in the Pilbara bioregion. Therefore no significant cumulative impacts are predicted.
Disturbance to hydrological processes	There is no new or additional dewatering or surface discharge as a result of this Revised Proposal, therefore no net increase in cumulative impacts to hydrological processes is predicted.

## PART 5 – MARANDOO MINISTERIAL STATEMENT RATIONALISATION

The Revised Proposal provides the opportunity to rationalise the Marandoo Project description, implementation conditions and commitments from three Ministerial Statements into one modernised Statement, pursuant to section 46 of the EP Act.

The intent of this rationalisation is as follows:

- To reflect the proposed changes to the various Marandoo related projects that have been assessed and approved (refer to Part 2 of this document).
- To facilitate integrated management under a single set of conditions.
- To reflect contemporary presentation.

### 11. MODERNISATION OF PROJECT CHARACTERISTICS

Rio Tinto is seeking approval for a new Project description within Schedule 1 of a consolidated Statement (**the Statement**) for the Revised Proposal (the Marandoo Project).

The following proposed changes are summarised:

- The description of the Marandoo Project (in Schedule 1 of the Statement) is updated in line with the changes proposed in Part 2 of this document.
- The description of the Marandoo Project (in Schedule 1 of the Statement) is updated in line with more recent and contemporary presentation.
- The description of the Marandoo Project (in Schedule 1 of the Statement) to reflect consolidation of the three Marandoo related Ministerial Statements (286, 598, and 833).
- Those Project components that have been implemented to be deleted from Schedule 1 of the Statement.
- The Statement will supersede MS 286, MS 598, and MS 833.

The proposed administrative changes and consolidation of the Key Characteristics of MS 286, MS 598 and MS 833 are summarised in Table 3-2.

The contemporised Project Description and Key Characteristics for the Revised Proposal are provided in Appendix 4.

## 12. RATIONALISATION OF MINISTERIAL CONDITIONS AND COMMITMENTS

Rio Tinto has undertaken a review of the current conditions and commitments of MS 286, MS 598, and MS 833. This Section is for the purpose of rationalising the implementation conditions and commitments for the new Statement of the Revised Proposal.

The intention of the rationalisation of conditions of is as follows:

- Conditions relating to compliance auditing should be updated to reflect contemporary presentation and to align the Revised Proposal reporting with reporting required under other Ministerial Statements for Rio Tinto's Pilbara iron ore operations.
- Removal of redundant conditions where this can be justified.
- Development of outcomes-based conditions where requirements have been developed and approved by the CEO of the OEPA. These conditions should be consolidated into outcomes based conditions, consistent with EPA guidance (Environmental Assessment Guideline, Towards Outcome-based Conditions, EAG4, Draft 2009). The updated conditions should address key environmental factors, consistent with the EP Act, EPA guidance (Environmental Assessment Guideline for Environmental factors and objectives, EAG8, 2013) and the EPA Significance Framework (Environmental Assessment Guideline, Application of a significance framework in the EIA process, EAG9, 2013).
- Removal of conditions that are managed under other processes and as such, do not require regulation under Part IV of the EP Act. This will also avoid unnecessary duplication with other regulatory agencies.

The rationale for updating the conditions and commitments in each of the existing Ministerial Statements is described in Appendix 1. Compliance status for each auditable element has been reviewed based on actions completed to date as 'Compliant - Complete'; 'Compliant - Ongoing'; 'Not yet required'; or 'Non-compliant'.

The proposed new conditions for the Revised Proposal cover the following aspects:

1. Proposal Implementation
2. Contact Details
3. Compliance Reporting
4. Public Availability of Data
5. Environmental Management Program
6. Coolibah Woodlands
7. Minthicoondunna Spring
8. Dewater Discharge

9. Sinkhole Formation
10. Rehabilitation and Closure
11. Residual Impacts and Risk Management Measures

These proposed conditions do not differ from the intent of MS 286, MS 598 or MS 833 and will not affect the overall level of protection of environmental values or management of key environmental factors by Rio Tinto. They present a contemporary and outcome based approach to managing and protecting the key environmental factors relevant to the Revised Proposal. The proposed new conditions for the revised Proposal will there continue to meet the EPAs objectives for each environmental factor.

Rio Tinto proposes that these conditions be adopted for the Revised Proposal's Statement which will supersede MS 286, MS 598, and MS 833. The proposed new Statement for the Revised Proposal is presented in Appendix 4.



### **13. CONCLUSION**

In summary, the proposed changes in this document are not considered to have significant, detrimental environmental effects, in addition to or different from the effects of the initial Proposals as assessed, approved, and implemented under MS 286, MS 598 and MS 833.

A draft Statement that reflects the proposed changes to Schedule 1 of MS 286, MS 598, and MS 833, as described in the Part 2, in conjunction with changes to implementation conditions, is included as Appendix 4 for consideration.

Rio Tinto proposes that this is a revision to MS 833 and that the new Ministerial Statement for the Marandoo Project (Revised Proposal) supersedes MS 286, MS 598, and MS 833.

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## **APPENDICES**

- Appendix 1:** Existing Ministerial Statements for the Project (MS 286, MS 598, and MS 833)
- Appendix 2:** Referral Form for Revised Proposal
- Appendix 3:** Justification for Rationalisation of Conditions of MS 286, MS 598 and MS 833
- Appendix 4:** Proposed Ministerial Statement for the Revised Proposal (Marandoo Project)



WESTERN AUSTRALIA  
MINISTER FOR THE ENVIRONMENT

Ass #	599
Bull #	643
State #	286

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

**MARANDOO IRON ORE MINE AND CENTRAL PILBARA RAILWAY (599)**

**HAMERSLEY IRON PTY LIMITED**

This proposal may proceed but shall be implemented subject to the following conditions:

**1 Proponent Commitments**

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the project, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Environmental Review and Management Programme which are listed in Environmental Protection Authority Bulletin 643 as Appendix 1 and in its Statement of Mutual Understanding entered into with the Department of Conservation and Land Management. (A copy of the commitments is attached.)

**2 Implementation**

The implementation of the Marandoo Project will proceed under the provisions of the Environmental Protection Act and in accordance with the Iron Ore (Hamersley Range) Agreement Act as amended, hereafter called "the Agreement". Reporting requirements or compliance with these environmental conditions shall be achieved through the requirements for environmental management proposals or reports under the Agreement by the Minister for State Development referring such proposals and reports to the Minister for the Environment.

- 2-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent in project proposals pursuant to the Agreement ("the proposals"). Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that in the opinion of the Minister for State Development with the concurrence of the Minister for the Environment on the advice of the Environmental Protection Authority is not significant, those changes may be effected.

**3 Environmental Management Programme**

An overall Environmental Management Programme shall be submitted, describing in sufficient detail all aspects of the Central Pilbara Railway and Marandoo Iron Ore Mine and the integration of the proponent's commitments and the requirements of the conditions in this statement.

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- 6 OCT 1992



- 3-1 The proponent shall submit the Environmental Management Programme in accordance with the Agreement to the Minister for State Development and to the Minister for the Environment for their approval prior to the commencement of construction.
- 3-2 The proponent shall prepare and submit the Environmental Management Programme required by condition 3-1 in consultation with the Department of Conservation and Land Management. This Programme shall contain, but not necessarily be limited to the following elements:
- 1 Protection of significant flora and fauna (condition 4);
  - 2 Workforce management (condition 5);
  - 3 Central Pilbara Railway (condition 6);
  - 4 Drainage management (condition 7);
  - 5 Management of groundwater abstraction (condition 8);
  - 6 Management of weeds (condition 9);
  - 7 Management of fire (condition 10);
  - 8 Rehabilitation of the project area and decommissioning (conditions 11 and 15); and
  - 9 Management of waste disposal sites (condition 13).
- 3-3 Subsequent revisions of the Environmental Management Programme required by condition 3-1 will be prepared and submitted in consultation with the Department of Conservation and Land Management where appropriate and may form part of the annual and triennial reports pursuant to the Agreement.
- 3-4 Each element of the Environmental Management Programme required by condition 3-1 shall where appropriate address: potential source of environmental impact; commitments; objectives; procedures; and reporting including monitoring.
- 3-5 The proponent shall implement the various elements of the Environmental Management Programme required by conditions 3-1 to 3-4 to the satisfaction of the Minister for State Development and the Minister for the Environment.
- 3-6 In the event that monitoring shows unacceptable environmental impacts, the proponent shall in accordance with the Agreement prepare and subsequently implement a plan to mitigate these impacts to the satisfaction of the Minister for State Development and the Minister for the Environment.

#### **4 Protection of Flora and Fauna**

Rare, priority and geographically restricted species of flora and fauna in the project area shall be treated with special consideration.

- 4-1 The proponent shall provide details of the results of all surveys carried out on areas likely to be disturbed through construction and operational activity, to the satisfaction of the Minister for State Development and the Minister for the Environment on the advice of the Department of Conservation and Land Management, prior to those areas being disturbed.
- 4-2 Significant species of flora or fauna found in the surveys referred to in condition 4-1, shall be managed in accordance with the proponent's commitments and the Environmental Management Programme referred to in condition 3.

#### **5 Workforce Management**

The proponent is responsible for the management of the constructional and operational workforce to ensure that environmental impacts on the Karijini National Park are minimised.

- 5-1 The proponent shall manage the workforce and assist the Department of Conservation and Land Management to ensure that environmental impacts on the Karijini National Park resulting from constructional, operational and recreational activities are minimised.

## **6 Central Pilbara Railway**

The proponent may proceed to construct and operate the Central Pilbara Railway (from Marandoo to Homestead Junction) but shall do so in such a manner that reasonably minimises environmental impacts.

- 6-1 Prior to the construction of the Central Pilbara Railway the proponent shall prepare and subsequently implement in consultation with the Department of Conservation and Land Management an Environmental Management Programme for this railway describing how the management measures for the railway will meet the requirements of this condition.

## **7 Drainage Management**

The important vegetation communities in the area, in particular the coolibah and mulga woodlands, shall where possible be protected from drainage impacts associated with the development and operation of the project.

- 7-1 Prior to the commencement of construction, the proponent shall submit and subsequently implement a drainage management plan, setting out the measures to meet the requirements of this condition in consultation with the Department of Conservation and Land Management. This plan shall include a monitoring component to permit determination of its effectiveness.

## **8 Management of Groundwater Abstraction**

There shall be no unacceptable impact on the conservation values of the Karijini National Park resulting from groundwater abstraction associated with the project, particularly the coolibah woodlands to the east of Mt Bruce.

- 8-1 Prior to commissioning of the Marandoo borefield, the proponent shall prepare and subsequently implement a groundwater management plan describing in sufficient detail the measures to meet the requirements of this condition in consultation with the Department of Conservation and Land Management and the Water Authority of Western Australia. This plan shall include a monitoring component to permit determination of its effectiveness.

## **9 Management of Weeds**

The spread of weeds resulting from the development and operation of the project shall be minimised.

- 9-1 Prior to the commencement of construction, the proponent shall prepare and subsequently implement a weed management plan describing in sufficient detail measures to meet the requirements of this condition, in consultation with the Department of Conservation and Land Management. This plan shall prescribe monitoring and control measures and shall include a monitoring component to permit determination of its effectiveness.

## **10 Management of Fire**

The development and operation of the project shall not lead to a significantly increased fire risk within the Karijini National Park.

- 10-1 Prior to the commencement of construction, the proponent shall develop and subsequently implement a fire management plan describing in sufficient detail the

measures to meet the requirements of this condition, in consultation with the Department of Conservation and Land Management. This plan shall include a monitoring component to permit determination of its effectiveness.

- 10-2 The proponent shall develop the fire management plan required by condition 10-1 to integrate fire management in the project area with the overall fire management requirements of the Karijini National Park.

## **11 Rehabilitation**

The standard of rehabilitation of the project area shall where possible be consistent with local landscape values and if appropriate enable the return of the area to the Karijini National Park.

- 11-1 Prior to the commencement of construction and throughout the life of the development, the proponent shall prepare rehabilitation plans, in consultation with the Department of Conservation and Land Management and the Department of Minerals and Energy, to the satisfaction of the Minister for State Development and the Minister for the Environment. These plans shall include a monitoring component to permit determination of their effectiveness, and shall specify the sources of seed and species proposed for planting during rehabilitation.
- 11-2 The proponent shall subsequently implement the rehabilitation plans required by condition 11-1.
- 11-3 The proponent shall where possible only use plant material of local provenances for rehabilitation to the requirements of the Department of Conservation and Land Management.

## **12 Management of Visual Impact**

The visual impact of the proposed development shall be minimised.

- 12-1 The proponent shall where possible mitigate the visual impact of the development in consultation with the Department of Conservation and Land Management. The location, design and colour of surface facilities will be chosen as far as practicable in sympathy with the landscape.

## **13 Management of Waste Disposal Sites**

Domestic and industrial waste material from the project shall be managed to prevent scavenging by animals and pollution of groundwater.

- 13-1 Prior to the commencement of construction, the proponent shall develop and subsequently implement a plan describing in sufficient detail measures to manage the waste disposal sites to meet the requirements of this condition, in consultation with the Department of Conservation and Land Management and the Health Department of Western Australia. This plan shall include provision for minimisation of scavenging by animals including birds, and contamination of groundwater. The plan shall also include a monitoring component to permit determination of its effectiveness

## **14 Management of Community Impact**

The proponent shall consult with relevant community groups to minimise the impact of the project on the community.

- 14-1 The proponent shall establish a consultative mechanism as referred to in the proponent's commitments.

## **15 Decommissioning**

The satisfactory decommissioning of the project, removal of the plant and installations and final rehabilitation of the site and its environs is the responsibility of the proponent.

- 15-1 At least six months prior to the decommissioning, the proponent shall prepare and implement a decommissioning and final rehabilitation plan, in consultation with the Department of Conservation and Land Management and the Department of Minerals and Energy.

## **16 Proponent**

The conditions in this statement apply to the nominated proponent.

- 16-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for State Development with the concurrence of the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Ministers shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

## **17 Time Limit on Approval**

The environmental approval for the proposal is limited.

- 17-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for State Development with the concurrence of the Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

## **18 Compliance Auditing**

In order to ensure that environmental conditions and commitments are met, an audit system is required.

- 18-1 The proponent shall prepare periodic "Progress and Compliance Reports", to help verify the environmental performance of this project to the requirements of the Minister for State Development and the Minister for the Environment pursuant to the Agreement.

### **Note 1**

In satisfying the requirements of conditions 4 to 14, the proponent should take cognisance of condition 3 so that integration of the separate parts of environmental management and staging of the preparation and implementation of the Environmental Management Programme can be effected.

**Note 2**

For the purposes of this statement the following definition applies:

- 1 "Prior to the commencement of construction" means prior to any ground-disturbing activity which is directly related to construction of the mine, railway, or associated infrastructure. It includes clearing of vegetation, but does not include survey work.

**Note 3**

The proponent will be required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.



Bob Pearce, MLA  
MINISTER FOR THE ENVIRONMENT

6 OCT 1992



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# COMMITMENTS

Some of the issues dealt with in this ERMP have the potential to result in identifiable environmental impacts. The previous chapter dealt with their management so that impacts will be avoided, minimised or mitigated and the environment protected.

This chapter presents a summary of those commitments made by Hamersley which address these potential impacts. Each commitment is numbered to assist with referencing during the period of review and EPA assessment.

The commitments are also grouped according to broad commonality of their purpose towards environmental protection. They are first described and then listed in Table 15.1. It will be appreciated that a significant number of these commitments are listed largely as a matter of information for the community, to indicate that Hamersley plans to take various management actions internally on a variety of issues that may be of interest to those participating in the ERMP process. Matters such as encouraging appreciation of the Park (No. 7) and research into land units (No. 14) are clearly internal issues for Hamersley, yet because they are consistent with Hamersley's environmental policy and relevant to this ERMP, they are enunciated and listed. The "auditor" for such issues is properly Hamersley (HI), but Hamersley will routinely include such matters in its regular reports to the Department of State Development.

In other instances, the listed "auditor" may be an appropriate Government instrumentality under a regulation or statute, or by arrangement, such as with CALM in the co-operative research programme on the Pebble-mound Mouse.

## GROUP 1—SOCIAL FACTORS

### Environmental Care and Understanding

- 1 Educational and environmental induction courses for Marandoo personnel will be instigated, prior to the construction phase, to address the broad issues of conservation of flora and fauna. As a condition of employment, employees will attend an induction programme designed to create an environmental awareness. CALM will be consulted during the development of the courses.

## Recreational Care

- 2 The expertise and knowledge gained from the Channar construction camp will be applied in minimising environmental impacts of construction workers at Marandoo during their leisure hours.

## Aboriginal Heritage

- 3 Part of the induction course (see No. 1) will address Aboriginal heritage issues to increase awareness of Aboriginal cultural heritage.
- 4 The views of Aboriginal people in Onslow and Roebourne who claim traditional affiliation with the Project Area will be sought by Hamersley's Aboriginal Liaison Officer who will:
  - assist in preparation of inductions (see above)
  - advise Hamersley on any Aboriginal cultural matters.
- 5 Employees and contractors at Marandoo will be made familiar with any applicable requirements of the *Aboriginal Heritage Act 1972-1980*.

## Community Needs

- 6 Tom Price needs in terms of housing, services and facilities are already considered adequate. Any additional needs identified during the project feasibility study stage will be minimal and will be addressed at that time.
- 7 Hamersley will assist protection of the Park values by encouraging amongst its local employees an understanding and awareness of the importance of the Park.

## Employment

- 8 Hamersley will continue to give careful consideration to the employment needs of women, Aboriginal people and young people.
- 9 Hamersley will continue to support opportunities for Aboriginal employment through its Ieramugadu programme.
- 10 Hamersley will develop a programme through its Aboriginal Liaison Officer presently stationed at Onslow, to explore, trial and implement practicable and effective training and employment projects, in close co-operation with responsive individuals and groups of Aboriginal people.

## GROUP 2—ENVIRONMENTAL RESEARCH AND MANAGEMENT

### Protected and Rare Species

- 11 Hamersley will support research with CALM on the range, distribution and taxonomy of the Pebble-mound Mouse, as outlined in this ERMP.
- 12 Special attention will be given to the occurrence of any Bilby habitats in future fauna surveys.
- 13 Hamersley will include in its induction programme (see No. 1), information to assist in protection of rare and significant species of fauna and flora.

- 14 Hamersley will continue to progress its regional land-unit work, and to continue to research its environmental predictive capabilities for future mines.
- 15 Hamersley will, as far as practicable, avoid damage to significant vegetation communities in the Project Area and where appropriate will consult with experienced botanists to achieve this aim. Where mining operations will remove a particular community locally, Hamersley will consult with CALM prior to taking appropriate action.

### Rehabilitation

- 16 Construction activities will be conducted so as to minimise any necessary disturbance to the environment. Areas disturbed for construction purposes will be rehabilitated as soon as practicable after they are no longer required for the project.
- 17 Rehabilitation of disturbed areas will be undertaken in accordance with the guidelines set out in the ERMP. Monitoring of rehabilitated areas will be undertaken and the findings reported. Remedial work will be undertaken if required.
- 18 Final landforms will be designed to be safe and stable.
- 19 At the end of the construction period, the construction camp will be removed and the servicing areas and evaporation ponds will be ripped and revegetated.
- 20 A fire management policy for the Marandoo Project Area which is compatible with the management objectives for the Park will be developed in consultation with CALM.
- 21 Hamersley will wherever possible use seed derived from local sources during rehabilitation works. If local seed is not available Hamersley will consult with CALM prior to determining alternatives.

### Protection Against Weeds

- 22 Measures to prevent and restrict the introduction and spread of weeds will be investigated and managed after consultation with CALM.

### Protection of Fauna and Interruption of Habitats

- 23 Possession of pets and firearms by project personnel will not be permitted in the Project Area. The induction courses will provide information on the conservation of fauna and their habitats.

### Pollution Control and Monitoring

- 24 Appropriate dust suppression measures, including water sprays and dust collector systems, will be implemented to ensure that acceptable ambient and occupational dust levels are achieved, as required by the *Mines Regulation Act Regulations 1976*.
- 25 Dust monitoring programmes will be established to assess ambient dust levels for environmental purposes and respirable dust levels and fibre sampling for occupational health and safety purposes. The monitoring programmes will be developed and conducted in accordance with the *Mines Regulation Act Regulations 1976*.
- 26 Monitoring of occupational noise levels will be undertaken in accordance with the *Mines Regulation Act Regulations 1976*.

- 27 Hamersley will develop a "closed" system for the treatment of contaminated waters from service areas.
- 28 Toxic wastes will be removed from Marandoo and disposed of at existing approved sites.
- 29 Used oil will be collected, stored in bunded above-ground tanks and transported to Dampier for use in the power station.
- 30 Sewage effluent will be dealt with in accordance with the requirements of the *Health Act 1911*.
- 31 Licences will be obtained under the *Poisons Act 1964* for relevant materials.
- 32 Waste disposal will be in accordance with an EPA licence.

### Water Conservation and Management

- 33 Hamersley will undertake further detailed hydrological, geological and mining engineering studies during 1992-1993 to provide inputs into the study of end-use options.
- 34 Hamersley will continue to refine computer simulation of the groundwater systems.
- 35 Hamersley in conjunction with CALM will monitor Bandjima Pool and Mindi Spring to develop a more complete understanding of their hydrology.
- 36 Selected monitoring bores will be established to assess groundwater levels and quality on a routine basis.
- 37 Where practicable and as appropriate, surface water samples will be collected from major discharge points of the open water system to test for contamination.
- 38 Hamersley will continue its weather observations at Marandoo, to maintain a regional meteorological data base.
- 39 Design and location of the borefield for the long-term operation will take into account the need to limit vegetation impacts to an acceptable level. Monitoring of groundwater and vegetation will be undertaken and appropriate remedial action taken as required.

### GROUP 3—AESTHETICS AND VALUES OF THE PARK

- 40 Under the Statement of Mutual Understanding, Hamersley will work with CALM to refine and implement an agreed end-use plan for the mine site after decommissioning.
- 41 The location, design and colour of surface facilities will be chosen as far as practicable in sympathy with the landscapes.
- 42 Hamersley will sign its roads as far as practicable in sympathy with CALM's management practices.

**Attachment to Marandoo Statement 286**

**Change to description of Proposal**

**Proposal:** Marandoo Iron Ore Mine and Central Pilbara Railway

**Proponent:** Pilbara Iron (on behalf of Hamersley Iron Pty Limited)

**Change:** Two rail sidings & Fibre Optic Cable

**Features of currently approved Proposal:**

<b>Element</b>	<b>Quantities/Description</b>

**Features of approved change to Proposal:**

<b>Element</b>	<b>Quantities/Description</b>
Railway	Eagle Siding – located from approx 284.8km mark to 287.5km on the existing Rosella to Yandi line.  Juna Downs Siding – located from approx 359.75km to 363.1km on the existing Rosella to Yandi line.
Fibre Optic Cable	Located from approx 284.8km mark to 287.5km on the existing Rosella to Yandi line.  Located from approx 359.75km to 363.1km on the existing Rosella to Yandi line.

Approval Date: 29/11/06

## Attachment to Statement 286

## Change to description of Proposal

**Proposal:** Marandoo Iron Ore Mine and Central Pilbara Railway

**Proponent:** Pilbara Iron (on behalf of Hamersley Iron Pty Limited)

**Change:** Additional rail siding – Dove

## Features of currently approved Proposal:

Element	Quantities/Description
Railway with sidings	Single standard gauge railway line.
Vegetation disturbance from railway construction	Unspecified in original approval.

## Features of approved change to Proposal:

Element	Quantities/Description
Additional rail siding	Dove Siding, consisting of a passing track and back track, located between 50.6 kilometres and 53.6 kilometres on the existing Dampier to Tom Price line.
Vegetation disturbance from railway construction	Average width of disturbance of 14 metres. Additional 7 hectares of permanent clearing.
Borrow source 1 *	Whundo Mine waste rock overburden dumps, approximately 6 kilometres south of Dove Siding.
Borrow source 2 *	Green Pool Siding Borrow Pit, at approximately 63 kilometres on the Pannawonica to Cape Lambert Railway.
Borrow source 3 *	Fox Radio Hill Site, approximately 4 kilometres north of Dove Siding.
Borrow source 4 *	Seven Mile Landfill, Karratha.
* - No increase in area of disturbance of borrow pits.	

Approved: 24 MAY 2007



## Attachment 3 to Statement 286

### Change to Proposal

**Proposal:** Marandoo Iron Ore Mine and Central Pilbara Railway

**Proponent:** Pilbara Iron (on behalf of Hamersley Iron Pty. Limited)

**Change:** An extension of two existing waste dumps to merge into one.

#### Features of previously approved Proposal:

Element	Quantities/Description
Waste dump	Four areas for overburden. Unspecified in original approval, but indicated in Plate 1, page 13, of the Environmental Review and Management Programme (February 1992).

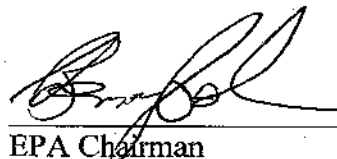
#### Features of changed Proposal:

Element	Quantities/Description
Waste dump	One additional area of approximately 12 hectares for overburden, adjacent to and between two existing approved areas for overburden (See Figure 1 attached).

**Figure 1 (attached)** – Marandoo waste dump extension (15 August 2007).

Note: Waste dump boundary is shown in yellow (Triangular area of approximately 12 ha to east of red line is subject to this approval); and Karijini National Park boundary is shown in blue.

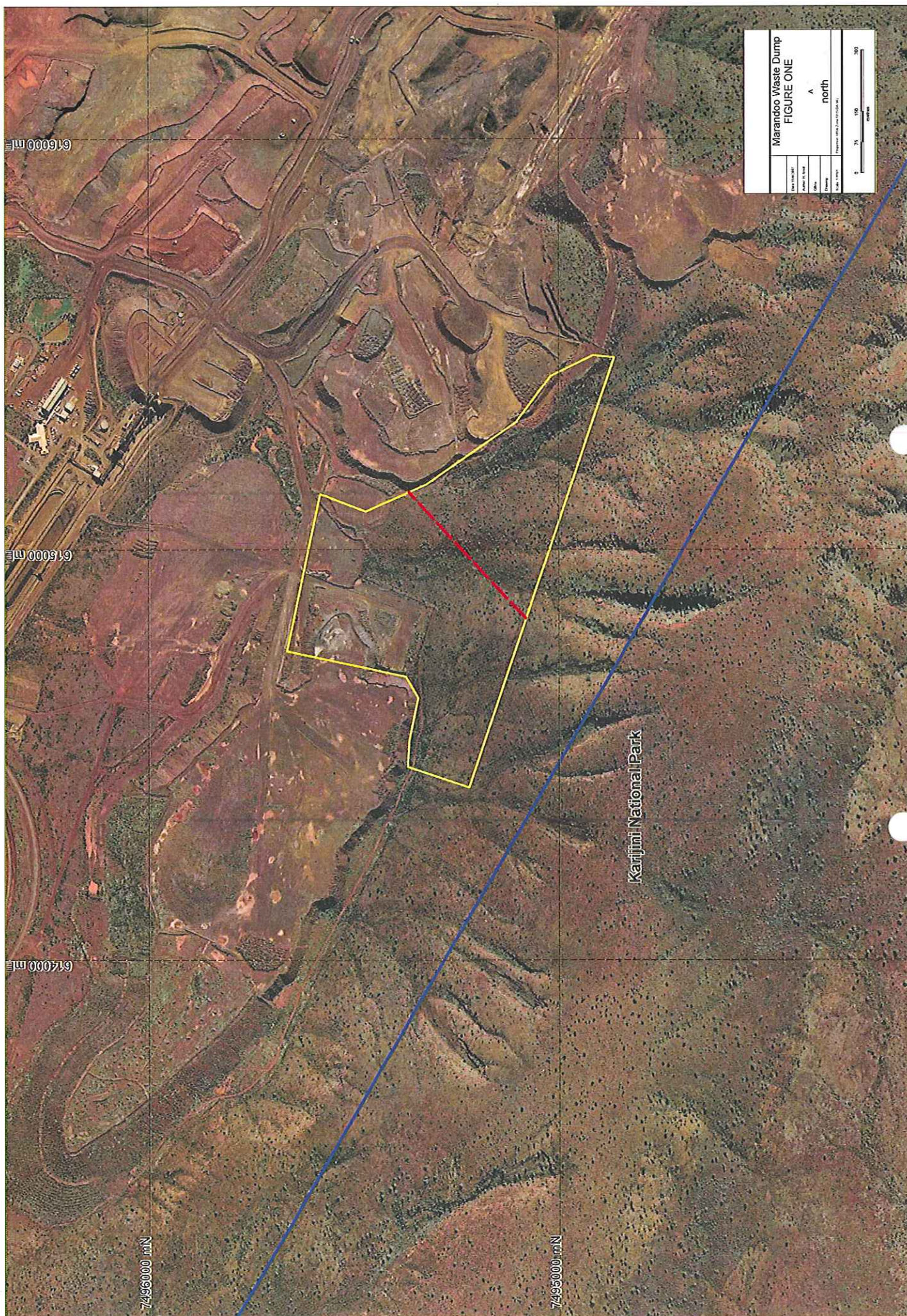
Approved under delegation  
from the Minister for the Environment:

  
EPA Chairman

Approval Date:

29.08.07







Attachment 4 to Statement 286

Change to Proposal

**Proposal:** Marandoo Iron Ore Mine and Central Pilbara Railway

**Proponent:** Pilbara Iron (on behalf of Hamersley Iron Pty. Limited)

**Change:**

**Components of original Proposal as implemented:**

Component	Quantities/Description
Area of Mine Tail Pit	Mining to be carried out within a defined area of 4km by 2km

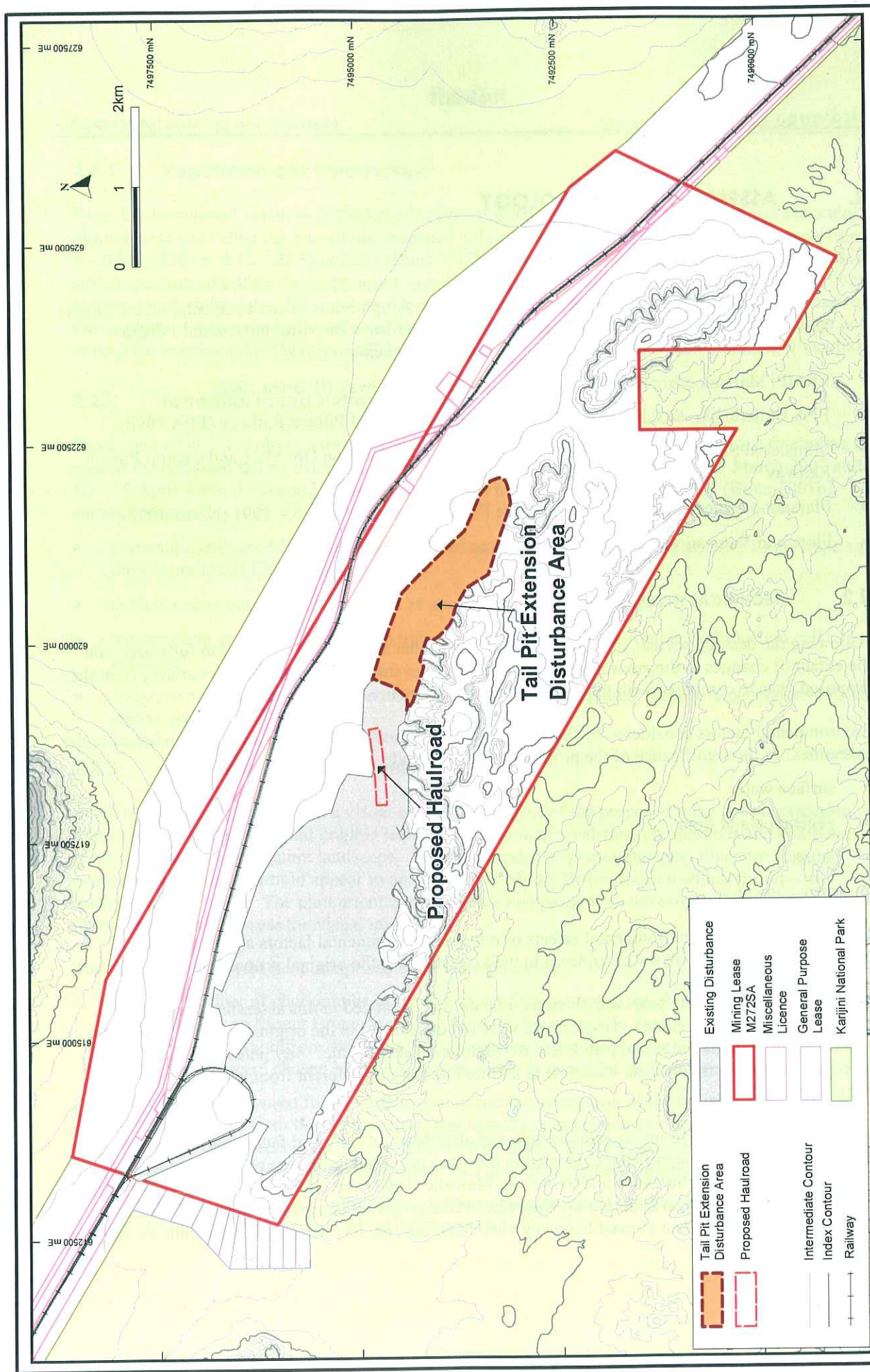
**Components of changed Proposal:**

Component	Quantities/Description
Area of Mine Tail Pit	Extension of Mine Tail Pit eastwards over an area of 157ha, as shown in Figure 1

Figure 1. Layout map revised

**Approved under delegation  
from Minister for the Environment:**

**Approval Date:** 15-4-08



**Figure 3 Marandoo Conceptual Mine Layout**



Statement No.

**MINISTER FOR THE ENVIRONMENT AND HERITAGE**

**000598**

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

**HYDROGEOLOGICAL RESEARCH PROGRAMME AT MARANDOO  
TRIAL DEWATERING & RE-INJECTION TEST  
KARIJINI NATIONAL PARK**

**Proposal:** To undertake a hydrogeological research programme at the Marandoo mine site, as documented in schedule 1 of this statement. Marandoo mine site is 35 kilometres north-east of the town of Tom Price in the Pilbara, and is operated by Hamersley Iron Pty Limited. The Marandoo Mining Lease (M272SA) abuts the Karijini National Park.

**Proponent:** Hamersley Iron Pty Limited

**Proponent Address:** Central Park, 152-158 St George's Terrace  
Perth WA 6837

**Assessment Number:** 1428

**Report of the Environmental Protection Authority:** Bulletin 1048

The proposal referred to above may be implemented subject to the following conditions and procedures:

*Procedural conditions*

**1 Implementation and Changes**

- 1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.
- 1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

Published on

**- 2 JUL 2002**

- 1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

## **2 Proponent Commitments**

- 2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.
- 2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of the conditions in this statement.

## **3 Proponent Nomination and Contact Details**

- 3-1 The proponent for the time being nominated by the Minister for the Environment and Heritage under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment and Heritage has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.
- 3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.
- 3-3 The nominated proponent shall notify the Department of Environmental Protection of any change of contact name and address within 60 days of such change.

## **4 Commencement and Time Limit of Approval**

- 4-1 The proponent shall provide evidence to the Minister for the Environment and Heritage within five years of the date of this statement that the proposal has been substantially commenced or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment and Heritage will determine any dispute as to whether the proposal has been substantially commenced.

- 4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment and Heritage, prior to the expiration of the five-year period referred to in condition 4-1.



The application shall demonstrate that:

- the environmental factors of the proposal have not changed significantly;
- new, significant, environmental issues have not arisen; and
- all relevant government authorities have been consulted.

Note: The Minister for the Environment and Heritage may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

### *Environmental conditions*

## **5 Compliance Audit**

5-1 The proponent shall prepare an audit program in consultation with and submit compliance reports to the Department of Environmental Protection which address:

- the implementation of the proposal as defined in schedule 1 of this statement;
- evidence of compliance with the conditions and commitments; and
- the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environmental Protection is empowered to audit the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement. Usually, the Department of Environmental Protection prepares an audit table which can be utilised by the proponent, if required, to prepare an audit program to ensure that the proposal is implemented as required. The Chief Executive Officer is responsible for the preparation of written advice to the proponent, which is signed off by either the Minister or, under an endorsed condition clearance process, a delegate within the Environmental Protection Authority or the Department of Environmental Protection that the requirements have been met.

## **Procedures**

- 1 Where a condition states "to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority", the Chief Executive Officer of the Department of Environmental Protection will obtain that advice for the preparation of written advice to the proponent.
- 2 The Environmental Protection Authority may seek advice from other agencies, as required, in order to provide its advice to the Chief Executive Officer of the Department of Environmental Protection.

## **Notes**

- 1 The Minister for the Environment and Heritage will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environmental Protection over the fulfilment of the requirements of the conditions.

Dr Judy Edwards MLA  
MINISTER FOR THE ENVIRONMENT AND HERITAGE

- 2 JUL 2002

### Marandoo hydrogeological research programme

#### The Proposal (Assessment No. 1428)

The proposal is to undertake a hydrogeological research programme at the Marandoo mine site which is 35 kilometres north-east of the town of Tom Price in the Pilbara, and is operated by Hamersley Iron Pty Limited. The Marandoo Mining Lease (M272SA) abuts the Karijini National Park.

The research programme seeks to clarify the extent of connection of the Marra Mamba orebody aquifer with a deep Wittenoom Dolomite aquifer that extends beneath the Karijini National Park and between this Wittenoom Dolomite aquifer with two shallow un-named calcrete aquifers.

Understanding the connectivity of the Marra Mamba aquifer with and between these aquifers will provide the basis for:

- evaluating the feasibility of dewatering the orebody to access the below-watertable Marandoo ore; and
- predicting the environmental impacts of dewatering on the aquifers and significant vegetation inside the Karijini National Park.

The main components of the research programme are:

- Drilling, constructing and short term (3 day) test pumping of production bores and trial re-injection bores;
- Establishing a network of piezometers that intersect key aquifers;
- Running a pipeline from the production bores to the re-injection bores;
- Establishing a temporary track to the re-injection bores to allow access for vehicles; and
- Conducting a short term trial dewatering and re-injection.

The research programme incorporates a 60-day trial dewatering programme from the Marra Mamba orebody aquifer during which water will be re-injected into the deep Wittenoom Dolomite aquifer. The production bores will be located in the Marandoo Mining Lease while the re-injection bores will be located in the Karijini National Park. A temporary pipeline will supply the water from the production bores to the re-injection bores in the Karijini National Park. Piezometers will be used to monitor responses in groundwater levels during the trial dewatering and re-injection programme.

The pipeline, vehicular track, and down-hole instrumentation will be removed from the Karijini National Park upon the completion of the trial. The re-injection bores and piezometers inside the Karijini National Park will be retained until such time that Marandoo is decommissioned. All disturbed areas inside the Karijini National Park will be rehabilitated, including areas used for drill pads, pipeline and track.

The trial dewatering and re-injection component of the research programme is scheduled to be completed by end 2002. Drilling is scheduled to commence as soon as all approvals have been obtained.

The Key Proposal Characteristics are shown in Table 1.

#### Figures

Figure 1 – Location Map (attached).

Figure 2 – Programme Layout (attached).

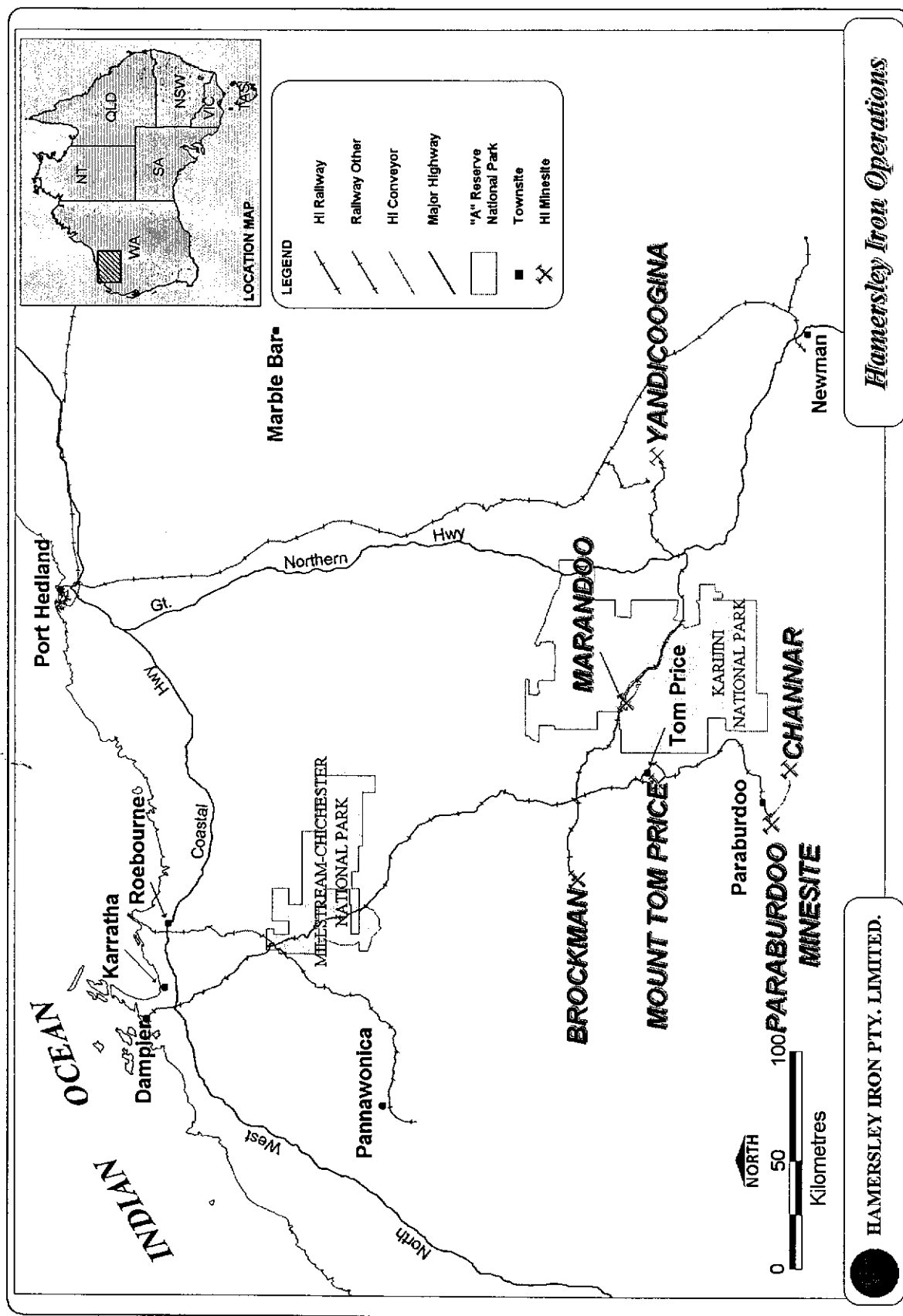


Figure 1: Location Map

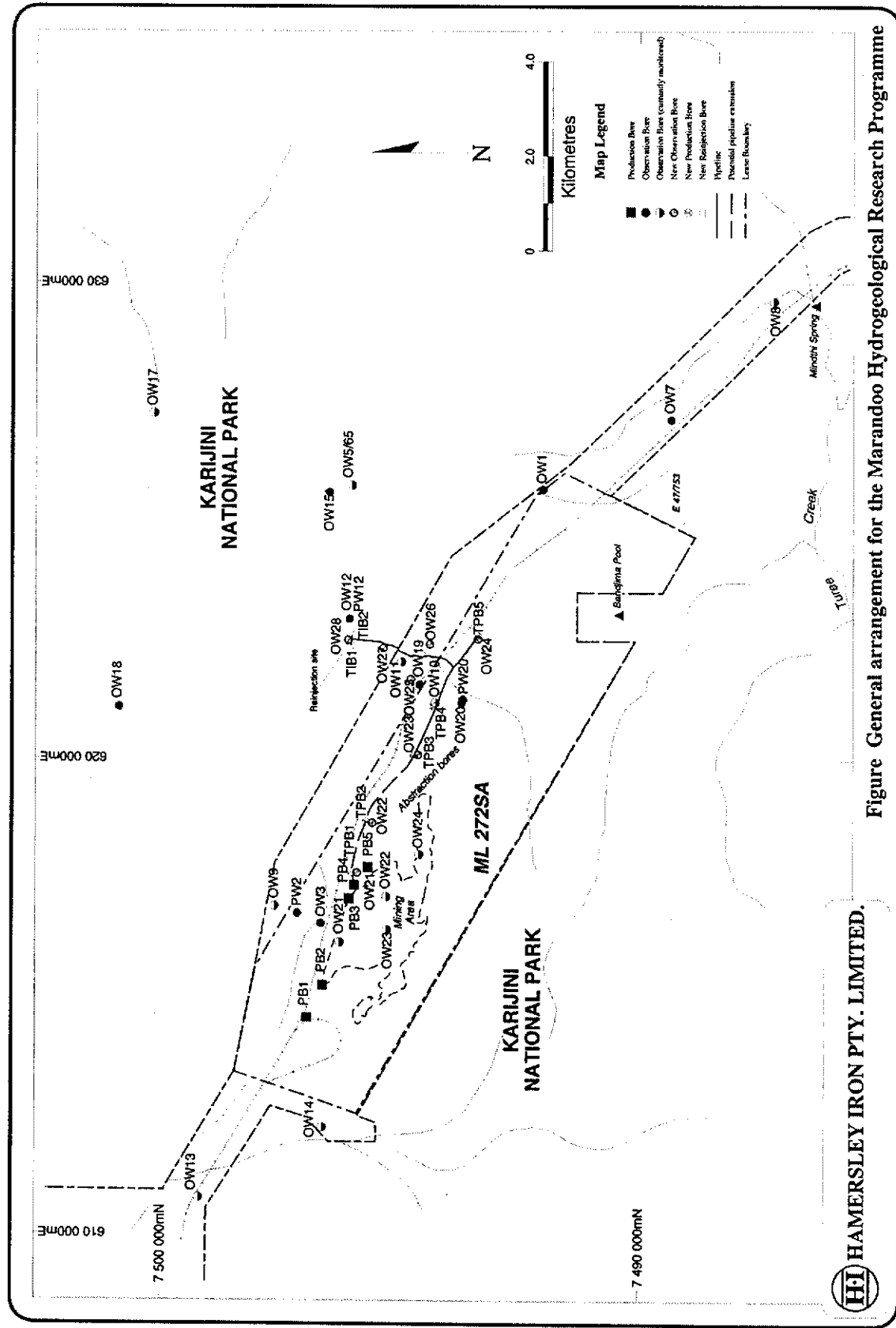


Figure 2: Programme Layout (Source: Hamersley Iron Pty Limited, 2002)



**Table 1 - Key Proposal Characteristics (Assessment No. 1428)**

<b>Component</b>	<b>Project characteristic</b>	<b>Description</b>
<b>Dewatering bores</b>	Number of new bores	Five
	Location of bores	Marandoo Mining Lease (M272SA)
	Aquifer targeted	Marra Mamba (orebody) aquifer
	Depth of bores	Between 120 metres and 240 metres
	Diameter of bore holes	Approximately 300 millimetres (inside diameter)
	Activities to be undertaken	Drill, construct and short term (3 days) test pumping
<b>Re-injection bores</b>	Number of new bores	Two
	Location of bores	Approximately 1.2 kilometres inside Karijini National Park
	Aquifer targeted	Wittenoom Dolomite
	Depth of bores	Between 130 metres and 150 metres
	Diameter of bore holes	Up to approximately 300 millimetres (inside diameter)
	Activities to be undertaken	Drill, construct and short term (3 days) test pumping
<b>Piezometers</b>	Number of new piezometers	Eight sets of multi-aquifer piezometers (ie some sets will have three separate monitoring holes)
	Location of piezometers	<ul style="list-style-type: none"> <li>Two sets in Karijini National Park (existing sets will also be used)</li> <li>Two sets in Transport Corridor</li> <li>Four sets in Mining Lease (existing sets will also be used)</li> </ul>
	Aquifers targeted	Two shallow calcrete aquifers, deep Wittenoom Dolomite aquifer and Marra Mamba aquifer (where they occur)
	Activities to be undertaken	Monitor water level fluctuations during and after the trial
<b>Temporary pipeline</b>	Length	Total length approximately 5.2 kilometres, of which approximately 3 kilometres is in the Mining Lease, one kilometre in the Transport Corridor and 1.2 kilometres in the Karijini National Park
	Diameter of pipeline	Between 300 millimetres and 400 millimetres
	Type of pipeline	Black poly
	Arrangement	Pipeline will link 3 or 4 production bores to each other and then feed water to the re-injection bores
<b>Trial dewatering and re-injection</b>	Activities to be undertaken	Pumping of water from the Marra Mamba aquifer and re-injection of discharge into Wittenoom Dolomite aquifer. Monitoring of dewatering and re-injection impacts via piezometers.
	Duration of test	60 days
	Volumes to be dewatered/re-injected	Up to 12 million litres per day
<b>Other infrastructure</b>	Track	A temporary track that runs alongside the pipeline will be established to allow access to the piezometers and re-injection bores
	Drill pads	Drill pads will be required at each bore and piezometer site to enable drilling to occur
	Pumps/generators	A generator will be placed next to each production bore to pump water to the re-injection bores
<b>Decommissioning and rehabilitation</b>	Infrastructure to be removed post-trial	Pipeline, vehicular track, down-hole instrumentation and generators/pumps
	Infrastructure to be retained post-trial	Production bores (in Mining Lease), re-injection bores (in Karijini National Park) and piezometers (all)
	Rehabilitation	Disturbed areas (drill pads, track, pipeline) inside the Karijini National Park and Transport Corridor will be rehabilitated in the manner agreed with CALM

## **Schedule 2**

### **Proponent's Environmental Management Commitments**

April 2002

Hydrogeological Research Programme at Marandoo  
Trial Dewatering and Re-injection Test  
Karijini National Park

(Assessment No. 1428)

Hamersley Iron Pty Limited

**Proponent's Environmental Management Commitments - Hydrogeological Research Programme, Marandoo  
(Assessment No. 1428)**

No.	Topic	Action	Objective/s	Timing	Advice from
1.	Environmental Management Plan	<p>Prepare and implement an Environmental Management Plan for the research programme that has been agreed to by CALM that specifically addresses the issues listed below where they relate to the Karijimi National Park:</p> <ul style="list-style-type: none"> <li>• Route and general approach for the pipeline/track to the re-injection bores</li> <li>• Approaches to establishing the access track, drill pads and pipeline and surface treatment for the access track to avoid long term damage to soil surface</li> <li>• Surface water management during individual bore test pumping</li> <li>• Vehicle controls</li> <li>• Vehicle hygiene and national park regulations</li> <li>• Hydrocarbon storage and handling during drilling works</li> <li>• Controls to limit the risk of fire</li> <li>• Avoidance of Coolibah trees and habitat</li> <li>• Liaison with CALM Rangers and others within CALM</li> <li>• Rehabilitation requirements</li> <li>• Auditing and reporting</li> </ul>	Manage environmental aspects of the research programme and minimise environmental impacts.	Prior to start of ground disturbance	CALM, WRC
2.	Groundwater Licence	<p>Apply for a Groundwater Licence from the Water and Rivers Commission to abstract groundwater from the Mining Lease. Develop and implement an operating strategy for the management of water.</p>	Obtain required groundwater abstraction licence and implement operating strategy.	Prior to start of ground disturbance	WRC

No.	Topic	Action	Objective/s	Timing	Advice from
3.	Surface discharge of water	No surface discharge of water will be permitted to flow into the Karijini National Park during the trial dewatering and re-injection (some discharge from the individual bore test pumping at the re-injection site will occur prior to the commencement of the trial). The trial will be terminated if the re-injection fails and cannot be restored requiring more than two days of surface discharge.	Contain surface water flow within the Mining Lease during the trial.	During test pumping.	CALM via EMP review
4.	Declared and Priority listed flora	Undertake a survey for Declared Rare Flora and Priority listed flora and forward the findings of that survey to CALM (Karratha). If any DRF is identified, re-position the infrastructure and/or implement appropriate management measures to protect them.	Identify and protect any Rare or Priority listed Flora. Manage any Rare or Priority listed Flora that may be recorded.	Prior to start of ground disturbance	CALM
5.	Vehicle hygiene	Implement a procedure for the compulsory wash down of all vehicles and machinery prior to their first entry into the Karijini National Park as part of vehicle hygiene regime.	Minimise risk of introducing weeds and seeds into Karijini National Park.	All times.	CALM via EMP review
6.	Coolibah woodland access	Prohibit any vehicles from entering the Coolibah woodland, with access to the existing monitoring sites only permitted on foot.	Preclude vehicle access to Coolibah woodlands during trial.	All times.	CALM via EMP review
7.	Hydrocarbon management	Prohibit any fuel from being taken into the Karijini National Park, except for fuel contained in a secured tank on the support truck for re-fuelling the drill rig and fuel held in normal vehicle tanks.	Minimise risk of loss of containment of hydrocarbons and soil/water contamination.	All times.	CALM via EMP review

No.	Topic	Action	Objective/s	Timing	Advice from
8.	Aboriginal heritage	Undertake an Aboriginal heritage (ethnographic and archaeological) survey of those areas not previously surveyed in accordance with the proponents' existing protocols and procedures that involve consultation with the relevant Aboriginal group/s. Relocate any infrastructure so as to avoid any identified sites or submit a Section 18 application in full consultation with relevant Aboriginal groups.	Identify any heritage sites.  Avoid or seek approval to disturb any recorded sites.	Prior to start of ground disturbance	Department of Indigenous Affairs.
9.	Peer review of hydrogeological design	Commission a peer (third party) review of the design and approach of the hydrogeological research programme and make available to Government agencies upon request, including the EPA.	Obtain third party view on validity of the design of the trial.	Design phase	External Consultant
10.	Photographic monitoring	Establish photographic records of the area of the trial and make outcomes available to Government agencies upon request.	Obtain photographic record of trial area and make available for scrutiny.	Before, during and after the trial.	-
11.	Stygofauna	Undertake stygofauna sampling at available piezometers and production bores, with particular emphasis on sampling the Wittenoom Dolomite aquifer and shallow calcrete aquifers. Provide collected specimens to the Western Australian Museum and the University of Western Australia and forward a copy of any report to CALM (Karratha).	Understand the distribution of the stygofauna population.  Share outcomes with the general research community.	April 2002, prior to the commencement of the trial, after the trial, and in April 2003.	Western Australian Museum
12.	Removal of infrastructure	Decommission and remove from site the temporary track, down hole equipment, generators and the re-injection pipeline upon completion of the trial.	Remove infrastructure and equipment from Karijini National Park that do not need to be retained.	Within 2 months of the completion of the trial.	CALM



No.	Topic	Action	Objective/s	Timing	Advice from
13.	Rehabilitation	Agree with CALM (Karratha) the rehabilitation requirements for disturbed areas in the Karijini National Park toward the end of the trial and then implement that agreed approach.	Rehabilitate disturbed areas within the Karijini National Park.	Implement agreed rehabilitation approach within 2 months of end of the trial	CALM, via EMP review and inspection
14.	Compliance audits	Conduct joint Proponent-CALM (Karratha) compliance audits at agreed stages of the research programme and at times suitable to both parties.	Verify compliance with conditions and commitments and evaluate environmental performance.	During drilling of bores, near end of the trial and post-rehabilitation or as agreed with CALM.	CALM, via EMP review
15.	"Duckboards"	Design, construct and utilise appropriate "duckboards" around the drill rig during drilling activities as a means of reducing soil disturbance.	Minimise soil compaction and soil disturbance.	Design phase and during drilling activities	CALM, via EMP review

#### Abbreviations / Glossary

CALM = Department of Conservation and Land Management

EMP = Environmental Management Plan

EPA = Environmental Protection Authority

WRC = Water and Rivers Commission

"Duckboards" = normally wooden, flat platform that sits above the ground to minimise direct foot contact with the ground.

**STATUS OF THIS DOCUMENT**

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Published on: 8 July 2010

Statement No. 833

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

**MARANDOO MINE PHASE 2, SHIRE OF ASHBURTON**

**Proposal:** The expansion of existing mining operations at Marandoo by mining below the water table, including expansion of the existing mine pit and development of new waste dumps.

The proposal is further documented in Schedule 1 of this statement.

**Proponent:** Hamersley Iron Pty Limited

**Proponent Address:** 152-158 St Georges Tce, Perth, 6000

**Assessment Number:** 1686

**Appeal Determination:** 55 of 2010

**Related Statement:** Ministerial Statement 286 is the currently approved proposal.

**Report of the Environmental Protection Authority:** Report 1355

Where the conditions of this statement are in conflict with the conditions of Statement No. 286, these conditions shall prevail.

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

**1. Proposal Implementation**

- 1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in Schedule 1 of this statement subject to the condition and procedures of this statement.

**2 Proponent Nomination and Contact Details**

- 2-1 The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.
- 2-2 The proponent shall notify the Chief Executive Officer of the Office of the Environmental Protection Authority (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

**3 Time Limit of Authorisation**

- 3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.
- 3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five 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 calendar months prior to the first Compliance Assessment Report required under 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. reporting of potential non-compliances and corrective actions taken;

5. the table of contents of compliance reports; and
  6. public availability of compliance 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 two business days of that non-compliance being known.
- 4-6 The proponent shall submit an annual compliance report to the CEO by 31 March each year for the preceding period of 1 January to 31 December. The compliance assessment report shall:
1. be endorsed by the proponent's Managing Director or a person, approved in writing by the Department of Environment and Conservation, delegated to sign on the Managing Director'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 Performance Review and Reporting**

- 5-1 The proponent shall submit to the CEO Performance Review Reports at the conclusion of the second and fifth years after the commencement of productive mining and then, at such intervals as the CEO may regard as reasonable, which addresses:
1. the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;

2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and
3. improvements gained in environmental management which could be applied to this and other similar projects.

## **6 Coolibah Woodlands**

- 6-1 The proponent shall ensure that groundwater abstraction, dewatering required to implement the proposal, and any mitigation measures implemented do not adversely impact the Coolibah Woodlands located within Karijini National Park.
- 6-2 To verify that the requirement of condition 6-1 is met the proponent shall:
1. monitor groundwater levels and quality within the woodlands;
  2. monitor soil moisture levels within the woodlands;
  3. monitor soil physical and chemical parameters within the woodlands; and
  4. monitor the health and cover of vegetation within the woodlands, particularly Coolibah trees.

Monitoring is to be carried out according to a monitoring schedule and using methods developed to the satisfaction of the CEO on advice from the Department of Environment and Conservation prior to the commencement of dewatering.

Monitoring is to continue until such time as groundwater levels in the unconfined aquifer below the Coolibah Woodlands have returned to pre-mining levels, or until such time as the CEO determines that monitoring and management actions may cease.

- 6-3 The proponent shall, prior to the commencement of dewatering, provide a report to the CEO which has been prepared using independent experts chosen in consultation with the Office of the Environmental Protection Authority and Department of Environment and Conservation. The report shall detail the following:
1. appropriate trigger values developed to the satisfaction of the CEO on advice from the Department of Environment and Conservation to be applied to the monitoring program required in condition 6-2, and discussion of the selection of the trigger levels in relation to the EPA's objectives;



2. a detailed strategy developed to the satisfaction of the CEO on advice from the Department of Environment and Conservation to avoid and mitigate any impacts to the Coolibah Woodland detected by the monitoring program required by condition 6-2.
- 6-4 Within eight months of commencement of dewatering, the proponent shall provide a report to the CEO detailing data obtained from the first six months of dewatering. This report shall contain:
  1. verification of the groundwater model presented in the Public Environmental Review against actual data; and
  2. recalibration of the model and implications of any deviations from the model on the Coolibah Woodlands.
- 6-5 In the event that monitoring required by condition 6-2 indicates an exceedance of the trigger levels determined in condition 6-3 (1):
  1. the proponent shall immediately implement mitigation measures indicated by the mitigation strategy required to be developed by condition 6-3;
  2. report to the CEO within 7 days of the exceedance being identified;
  3. provide evidence which allows determination of the cause of the exceedance;
  4. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall submit actions to be taken including those required to be developed by condition 6-3; and
  5. implement actions including those required to be developed by condition 6-3 upon approval of the CEO on advice from the Department of Environment and Conservation and shall continue until such time the CEO determines that the remedial actions may cease.
- 6-6 The proponent shall submit annually the results of monitoring required by condition 6-2 to the CEO.
- 6-7 The proponent shall make publicly available the monitoring reports required by condition 6-2 in a manner approved by the CEO.

**7 Springs, Pools and Creeklines of Karijini National park**

7-1 The proponent shall ensure that groundwater abstraction, dewatering and interception of surface water flows required to implement the proposal do not adversely affect any of the springs, pools or creeks in the Karijini National park, or their surrounding vegetation or surrounding Aboriginal heritage sites.

7-2 To verify that the requirements of condition 7-1 are met:

1. the proponent shall identify all sites and parameters to be monitored to the satisfaction of the CEO on advice from the Department of Environment and Conservation;
2. undertake baseline monitoring of water levels and native vegetation health and abundance at all sites identified within the predicted cone of drawdown prior to dewatering;
3. monitor groundwater and/or surface water levels at each of the agreed sites;
4. monitor the health and cover of riparian vegetation at each of the agreed sites; and
5. the proponent will engage with Aboriginal people recognised as traditional custodians under the *Aboriginal Heritage Act 1972*, such as representatives from the Innawonga Bunjima People, Martu Idja Banyjima People and Eastern Guruma People, to monitor the effect of dewatering on Mithicundunna Spring (DIA 8296).

This monitoring is to be carried out to the satisfaction of the CEO, and is to be carried out in such a way that, should a significant decline water levels be detected, it will be possible to determine whether the decline is attributable to the implementation of the proposal or to other causes.

Monitoring is to continue until such time as groundwater levels in the project area have returned to pre-mining levels, or until such time the CEO determines that monitoring and management actions may cease.

7-3 The proponent shall submit annually the results of monitoring required by condition 7-2 to the CEO.

7-4 In the event that monitoring required by conditions 7-2 and 7-3 indicates a decline in water levels at any spring, pool or creek, or in the health and condition of the riparian vegetation:

1. the proponent shall report such findings to the CEO within 7 days of the decline being identified;
  2. provide evidence which allows determination of the cause of the decline;
  3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to remediate the decline in consultation with the Department of Environment and Conservation;
  4. submit proposed actions to the CEO within 21 days of the determination being made; and
  5. implement actions to remediate the decline of riparian and groundwater dependent vegetation upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease.
- 7-5 The proponent shall make the monitoring reports required by conditions 7-2 and 7-3 and publicly available in a manner approved by the CEO.

## **8 Dewater Discharge**

- 8-1 The proponent shall ensure that any dewater discharged to the environment does not exceed ANZECC/ARMCANZ\* default criteria for the protection of marine and freshwater ecosystems.

\* Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *Australian Water Quality Guidelines for Fresh and Marine Waters* and its updates.

- 8-2 The proponent shall ensure that dewater discharge does not extend further than 20 kms along the designated discharge channels from the discharge points.
- 8-3 To verify that the requirements of condition 8-2 are met and to ensure that there is no damage to archaeological heritage, the proponent shall visually monitor and record the extent of dewater discharge flow and any surface water flow modifications on a bi-weekly basis during all discharge events.
- 8-4 The proponent shall make the records of dewater discharge flow monitoring available on request of the CEO.
- 8-5 Prior to the commencement of dewater discharge, the proponent shall conduct a baseline survey of the extent and condition of the Hamersley Themeda Grassland to the satisfaction of the CEO on advice from the Department of Environment and Conservation.

- 8-6 Should the flow of dewater exceed the parameters defined in condition 8-2;
1. the proponent shall cease discharge of dewater to the environment immediately;
  2. report such findings to the CEO within 7 days of the exceedance being identified;
  3. determine actions in consultation with the Department of Environment and Conservation to be taken to prevent future exceedances and to remediate any impact resulting from the exceedance, with particular regard to the Hamersley Themeda Grasslands;
  4. submit actions to be taken to the CEO within 21 days of reporting the exceedance; and
  5. implement actions identified above upon approval of the CEO and prior to recommencement of dewater discharge.
- 8-7 The proponent shall ensure that there is no increase in the variety or distribution of weed species in the vicinity of the dewater discharge channels as a result of dewater discharge to the environment.
- 8-8 To verify that the requirements of condition 8-6 are met;
1. the proponent shall undertake baseline monitoring of vegetation composition, weed species distribution and abundance; and
  2. undertake regular monitoring of weed species and abundance during the operations phase of the proposal.
- This monitoring is to be carried out to the satisfaction of the CEO.
- 8-9 In the event that monitoring required by condition 8-6 indicates an increase in weed species or distribution:
1. the proponent shall report such findings to the CEO within 21 days of the increase being identified;
  2. provide evidence which allows determination of the cause of the increase;
  3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall submit actions to be taken to remediate the increase within 21 days of the determination being made to the CEO; and

4. the proponent shall implement actions to remediate the increase in weeds species and distribution upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease.
- 8-10 The proponent shall submit annually the results of monitoring required by condition 8-3 and 8-6 to the CEO.
- 8-11 The proponent shall make the monitoring reports required by condition 8-8 publicly available in a manner approved by the CEO.

## **9 Sinkhole Formation**

- 9-1 The proponent shall conduct all works to ensure that sinkhole formation does not occur as a result of the proposal.
- 9-2 The proponent shall ensure that any sinkhole formations attributable to the implementation of the proposal are detected in a timely manner using a monitoring strategy and schedule approved by the CEO on advice from the Department of Environment and Conservation prior to the commencement of dewatering activities.
- 9-3 Should the monitoring required by condition 9-2 detect potential or actual sinkhole formation within the area of drawdown;
  1. the proponent shall report such findings to the CEO within 7 days of the formation being identified;
  2. provide evidence which allows determination of the cause of the sinkhole formation;
  3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to rehabilitate or otherwise manage the sinkhole formation on an ongoing basis in consultation with the Department of Environment and Conservation;
  4. submit actions to be taken within 21 days of the determination being made to the CEO for approval; and
  5. implement actions to rehabilitate or manage the sinkhole formation upon approval of the CEO and shall continue until such time as the CEO determines on advice from Department of Environment and Conservation that the remedial actions may cease.



9-4 The proponent shall submit annually a review of sinkhole prevention, monitoring and management strategies employed in relation to current best practice to the CEO.

9-5 The proponent shall make the monitoring reports required by condition 9-4 publicly available in a manner approved by the CEO.

## **10 Rehabilitation**

10-1 The proponent shall undertake rehabilitation to achieve the following outcomes:

1. The waste dump(s) and tailings storage facilities shall be non-polluting and shall be constructed so that their final shape, stability, surface drainage, resistance to erosion and ability to support local native vegetation are comparable to three suitable reference sites within the Karijini National Park or adjacent areas, with reference sites to be chosen in consultation with the Department of Environment and Conservation.
2. Waste dumps, tailings storage facilities and other areas disturbed through implementation of the proposal (excluding mine pits), shall be progressively rehabilitated with vegetation composed of native plant species of local provenance (as agreed by the CEO in consultation with the Department of Environment and Conservation).
3. The percentage cover of living vegetation in all rehabilitation areas shall be comparable with that of similar natural landforms in the area.
4. No new species of weeds (including both declared weeds and environmental weeds) shall be introduced into the area as a result of the implementation of the proposal.
5. The coverage of weeds (including both declared weeds and environmental weeds) within the rehabilitation areas shall be no greater than the average of three suitable reference sites within the Karijini National Park or adjacent areas, with reference sites to be chosen in consultation with the Department of Environment and Conservation.
6. The composition of vegetation in the vicinity of the dewater discharge channels is returned to its pre-mining composition.

10-2 Relevant Aboriginal people as identified in condition 7-2 (5) are to be consulted in relation to the final decommissioning and rehabilitation of the mining area to ensure that there are no adverse impacts to Aboriginal heritage sites.

- 10-3 Rehabilitation activities shall continue as necessary until such time as the requirements of condition 10-1 are met, and are demonstrated by inspections and reports to be met, for a minimum of five years to the satisfaction of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.

## **11 Conceptual Closure Strategy**

- 11-1 Prior to commencing ground-disturbing activity, the proponent shall submit a detailed and project-specific Conceptual Closure Strategy to the requirements of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.
- 11-2 The Conceptual Closure Strategy shall include:
1. a detailed risk assessment to identify any acidity and metal contamination hazards associated with mining related activities in the area of the proposal;
  2. details of a monitoring program to ensure that materials with potential to cause acid and/or metalliferous drainage are identified prior to excavation; and
  3. actions to be taken in the event that materials with the potential to cause acid and/or metalliferous drainage are identified through the monitoring program required by condition 11-2 (2).
- 11-3 The Conceptual Closure Strategy shall provide detailed technical information on proposed management measures to prevent pollution, environmental harm or human health impacts during implementation of the proposal and after mine completion and closure.
- 11-4 The Conceptual Closure Strategy shall include maps, diagrams and Global Positioning System (GPS) coordinates, showing the proposed placement, dimensions, design and proposed methods of construction and closure of waste disposal facilities and mine pits.
- 11-5 The Conceptual Closure Strategy shall demonstrate that waste dumps and tailings storage facilities will be located, designed and constructed to ensure that they are non-polluting and so that their final shape, height, stability, surface drainage, resistance to erosion and ability to support native vegetation are comparable to natural landforms in the area.
- 11-6 The Conceptual Closure Strategy shall provide additional detailed modelling to verify that a perennial lake will not form in the pit void following completion

and closure, and that any ephemeral water bodies which may form will not adversely impact groundwater quality in the area.

- 11-7 The Conceptual Closure Strategy shall provide detailed technical information demonstrating that sufficient quantities of suitable materials are available on site for the implementation and closure (including unplanned or temporary closure) of the proposal.
- 11-8 The Conceptual Closure Strategy shall include specific practicable procedures to ensure the protection of the environment in the event of unplanned or temporary mine closure.
- 11-9 The proponent shall implement the proposal consistent with the Conceptual Closure Strategy referred to in conditions 11-1 to 11-8.

## **12 Final Closure and Decommissioning Plan**

- 12-1 At least 5 years prior to mine completion, the proponent shall prepare and submit a Final Closure and Decommissioning Plan to the requirement of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.
- 12-2 The Final Closure and Decommissioning Plan shall be prepared consistent with:
- ANZMEC/MCA 2000, *Strategic Framework for Mine Closure Planning*; and
  - Department of Industry Tourism and Resources 2006 *Mine Closure and Completion* (Leading Practice Sustainable Development Program for the Mining Industry), Commonwealth Government, Canberra;

and shall provide detailed technical information on the following:

1. Final closure of all areas disturbed through implementation of the proposal so that they are safe, stable and non-polluting;
2. Decommissioning of all plant and equipment;
3. Disposal of waste materials;
4. Final Rehabilitation of waste dumps; tailings storage facilities and other areas (outside the mine pit(s));
5. Management and monitoring following mine completion; and
6. Inventory of all contaminated sites and proposed management.

- 12-3 The proponent shall close, decommission and rehabilitate the proposal consistent with the approved Final Closure and Decommissioning Plan.
- 12-4 The proponent shall make the Final Closure and Decommissioning Plan required by 12-1 and 12-2 publicly available in a manner acceptable to the CEO.

### **Procedures**

1. Where a condition states “on advice of the Office of the Environmental Protection Authority”, the Office of the Environmental Protection Authority will provide that advice to the proponent.
2. The Minister for Environment will determine any dispute between the proponent and the Office of the Environmental Protection Authority over the fulfilment of the requirements of the conditions.
3. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

Hon Donna Faragher JP MLC  
**MINISTER FOR ENVIRONMENT; YOUTH**

## Schedule 1

### The Proposal (Assessment No. 1686)

#### General Description

The proposal is to expand existing mining operations at Marandoo by mining below the watertable. This would entail expansion of the existing mine pit and development of new waste dumps. The proposal would utilise existing infrastructure and services associated with current Marandoo operations, however, additional infrastructure would be required.

The proposal is described in the following document – *Marandoo Mine Phase 2 Public Environmental Review, September 2008*.

#### Summary Description

A summary of the key proposal characteristics is presented in Table 1.

**Table 1: Summary of key proposal characteristics**

Element	Description
<b>General</b>	
Project life	15 to 20 years.
Area of disturbance	Up to 1000 hectares direct disturbance, localised impact to riparian vegetation along discharge drainage lines.
Ore production rate	Approximately 16 Million tonnes per annum.
<b>Mining</b>	
Pit	Single pit, Marra Mamba ore; mining below the water table.
Waste rock disposal	Surface dumps; expansion of existing stockpiles and progressive backfilling of mine pits.
Dewatering	Peak dewatering of up to 36.5 gigalitres per annum.
Dewater disposal	Dewater disposal through water use hierarchy including: <ul style="list-style-type: none"><li>• use on site;</li><li>• transfer to Tom Price;</li><li>• re-injection at southern Fortescue Borefield; and</li><li>• discharge to the environment.</li></ul>
Processing	Wet processing of ore.
Residue	Construction and operation of residue storage facility.



**Table 1: Summary of key proposal characteristics (cont'd)**

<b>Element</b>	<b>Description</b>
<b>Mining</b>	
Greenhouse gases	Up to 190,000 tonnes CO <sub>2</sub> – e per year, plus one-off emission of 50,000 tonnes CO <sub>2</sub> – e resulting from clearing. Up to 15.3 tonnes CO <sub>2</sub> – e per kilotonne of ore.
<b>Infrastructure</b>	
Water supply	All water requirements supplied from dewatering activities.
Product transport	By existing rail facilities to Dampier and Cape Lambert.

**Figures (attached)**

- Figure 1: Regional location of mine site  
Figure 2a: Project footprint and layout of key components  
Figure 2b: Project footprint and layout of key components

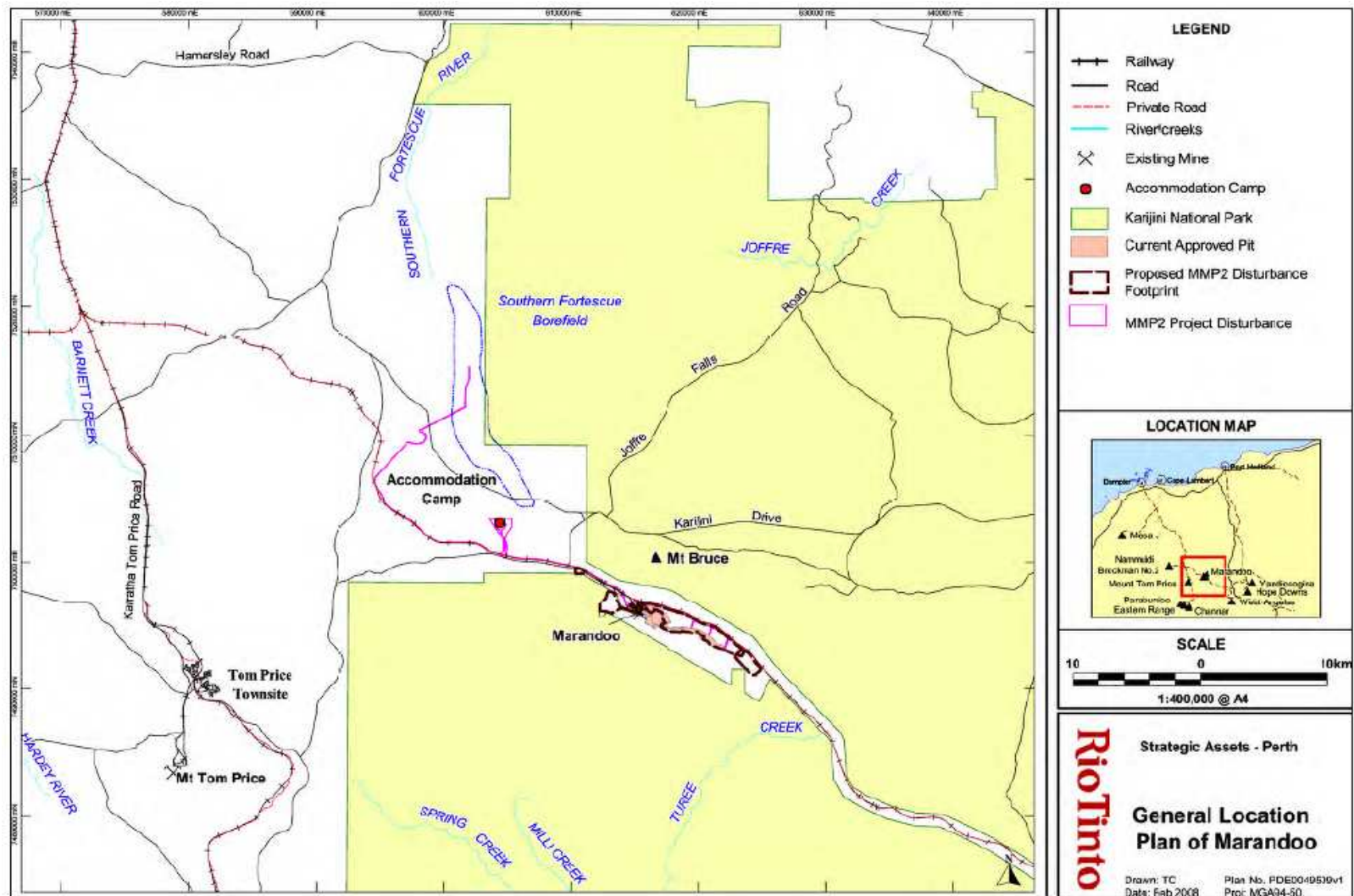


Figure 1: Regional Location of Mine Site

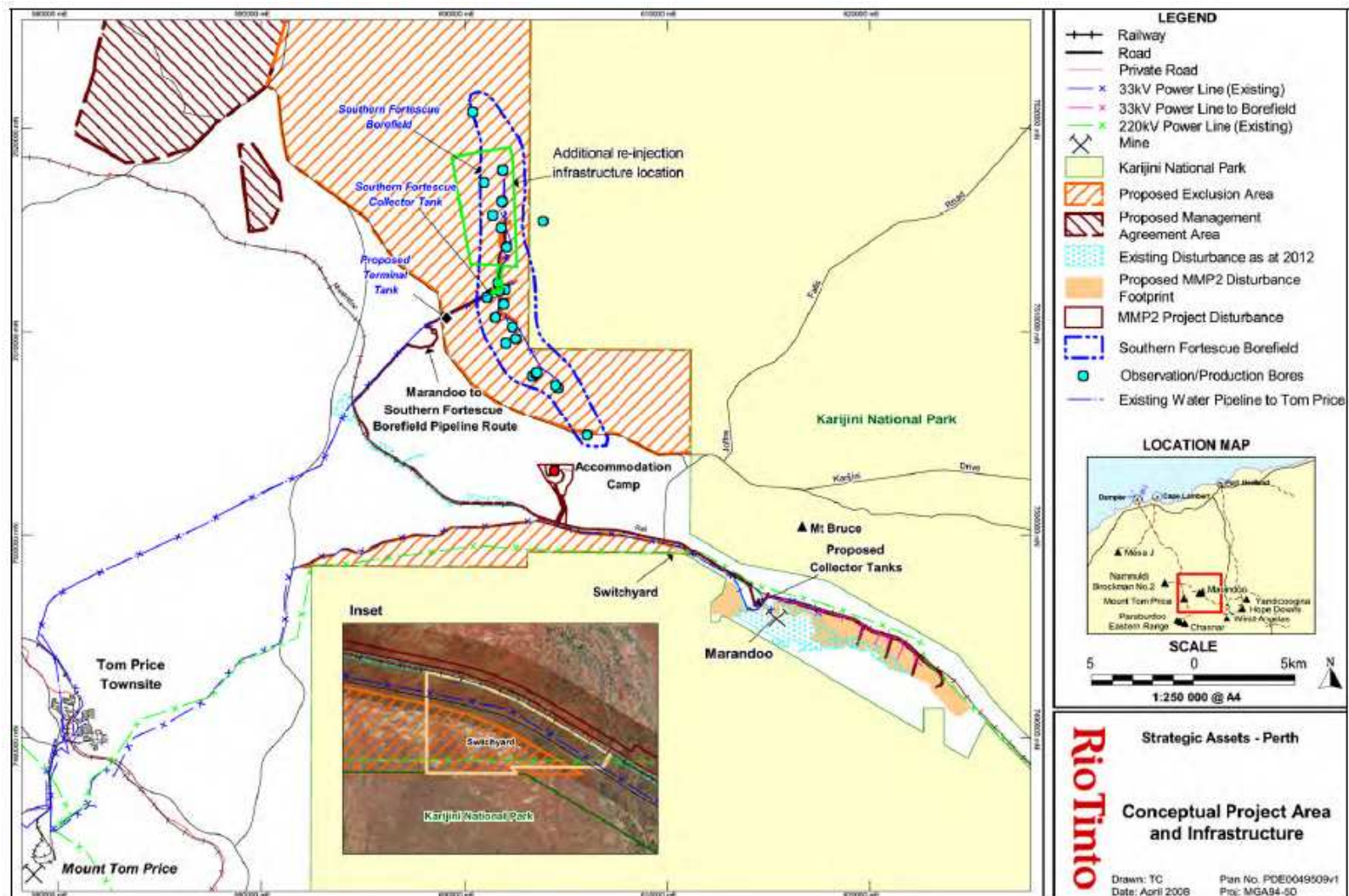


Figure 2a Project footprint and layout of key components

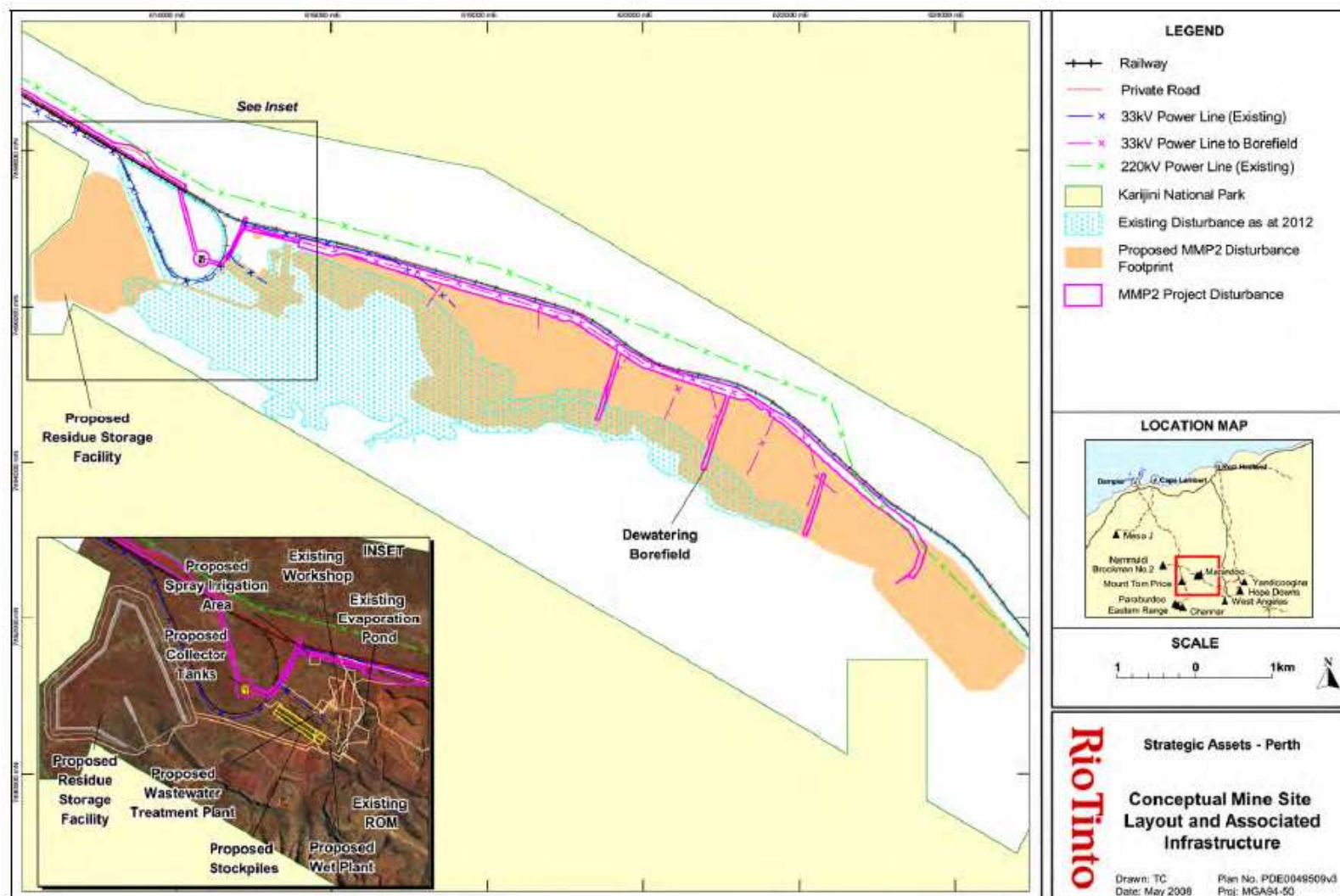


Figure 2b Project footprint and layout of key components

## **ATTACHMENT 1 TO MINISTERIAL STATEMENT 833**

Section 46C  
*Environmental Protection Act 1986*

### **NOTICE OF CHANGES TO IMPLEMENTATION CONDITIONS MINISTERIAL STATEMENT 833**

MARANDOO MINE PHASE 2  
SHIRE OF ASHBURTON

Pursuant to sections 46C(1)(a) and 46C(1)(b)(i) of the *Environmental Protection Act 1986*, the implementation conditions applying to the above proposal are changed in accordance with this Notice. I consider these changes to be of a minor nature and desirable in order to standardise the implementation conditions applying to different proposals, and in order to correct clerical mistakes.

**MINISTER FOR ENVIRONMENT; HERITAGE**

9 May 2013

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#### **1. Condition 4-6 is deleted, and replaced with:**

- 4-6 The proponent shall submit an annual compliance report to the CEO by 30 April each year for the preceding period of 1 January to 31 December. The compliance assessment report shall:
1. be endorsed by the proponent's Managing Director or a person delegated to sign on the Managing Director'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.



**2. Condition 8-2 is deleted and replaced with:**

- 8-2 The proponent shall ensure that dewatering discharge from the Marandoo Mine Phase 2 proposal does not cause water flow or pooling further than 20 kilometres downstream of the discharge points.

**3. Condition 8-3 is deleted and replaced with:**

- 8-3 The proponent shall monitor the dewater discharge flow in order to substantiate whether Condition 8-2 is being met.

**4. Condition 8-8 is amended as follows:**

The phrase 'condition 8-6' is deleted and replaced with 'Condition 8-7'.

**5. Condition 8-9 is amended as follows:**

The phrase 'condition 8-6' is deleted and replaced with 'Condition 8-8'.

**6. Condition 8-10 is amended as follows:**

The phrase 'condition 8-3 and 8-6' is deleted and replaced with 'Conditions 8-3 and 8-8'.

## ATTACHMENT 2 TO MINISTERIAL STATEMENT 833

Section 46C  
*Environmental Protection Act 1986*

### NOTICE OF CHANGES TO IMPLEMENTATION CONDITIONS MINISTERIAL STATEMENT 833

MARANDOO MINE PHASE 2  
SHIRE OF ASHBURTON

Pursuant to section 46C(1)(a) of the *Environmental Protection Act 1986*, the implementation condition applying to the above proposal are changed in accordance with this Notice. I consider these changes to be of a minor nature and desirable in order to standardise the implementation conditions applying to different proposals.

[Signed 4 June 2014]

HON ALBERT JACOB MLA  
**MINISTER FOR ENVIRONMENT; HERITAGE**

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#### **1. Condition 8-1 is deleted, and replaced with:**

- 8-1 The proponent shall ensure that any dewater discharged to the environment does not exceed whichever is greater of the following:
- (1) ANZECC/ARMCANZ\* default criteria for the protection of marine and freshwater ecosystems;  
\* Australian and New Zealand Environmental and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC/ARMCANZ (2000)) *Australian Water Quality Guidelines for Fresh and Marine Waters* and its updates;
  - (2) Baseline levels of the receiving environment as determined to the satisfaction of the CEO; or
  - (3) Other criteria agreed by the CEO on the advice of the Department of Parks and Wildlife and the Department of Water.

## PART A - PROPONENT AND PROPOSAL INFORMATION

### 1 PROPONENT AND PROPOSAL INFORMATION

#### 1.1 Proponent

Name	Hamersley Iron Pty Limited
Joint Venture parties (if applicable)	
Australian Company Number (if applicable)	004 558 276
Postal Address (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)	GPO Box A42 Perth WA 6837
Key proponent contact for the proposal: <ul style="list-style-type: none"> <li>name</li> <li>address</li> <li>phone</li> <li>email</li> </ul>	Tammy Souster Senior Advisor Environmental Approvals GPO Box A42 Perth WA 6837 T: +61 (08) 6211 6985 <a href="mailto:tammy.souster@riotinto.com">tammy.souster@riotinto.com</a>

#### 1.2 Proposal

Title	Marandoo Iron Ore Project Revised Proposal.
Description	The Proponent, Hamersley Iron Pty Limited, requires an increase in the authorised clearing limit to support ongoing operations at the Marandoo Mine. The proposal is also seeking minor changes to Schedule 1 of Marandoo and rationalisation of the three existing Ministerial Statements related to Marandoo (MS 286, MS 598 and MS 833).
Extent (area) of proposed ground disturbance.	The Proposal seeks additional clearing of 400 ha.  This referral is not seeking approval for activities already authorised as part of the existing operations.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	Production commenced at the existing AWT Marandoo mining operations in 1993 and in 2011 for the BWT mining operations.
Details of any staging of the proposal.	The Proposal is not staged.
Is the proposal a strategic proposal?	No.
Is the proponent requesting a declaration that the proposal is a derived proposal?	No.
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	NA

Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	<p>The Marandoo Iron Ore Mine is located on Mineral Lease AML70/272 in accordance with the <i>Iron Ore (Hamersley Range) Agreement Act 1963 (WA)</i>. This was excised from the Karijini National Park in 1991.</p> <p>The infrastructure associated with the Marandoo Project is located on a number of Miscellaneous Licences and General Purpose Leases that were granted under the <i>Mining Act 1978</i>.</p> <p>The current tenure is appropriate tenure for all current and proposed mining activities and mining related infrastructure.</p>
What is the current land use on the property, and the extent (area in hectares) of the property?	The location of Marandoo Mine is remote from neighbouring mining activities.

### 1.3 Location

Name of the Shire in which the proposal is located.	The Proposal is located in the Shire of Ashburton
For urban areas: <ul style="list-style-type: none"> <li>• street address;</li> <li>• lot number;</li> <li>• suburb; and</li> <li>• nearest road intersection.</li> </ul>	NA
For remote localities: <ul style="list-style-type: none"> <li>• nearest town; and</li> <li>• distance and direction from that town to the proposal site.</li> </ul>	The Marandoo Iron Ore Mine is located approximately 37 km east of Tom Price in the Pilbara region of Western Australia.
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: <ul style="list-style-type: none"> <li>• GIS: polygons representing all activities and named;</li> <li>• CAD: simple closed polygons representing all activities and named;</li> <li>• datum: GDA94;</li> <li>• projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA);</li> <li>• format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.</li> </ul>	Enclosed

### 1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
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## 1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		No	
Agency/Authority	Approval required	Application lodged	Agency/Local Authority contact(s) for proposal
Minister for Environment; Environmental Protection Authority	<i>Environmental Protection Act 1986 (WA)</i> Part IV: Ministerial Statement	Yes	EPA The Atrium 168 St Georges Tce PERTH WA 6000

## PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

### 2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.



## 2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

√ Yes

2.1.2 How much vegetation are you proposing to clear (in hectares)?

The Revised Proposal requires additional clearing of 400 ha.

This proposed clearing is in addition to that already authorised under MS 286 and MS 833.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

√ No

The clearing required for this Revised Proposal is the subject of this application.

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

√ Yes

Refer to Section 6 of the Revised Proposal Document.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

√ Yes

A search of Department of Parks and Wildlife (DPaW) records has previously been undertaken as part of the vegetation and flora assessment undertaken for the project (Biota 2008a, Mattiske 1992).

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

√ Yes

Five Priority Flora records are considered to be of relevance to the Proposal:

- *Indigofera ixocarpa* (Priority (P) 2);
- *Goodenia lyrata* (P3);
- *Rhagodia* sp. Hamersley (M.E. Trudgen 17794);
- *Goodenia nuda*; and
- *Eremophila magnifica* subsp. *Magnifica*.

Refer to Section 6 of the Revised Proposal Document.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

Not applicable.

2.1.8 What is the condition of the vegetation at the site?

The vegetation condition is considered be in very good to excellent condition despite evidence of weed invasion. Refer to Section 5 of the Revised Proposal Document.

**2.2 Fauna**

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

√ Yes

2.2.2 Describe the nature and extent of the expected impact.

The Revised Proposal will result in the additional clearing of up to 400 ha of potential fauna habitat; therefore habitat loss is likely to be the biggest threat to fauna.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

√ Yes Refer to Section 7 of the Revised Proposal Document.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

√ Yes A search of DPaW records was undertaken as part of the terrestrial fauna assessment undertaken for the Project (Biota 2008b, Ninox 1992).

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

√ Yes Refer to the Revised Proposal Document – Section 7.

**2.3 Rivers, Creeks, Wetlands and Estuaries**

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

√ Yes Unnamed natural watercourse.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

√ No

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

√ No

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

√ No

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

√ No

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	✓ No
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	✓ No
Perth's Bush Forever site	✓ No
Environmental Protection (Swan & Canning Rivers) Policy 1998	✓ No
The management area as defined in s4(1) of the <i>Swan River Trust Act 1988</i>	✓ No
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	No

## 2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

✓ Yes      [The Proposal is located adjacent to the Karijini National Park.](#)

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

✓ No

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

✓ No

## 2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

✓ No

## 2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

✓ No

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

✓ No

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

✓ No

## 2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

√ Yes

The Proposal is located within the Pilbara Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914*.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

√ No

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

√ No

2.7.4 Is there sufficient water available for the proposal?

√ Yes

2.7.5 Will the proposal require drainage of the land?

√ Yes

The existing Marandoo below water table mining operation includes the option of surface water discharge to a local watercourse.

This Revised Proposal will not result in any change to this activity as assessed and approved under MS 286 and MS 833.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

√ Yes

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

NA to this Revised Proposal

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Dewatering water is used on-site in the first instance to supply water for operational purposes (processing and dust suppression).

## 2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

√ Yes

Refer to Revised Proposal Document Section 9

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

√ Yes

Operating Licence L6869/1992/11 for processing, dewatering, screening, sewage treatment facility and landfill.

Operating Licence L8507/2010/1 for the Marandoo Camp sewage treatment facility.

2.8.3 Will the proposal result in gaseous emissions to air?

√ Yes      The Proposal will generate Greenhouse Gas (GHG) emissions. Refer to Revised Proposal Document Section 9.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

√ No      No modelling of projected emissions was undertaken as emissions generated by the Proposal are not expected to be greater than or different to those from existing operations.

Emissions have been, and will continue to be, managed under the existing operating licence, the *Clean Energy Act 2011* (Cwth) and the *National Greenhouse and Energy Reporting Act 2007* (Cwth).

2.8.5 Will the proposal result in liquid effluent discharge?

√ No

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

√ No

2.8.7 Will the proposal produce or result in solid wastes?

√ Yes      The Revised Proposal will not result in wastes greater than or different to those from existing operations. Refer to Revised Proposal Document Section 9.

2.8.8 Will the proposal result in significant off-site noise emissions?

√ No      Noise emissions are not expected to be significantly greater than or different to those of existing operations.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

√ Yes      Noise emissions will be managed under the Environmental Protection (Noise) Regulations 1997. However, previous Noise Assessments have shown that noise levels at the only sensitive receptor, the village, will not exceed Environmental Protection (Noise) Regulation thresholds.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other “sensitive premises” such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?



√ No

The location of the Marandoo Mine is remote, with no neighbouring mining activities. The nearest town, Tom Price, is located approximately 37 km east of Marandoo.

Therefore, impacts on sensitive receptors from nuisance dust, noise or other air quality impacts are expected to be limited.

The Mine is not expected to result in any direct impacts to the adjacent Karijini National Park. Impacts to visual amenity have been assessed for the existing AWT and BWT projects at Marandoo (MS 286 and MS 833 respectively).

- 2.8.11 If the proposal has a residential component or involves “sensitive premises”, is it located near a land use that may discharge a pollutant?

√ Not Applicable

## 2.9 Greenhouse Gas Emissions

- 2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

√ No

- 2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

## 2.10 Contamination

- 2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

√ Yes

The Proposal will be developed as a revision to the existing AWT and BWT mining operations at Marandoo.

- 2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

√ Yes

This is not relevant to the Revised Proposal. Groundwater sampling was completed to support the BWT mining approved under MS 833.

- 2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

√ No

## 2.11 Social Surroundings

- 2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

√ Yes

Refer to Section 9 of the revised Proposal Document.

- 2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

√ Yes

The Proposal is an extension to an existing remote mining operation, located adjacent to the Karijini National Park and visible from the Mt Bruce public lookout.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

√ No

### 3. PROPOSED MANAGEMENT

#### 3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

- |  |   |
|--|---|
| 1. The precautionary principle.  | <input checked="" type="checkbox"/> Yes |
| 2. The principle of intergenerational equity.  | <input checked="" type="checkbox"/> Yes |
| 3. The principle of the conservation of biological diversity and ecological integrity. | <input checked="" type="checkbox"/> Yes |
| 4. Principles relating to improved valuation, pricing and incentive mechanisms.        | <input checked="" type="checkbox"/> Yes |
| 5. The principle of waste minimisation.  | <input checked="" type="checkbox"/> Yes |

[Refer to Section 5 of the Revised Proposal Document](#)

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

√ Yes

#### 3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

√ Yes

[Refer to Section 4 of the Revised Proposal Document.](#)

**Appendix 3 Table 1: Justification for Rationalisation of Conditions and Commitments of MS 286**

	Condition	Compliant	Justification		Proposed Condition
<b>1</b>	<b>Proponent Commitment</b>				
	The proponent has made a number of environmental management commitments in order to protect the environment.				
1-1	In implementing the project, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Environmental review and Management programme which are listed in the EPA Bulletin 643 as Appendix 1 and in its Statement of Mutual Understanding entered with the Department of Conservation and Land Management.	Compliant - COMPLETE	<p>Proponent commitments in Ministerial Statements are either:</p> <ul style="list-style-type: none"> <li>• redundant;</li> <li>• duplicate the intent of conditions within the Statement;</li> <li>• have been implemented and are therefore considered to be complete; or</li> <li>• are managed under other existing processed.</li> </ul> <p>Therefore all the commitments detailed in MS 286 shall be removed. As a result, this condition is therefore redundant and shall be removed.</p>	NA	None
<b>2</b>	<b>Implementation</b>			<b>X</b>	<b>Proposal Implementation</b>
	The implementation of the Marandoo Project will proceed under the provision of the Environmental Protection Act and in accordance with the Iron Ore (Hamersley Range) Agreement Act as amended, hereafter called “the Agreement”. Reporting requirements or compliance with these environmental conditions shall be achieved through the requirements for environmental management proposals or reports under the Agreement by the Minister for State development referring such proposals and reports tot eh Minister for the Environment.	Compliant - COMPLETE	<p>The Project is being implemented, subject to the conditions of MS 286.</p> <p>This intent is considered to be adequately captured by other legislative approvals and conditions and has therefore been removed.</p>	NA	None
2-1	Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent in project proposals pursuant to the Agreement (“the proposals”). Where, in the course of that detailed implementation, the proponents seeks to change those designs, specifications, plans or other technical material in any way that in the opinion of the Minister for State development with the concurrence of the Minster for the Environment on the advice of the Environmental Protection Authority is not significant, those changes may be effected.		<p>The Project is being implemented, subject to the conditions of MS 286.</p> <p>This condition is still relevant and shall be retained, however it has been updated to reflect contemporary presentation.</p> <p>The revised condition still meets the EPAs objectives in relation to implementation of approved projects.</p>	X-1	The Proponent shall implement the project as assessed by the Office of the Environmental Protection Authority and as described in Schedule 1 of this Statement, associated EPA Reports, and subject to conditions of this Statement.
<b>3</b>	<b>Environmental Management Program</b>			<b>X</b>	<b>Environmental Management Program</b>
	An overall Environmental Management Programme shall be submitted, describing in sufficient detail all aspects of the Central Pilbara Railway and Marandoo Iron Ore Mine and the integration of the proponent’s commitments and the requirements of the conditions of this Statement.	Compliant - COMPLETE			
3-1	The proponent shall submit the Environmental management programme in accordance with the Agreement to the Minister for State Agreement and to the Minister for the Environment for their approval prior to the commencement of construction.	Compliant - COMPLETE	<p>Conditions that relate specifically to Environmental Management (conditions 3, 6, 7, 8, 9, 10 and 13) shall be removed and placed with conditions relevant to key environmental factors only.</p> <p>The existing Marandoo EMP, as approved by the OEPA, will be revised and will continue to meet the EPAs objectives for relevant factors.</p> <p>Remaining conditions, for key environmental factors, will still meet the relevant EPA objective.</p>	X-1	<p>The proponent shall implement the project in accordance with the Marandoo Environmental Management Program, which consists of the following Management Plans:</p> <ul style="list-style-type: none"> <li>• Coolibah Woodland</li> <li>• Minthicoondunna Spring</li> <li>• Dewatering (including surface discharge and weeds).</li> </ul> <p>Each management Plan includes:</p> <ol style="list-style-type: none"> <li>specific environmental objectives and targets for each factor;</li> <li>the management measures to be applied to avoid and minimise the environmental impact of the project;</li> <li>monitoring measures to measure the performance of management against targets; and</li> <li>contingency measures to mitigate impacts.</li> </ol>

	Condition	Compliant	Justification		Proposed Condition
3-2	<p>The proponent shall prepare and submit the Environmental Management Programme required by Condition 3-1 in accordance with the Department of Conservation and Land Management. This Programme shall contain, but not be limited to, the following elements:</p> <ol style="list-style-type: none"> <li>1. Protection of significant flora and fauna (condition 4);</li> <li>2. Workforce management (condition 5);</li> <li>3. Central Pilbara Railway (condition 6);</li> <li>4. Drainage management (condition 7);</li> <li>5. Management of groundwater abstraction (condition 8);</li> <li>6. Management of weeds (condition 9);</li> <li>7. Management of fire (condition 10);</li> <li>8. Rehabilitation of the project area and decommissioning (condition 11 and 12); and</li> <li>9. Management of waste disposal sites (condition 13).</li> </ol>	Compliant - COMPLETE		NA	None
3-3	Subsequent revisions of the Environmental management programme required by condition 3-1 will be prepared and submitted in consultation with the Department of Conservation and Land Management where appropriate and may form part of the annual and triennial reports pursuant to the Agreement.	Compliant - Ongoing			
3-4	Each element of the Environmental Management Programme required by condition 3-1 shall where appropriate address: potential source of environmental impact; commitments; objectives; procedures; and reporting including monitoring.	Compliant - COMPLETE			
3-5	The proponent shall implement the various elements of the Environmental Management Programme required by condition 3-1 to 3-4 to the satisfaction of the Minister for State Development and the Minister for the Environment.	Compliant - Ongoing			
3-6	In the event that monitoring shows unacceptable environmental impacts, the proponent shall in accordance with the Agreement prepare and subsequently implement a plan to mitigate these impacts to the satisfaction of the Minister for State development and the Minister for the Environment.	Compliant - Ongoing			
4	<b>Protection of Flora and Fauna</b>			X	<b>Conservation Significant Communities and Species</b>
	Rare, priority and geographically restricted species of flora and fauna in the project areas shall be treated with special consideration.				
4-1	The proponent shall provide details of the results of all surveys carried out on areas likely to be disturbed through construction and operational activity, to the satisfaction of the Minister for State Development and the Minister for the Environment on the advice of the Department of Conservation and Land Management, prior to those areas being disturbed.	Compliant - COMPLETE	This condition is adequately managed under Part IV or Part V of the Environmental protection Act. Therefore this condition has been removed.	NA	None
4-2	Significant species of flora and fauna found in the surveys referred to in condition 4-1 shall be managed in accordance with the proponent's commitments and the Environmental Management Programme referred to in condition 3.	Compliant - Ongoing	<p>The OEPA has identified that this is not a key factor for the Marandoo project and that this condition has been superseded by MS 833.</p> <p>Therefore this condition has been removed.</p>	NA	None
5	<b>Workforce</b>				
	The proponent is responsible for the management of the construction and operational workforce to ensure that environmental impacts on the Karijini National Park are minimised.				
5-1	The proponent shall manage the workforce and assist the Department of Conservation and Land Management to ensure that environmental impacts on the Karijini National Park resulting from constructional, operational and recreational activities are minimised.	Compliant - Ongoing	<p>The OEPA has identified that this is not a key factor for the Marandoo project and that this condition has been superseded by MS 833.</p> <p>Therefore this condition has been removed.</p>	NA	None

	Condition	Compliant	Justification		Proposed Condition
6	<b>Central Pilbara Railway</b>				
	The proponent may proceed to construct and operate the Central Pilbara Railway (from Marandoo to Homestead Junction) but shall do so in such a manner that reasonably minimises environmental impacts.				
6-1	Prior to the construction of the Central Pilbara Railway the proponent shall prepare and subsequently implement in consultation with the Department of Conservation and Land Management an Environmental Management programme for this railway describing how the management measures for the railway will meet the requirements of this condition.	Compliant - Ongoing	The railway has been constructed and been operational since 1993.  A condition specifically relating to the operation of the railway is not considered necessary.  Therefore this condition has been removed.	NA	None
7	<b>Drainage Management</b>			X	<b>Surface Water Drainage</b>
	The important vegetation communities in the area, in particular the Coolibah and mulga woodlands shall where possible be protected from drainage impacts associated with the development and operation of the project.				
7-1	Prior to the commencement of construction, the proponent shall submit and subsequently implement a drainage management plan, setting out the measures to meet the requirements if this condition in consultation with the Department of Conservation and Land Management. This plan shall include a monitoring component to permit determination of its effectiveness.	Compliant - Ongoing	The OEPA has identified that this is not a key factor for the Marandoo project and that this condition has been superseded by MS 833.  Therefore this condition has been removed.	NA	None
8	<b>Management of Groundwater Abstraction</b>			X	<b>Groundwater</b>
	There shall be no unacceptable impact on the conservation values of the Karijini national park resulting from groundwater abstraction associated with the project, particularly the Coolibah woodlands to the east of Mt Bruce.				
8-1	Prior to commissioning of the Marandoo Borefield, the proponent shall prepare and subsequently implement a groundwater management plan describing in sufficient detail the measures to meet the requirements of this condition in consultation with the Department of Conservation and Land Management and the Water Authority of Western Australia.	Compliant - Ongoing	The OEPA has identified that this is not a key factor for the Marandoo project and that this condition has been superseded by MS 833.  Therefore this condition has been removed.	NA	None
9	<b>Management of Weeds</b>				
	The spread of weeds resulting from the development and operation of the project shall be minimised.				
9-1	Prior to the commencement of construction, the proponent shall prepare and subsequently implement a weed management plan describing in sufficient detail measures to meet the requirements of this condition, in consultation with the department of Conservation and Land Management	Compliant - Ongoing	The OEPA has identified that this is not a key factor for the Marandoo project and that this condition has been superseded by MS 833.  Therefore this condition has been removed.	NA	None
10	<b>Management of Fire</b>				
	The development and operation of the project shall not lead to a significantly increased fire risk within the Karijini National Park.				
10-1	Prior to the commencement of construction, the proponent shall develop and subsequently implement a fire management plan describing in sufficient detail the measures to meet the requirements of this condition, in consultation with the Department of Conservation and Land Management. This plan shall include a monitoring component to permit determination of its effectiveness.	Compliant - COMPLETE	This condition is managed via other legislation.  Therefore this condition has been removed.	NA	None
10-2	The proponent shall develop the fire management plan required by condition 10-1 to integrate fire management in the project area with the overall fire management requirements of the Karijini National Park.	Compliant - COMPLETE	Refer to above		



	Condition	Compliant	Justification		Proposed Condition
11	Rehabilitation			X	Rehabilitation and Closure
	The standard of rehabilitation of the project area shall where possible be consistent with local landscape values and if appropriate enable the return of the area to the Karijini National Park.				
11-1	Prior to the commencement of construction and throughout the life of the development, the proponent shall prepare rehabilitation plans, in consultation with the Department of Conservation and Land Management and the Department of Minerals and Energy, to the satisfaction of the Minister for State Development and the Minister for the Environment. These plans shall include a monitoring component to permit determination of their effectiveness, and shall specify the sources of seed and species proposed for planting during rehabilitation.	Compliant - Ongoing	Closure planning is managed through the 'Guidelines for Preparing Mine Closure Plans' administered under the <i>Mining Act 1978</i> . The Marandoo Closure Plan was prepared and updated in accordance with these Guidelines. This condition is still relevant however it has been replaced with a more contemporary Rehabilitation and Closure condition. The revised condition still meets the EPAs objective.	X-1	The proponent shall ensure that the project 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.
11-2	The proponent shall subsequently implement the rehabilitation plans required by condition 11-1.	Compliant - Ongoing		X-2	The proponent shall implement the Marandoo Closure Plan in accordance with the Guidelines for Preparing Mine Closure Plans, June 2011 and any updates, to the requirements of the CEO on advice of the Department of Mines and Petroleum.
11-3	The proponent shall where possible only use plant material of local provenances for rehabilitation to the requirements of the Department of Conservation and Land Management.	Compliant - Ongoing		X-3	The proponent shall review and revise the Marandoo Closure Plan required by Condition 10-2 at intervals not exceeding three years, or as otherwise specified by the CEO.
12	Management of Visual Impact				
	The visual impact of the proposed development shall be minimised.				
12-1	The proponent shall where possible mitigate the visual impact of the development in consultation with the Department of Conservation and Land Management. The location, design and colour of surface facilities will be chosen as far as practicable in sympathy with the landscape.	Compliant - COMPLETE	This condition is addressed in the Memorandum of Understanding between Rio Tinto and Parks and Wildlife. Visual amenity will also be managed under the Marandoo Rehabilitation and Closure Plan. Management of this factor will continue to meet EPA objectives.  Therefore this condition has been removed.	NA	None
13	Management of Waste Disposal Sites				
	Domestic and industrial waste material from the project shall be managed to prevent scavenging by animals and pollution of groundwater.				
13-1	Prior to the commencement of construction, the proponent shall develop and subsequently implement a plan describing in sufficient detail measures to manage the waste disposal sites to meet the requirements of this condition, in consultation with the Department of Conservation and Land Management and the Health Department of Western Australia. This plan shall include provision for minimisation of scavenging by animals including birds, and contamination of groundwater. The plan shall also include a monitoring component to permit determination of its effectiveness.	Compliant - COMPLETE	This condition is managed under Part V of the EP Act.  This condition is therefore no longer required and has been removed.	NA	None
14	Management of Community Impact				
	The proponent shall consult with relevant community groups to minimise the impact of the project on the community.				
14-1	The proponent shall establish a consultative mechanism as referred to in the proponent's commitments.	Compliant - Ongoing	Stakeholder / community consultation was adequately addressed during the environmental impact assessment process for both phases of the Marandoo Project. Rio Tinto has established effective communication mechanisms with DPaW, Traditional Owners and local communities and engages in regular stakeholder engagement meetings.  This condition is therefore no longer required and has been removed.	NA	None

[illegible]

	Condition	Compliant	Justification		Proposed Condition
			<p>This condition is still relevant and shall be retained; however, it has been updated to reflect contemporary presentation consistent with EPA guidance (Post Assessment Guideline for Preparing a Compliance Assessment Report, PAG3, 2012) and to align Marandoo reporting with reporting required under the other Ministerial Statements for Rio Tinto’s Pilbara iron ore operations.</p> <p>Only the reporting requirements directly relevant to the Ministerial Statement and the OEPA will be captured in the Ministerial Statement</p>	X-3	The proponent shall assess compliance with the conditions in accordance with the Compliance Assessment Plan required by condition X-1.
				X-4	The proponent shall retain reports of all compliance assessments described in the Compliance assessment Plan required by condition X-1 and shall make these reports available to the CEO upon request.
				X-5	The proponent shall advice the CEO of any potential non-compliance within seven days of that non-compliance being known.
				X-6	<p>The proponent shall submit to the CEO Compliance Assessment Reports addressing compliance in the previous calendar year Compliance Assessment Reports shall be submitted by the submissions date defined in the Compliance Assessment Plan required by condition X-1.</p> <p>The Compliance Assessment Report shall:</p> <ul style="list-style-type: none"><li>• be endorsed by the proponents General Manager or a person delegated to sign on the General Manager’s behalf;</li><li>• include a statement as to whether the proponent has complied with the conditions;</li><li>• identify all potential non-compliances and describe corrective and preventative actions taken;</li><li>• be made publicly available in accordance with the approved Compliance Assessment Plan; and</li><li>• indicate any proposed changes to the Compliance Assessment Plan required by condition X-1.</li></ul>

Appendix 3 Table 2: Rationalisation of Conditions and Commitments MS 598

Condition		Compliant	Justification	Proposed Condition	
1	Implementation and Changes			X	Proposal Implementation
1-1	The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.		This condition is still relevant and shall be retained, however it has been updated to reflect contemporary presentation.	X-1	The Proponent shall implement the project as assessed by the Office of the Environmental Protection Authority and as described in Schedule 1 of this Statement, associated EPA Reports, and subject to conditions of this Statement.
1-2	Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.		This condition is still relevant and shall be retained, however it has been updated to reflect a new condition for Proponent Nomination and Contact Details.	NA	
1-3	Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.		This condition is still relevant and shall be retained, however it has been updated to reflect a new condition for Proponent Nomination and Contact Details.	NA	
2	Proponent Commitments				
2-1	The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.		Proponent commitments in Ministerial Statements are either: <ul style="list-style-type: none"><li>• redundant;</li><li>• duplicate the intent of conditions within the Statement;</li><li>• have been implemented and are therefore considered to be complete; or</li><li>• are managed under other existing processed.</li></ul> Therefore all the commitments detailed in MS 286 shall be removed. As a result, this condition is therefore redundant and shall be removed.	NA	None
2-2	The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of the conditions in this statement.			NA	None
3	Proponent Nomination and Details			X	Proponent Nomination and Contact Details
3-1	The proponent for the time being nominated by the Minister for the Environment and Heritage under section 38(6) or (7) of the <i>Environmental Protection Act 1986</i> is responsible for the implementation of the proposal until such time as the Minister for the Environment and Heritage has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.	Compliant - COMPLETE	This condition is still relevant and has been updated into a new, consolidated and contemporary Condition.	X-1	The proponent shall notify the Chief Executive Officer (CEO) of any change of its name, physical address or postal address for the serving of notices or other correspondence within 28 days off 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.
3-2	If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.		Refer to above	NA	Refer to above
3-3	The nominated proponent shall notify the Department of Environmental Protection of any change of contact name and address within 60 days of such change.				

Condition		Compliant	Justification	Proposed Condition	
4	Commencement of Time Limit of Approval				
4-1	The proponent shall provide evidence to the Minister for the Environment and Heritage within five years of the date of this statement that the proposal has been substantially commenced or the approval granted in this statement shall lapse and be void.	Compliant - COMPLETE	The Project has substantially commenced. This condition is therefore no longer required and has been removed.	NA	None
4-2	<p>The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment and Heritage, prior to the expiration of the five-year period referred to in condition 4-1.</p> <p>The application shall demonstrate that:</p> <ul style="list-style-type: none"> <li>the environmental factors of the proposal have not changed significantly;</li> <li>new, significant, environmental issues have not arisen; and</li> <li>all relevant government authorities have been consulted.</li> </ul>	Compliant – Not Yet Required	Refer to above		
5	Compliance Audit			X	Compliance Reporting
5-1	<p>The proponent shall prepare an audit program in consultation with and submit compliance reports to the Department of Environmental Protection which address:</p> <ul style="list-style-type: none"> <li>the implementation of the proposal as defined in schedule 1 of this statement;</li> <li>evidence of compliance with the conditions and commitments; and</li> <li>the performance of the environmental management plans and programs.</li> </ul>	Compliant - Ongoing	<p>The Proponent submits the following:</p> <ul style="list-style-type: none"> <li>Ministerial Statement Compliance Assessment Report to the OEPA;</li> <li>Annual Environmental Report to the DER;</li> <li>Annual Audit Compliance Report to the DER;</li> <li>Annual Environmental Report to the DMP;</li> <li>Annual Environmental Report to the DSD;</li> <li>Annual Environmental Report to the Parks and Wildlife;</li> <li>Annual Aquifer Review to the DoW; and</li> <li>Triennial Aquifer Review to the DoW</li> </ul> <p>This condition is still relevant and shall be retained; however, it has been updated to reflect contemporary presentation consistent with EPA guidance (Post Assessment Guideline for Preparing a Compliance Assessment Report, PAG3, 2012) and to align Marandoo reporting with reporting required under the other Ministerial Statements for Rio Tinto’s Pilbara iron ore operations.</p> <p>Only the reporting requirements directly relevant to the Ministerial Statement and the OEPA will be captured in the Ministerial Statement</p>	X-1	<p>The proponent shall prepare and maintain a Compliance Assessment Plan to the satisfaction of the CEO. The Compliance Assessment Plan shall include:</p> <ul style="list-style-type: none"> <li>the frequency of compliance reporting;</li> <li>the approach and timing of compliance assessments;</li> <li>the retention of compliance assessments;</li> <li>the method of reporting of potential non-compliance and corrective actions to take;</li> <li>the table of contents of Compliance Assessment Reports; and</li> <li>publicly availability of Compliance Assessment Reports.</li> </ul>
				X-2	The proponent shall submit to the CEO the Compliance Assessment Plan required by condition x-1 prior to the first Compliance Assessment Report required by condition x-6.
				X-3	The proponent shall assess compliance with the conditions in accordance with the Compliance Assessment Plan required by condition X-1
				X-4	The proponent shall retain reports of all compliance assessments described in the Compliance assessment Plan required by condition X-1 and shall make these reports available to the CEO upon request.
				X-5	The proponent shall advise the CEO of any potential non-compliance within seven days of that non-compliance being known.
				X-6	<p>The proponent shall submit to the CEO Compliance Assessment Reports addressing compliance in the previous calendar year. Compliance Assessment Reports shall be submitted by the submissions date defined in the Compliance Assessment Plan required by condition X-1. The Compliance Assessment Report shall:</p> <ul style="list-style-type: none"> <li>be endorsed by the proponents General Manager or a person delegated to sign on the General Manager’s behalf;</li> <li>include a statement as to whether the proponent has complied with the conditions;</li> <li>identify all potential non-compliances and describe corrective and preventative actions taken;</li> <li>be made publicly available in accordance with the approved Compliance Assessment Plan; and</li> <li>indicate any proposed changes to the Compliance Assessment Plan required by condition X-1.</li> </ul>



Appendix 3 Table 3: Rationalisation of Conditions and Commitments MS 833

Condition		Compliant	Justification	Proposed Condition	
<b>1</b>	<b>Proposal Implementation</b>			<b>X</b>	<b>Proposal Implementation</b>
1-1	The proponent shall implement the proposal as documented and described in Schedule 1 of this statement subject to the conditions and procedures of this statement.		This condition is still relevant and shall be retained, however it has been updated to reflect contemporary presentation.	X-1	The Proponent shall implement the project as assessed by the Office of the Environmental Protection Authority and as described in Schedule 1 of this Statement, associated EPA Reports, and subject to conditions of this Statement
<b>2</b>	<b>Proponent Nomination and Contact Details</b>			<b>X</b>	<b>Proponent Nomination and Contact Details</b>
2-1	The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal.	Compliant - COMPLETE	This condition is still relevant and shall be retained, however it has been updated to reflect contemporary presentation.	X-1	The proponent shall notify the Chief Executive Officer (CEO) of any change of its name, physical address or postal address for the serving of notices or other correspondence within 28 days off 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.
2-2	The proponent shall notify the Chief Executive Officer of the Office of the Environmental Protection Authority (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.			NA	None
<b>3</b>	<b>Time Limit of Authorisation</b>				
3-1	The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.	Compliant - COMPLETE	The Project has substantially commenced. This condition is therefore no longer required and has been removed.	NA	None
3-2	The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.				
<b>4</b>	<b>Compliance Reporting</b>			<b>X</b>	<b>Compliance Reporting</b>
4-1	The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the CEO.	Compliant - COMPLETE	<p>The Proponent submits the following:</p> <ul style="list-style-type: none"> <li>Ministerial Statement Compliance Assessment Report to the OEPA;</li> <li>Annual Environmental Report to the DER;</li> <li>Annual Audit Compliance Report to the DER;</li> <li>Annual Environmental Report to the DMP;</li> <li>Annual Environmental Report to the DSD;</li> <li>Annual Environmental Report to the Parks and Wildlife;</li> <li>Annual Aquifer Review to the DoW; and</li> <li>Triennial Aquifer Review to the DoW</li> </ul> <p>This condition is still relevant and shall be retained; however, it has been updated to reflect contemporary presentation consistent with EPA guidance (Post Assessment Guideline for Preparing a Compliance Assessment Report, PAG3, 2012) and to align Marandoo reporting with reporting required under the other Ministerial Statements for Rio Tinto's Pilbara iron ore operations.</p> <p>Only the reporting requirements directly relevant to the Ministerial Statement and the OEPA will be captured in</p>	X-1	<p>The proponent shall prepare and maintain a Compliance Assessment Plan to the satisfaction of the CEO. The Compliance Assessment Plan shall include:</p> <ul style="list-style-type: none"> <li>the frequency of compliance reporting;</li> <li>the approach and timing of compliance assessments;</li> <li>the retention of compliance assessments;</li> <li>the method of reporting of potential non-compliance and corrective actions to take;</li> <li>the table of contents of Compliance Assessment Reports; and</li> <li>publicly availability of Compliance Assessment Reports.</li> </ul>
4-2	<p>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 report required by condition 4-6, or prior to implementation, whichever is sooner.</p> <p>The compliance assessment plan shall indicate:</p> <ol style="list-style-type: none"> <li>the frequency of compliance reporting;</li> <li>the approach and timing of compliance assessments;</li> <li>the retention of compliance assessments;</li> <li>the method of reporting of potential non-compliances and corrective actions taken;</li> <li>the table of contents of compliance assessment reports; and</li> <li>public availability of compliance assessment reports.</li> </ol>	Compliant - COMPLETE		X-2	The proponent shall submit to the CEO the Compliance Assessment Plan required by condition x-1 prior to the first Compliance Assessment Report required by condition x-6.

Condition		Compliant	Justification	Proposed Condition	
4-3	The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1.	Compliant - Ongoing	the Ministerial Statement	X-3	The proponent shall assess compliance with the conditions in accordance with the Compliance Assessment Plan required by condition X-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.	Compliant - Ongoing		X-4	The proponent shall retain reports of all compliance assessments described in the Compliance assessment Plan required by condition X-1 and shall make these reports available to the CEO upon request.
4-5	The proponent shall advise the CEO of any potential non-compliance within seven days of that non-compliance being known.	Compliant - Ongoing		X-5	The proponent shall advice the CEO of any potential non-compliance within seven days of that non-compliance being known.
4-6	<p>The proponent shall submit an annual compliance report to the CEO by 30 April each year for the preceding period of 1 January to 31 December.</p> <p>The compliance assessment report shall:</p> <ol style="list-style-type: none"> <li>be endorsed by the proponent's Managing Director or a person delegated to sign on the Managing Director's behalf;</li> <li>include a statement as to whether the proponent has complied with the conditions;</li> <li>identify all potential non-compliances and describe corrective and preventative actions taken;</li> <li>be made publicly available in accordance with the approved compliance assessment plan; and</li> <li>indicate any proposed changes to the compliance assessment plan required by condition 4-1.</li> </ol>	Compliant - Ongoing		X-6	<p>The proponent shall submit to the CEO Compliance Assessment Reports addressing compliance in the previous calendar year. Compliance Assessment Reports shall be submitted by the submissions date defined in the Compliance Assessment Plan required by condition X-1.</p> <p>The Compliance Assessment Report shall:</p> <ul style="list-style-type: none"> <li>be endorsed by the proponents General Manager or a person delegated to sign on the General Manager's behalf;</li> <li>include a statement as to whether the proponent has complied with the conditions;</li> <li>identify all potential non-compliances and describe corrective and preventative actions taken;</li> <li>be made publicly available in accordance with the approved Compliance Assessment Plan; and</li> <li>indicate any proposed changes to the Compliance Assessment Plan required by condition X-1.</li> </ul>
5	<b>Performance Review and Reporting</b>				
5-1	<p>The proponent shall submit to the CEO Performance Review Reports at the conclusion of the second and fifth year after the commencement of productive mining and then, at such intervals as the CEO may regard as reasonable, which addresses:</p> <ol style="list-style-type: none"> <li>the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;</li> <li>the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and</li> <li>improvements gained in environmental management which could be applied to this and other similar projects.</li> </ol>	Compliant - Ongoing	<p>This condition is adequately covered in a contemporised Compliance Reporting conditions.</p> <p>Therefore this condition has been removed.</p>	NA	None
6	<b>Coolibah Woodlands</b>			X	<b>Coolibah Woodland</b>
6-1	The proponent shall ensure that groundwater abstraction, dewatering required to implement the project, and any mitigation measures implemented, do not adversely impact the Coolibah Woodlands located within the Karijini National Park.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-1	The proponent shall ensure that groundwater abstraction required for the project, and any mitigation measures implemented, does not adversely impact the Coolibah Woodlands located within the Karijini National Park.

Condition		Compliant	Justification	Proposed Condition	
6-2	<p>To verify that the requirement of condition 6-1 is met the proponent shall:</p> <ol style="list-style-type: none"> <li>monitor groundwater levels and quality within the woodlands;</li> <li>monitor soil moisture levels within the woodlands;</li> <li>monitor soil physical and chemical parameters within the woodlands; and</li> <li>monitor the health and cover of vegetation within the woodlands, particularly Coolibah trees;</li> </ol> <p>Monitoring is to be carried out according to the a monitoring schedule and using methods developed to the satisfaction of the CEO in advice from the Department of Environment and Conservation prior to the commencement of dewatering.</p> <p>Monitoring is to continue until such time as groundwater levels in the unconfined aquifer below the Coolibah Woodlands have returned to pre-mining levels or until such time as the CEO determines that monitoring and management actions may cease.</p>	Compliant - Ongoing	<p>This condition is still relevant; however it has been updated to reflect the status of the Project and more contemporised condition.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	X-2	<p>To verify that the requirement of condition x-1 is met the proponent shall implement a monitoring program, to the satisfaction of the CEO on advice from Parks and Wildlife, which includes:</p> <ol style="list-style-type: none"> <li>monitoring of groundwater levels and quality within the woodlands;</li> <li>monitoring of soil moisture levels within the woodlands;</li> <li>monitoring of soil physical and chemical parameters within the woodlands; and</li> <li>monitoring of the health and cover of vegetation within the woodlands, particularly Coolibah trees.</li> </ol>
				X-3	<p>Monitoring required by condition x-2 is to continue until such time as the groundwater levels in the unconfined aquifer below the Coolibah Woodlands have returned to pre-mining levels, or as otherwise determined by the CEO.</p>
6-3	<p>The proponent shall, prior to the commencement of dewatering, provide a report to the CEO which has been prepared using independent experts chosen in consultation with the Office of the Environmental Protection Authority and Department of Environment and Conservation. The report shall detail the following:</p> <ol style="list-style-type: none"> <li>appropriate trigger values developed to the satisfaction of the CEO on advice from the Department of Environment and Conservation to be applied to the monitoring program required in condition 6-2, and discussion of the selection of trigger levels in relation to the EPA's objectives;</li> <li>a detailed strategy developed to the satisfaction of the CEO on advice from the Department of Environment and Conservation to avoid and mitigate any impacts to the Coolibah Woodland detected by the monitoring program required by condition 6-2.</li> </ol>	Compliant - Ongoing		X-4	<p>The proponent shall prepare a report to the CEO detailing the following:</p> <ol style="list-style-type: none"> <li>trigger values to be applied to the monitoring program required by condition x-2; and</li> <li>a detailed strategy to avoid and mitigate any impacts to the Coolibah Woodland detected by the monitoring program required by condition x-2.</li> </ol>
6-4	<p>Within eight months of commencement of dewatering, the proponent shall provide a report to the CEO detailing data obtained from the first six months of dewatering. This report shall contain:</p> <ol style="list-style-type: none"> <li>verification of the groundwater model presented in the Public Environmental Review against actual data; and</li> <li>recalibration of the model and implication of any deviations from the model on the Coolibah Woodlands.</li> </ol>	Compliant - COMPLETE		NA	None
6-5	<p>In the event that monitoring required by condition 6-2 indicates an exceedance of the trigger values determined in condition 6-3(i):</p> <ol style="list-style-type: none"> <li>the proponent shall immediately implement mitigation measures indicated in the report required by condition 6-3;</li> <li>report to the CEO within 7 days of the exceedance being identified;</li> <li>provide evidence which allows determination of the cause of the exceedance;</li> <li>if determined by the CEO to be a result of activities undertaken in implementing the project, the proponent shall submit actions to be taken including those required by condition 6-3; and</li> <li>implement actions including those required by condition 6-3 upon approval of the CEO on advice from the Parks and Wildlife and shall continue until such time the CEO determines that the remedial actions may cease.</li> </ol>	Compliant - Ongoing		X-5	<p>In the event that monitoring required by condition x-2 indicates an exceedance of the trigger values determined in condition x-4(i):</p> <ol style="list-style-type: none"> <li>the proponent shall immediately implement mitigation measures indicated in the report required by condition x-4;</li> <li>report to the CEO within 7 days of the exceedance being identified;</li> <li>provide evidence which allows determination of the cause of the exceedance;</li> <li>if determined by the CEO to be a result of activities undertaken in implementing the project, the proponent shall submit actions to be taken including those required by condition x-4; and</li> <li>implement actions including those required by condition x-4 upon approval of the CEO on advice from the Parks and Wildlife and shall continue until such time the CEO determines that the remedial actions may cease.</li> </ol>
6-6	The proponent shall submit annually the result of monitoring required by condition 6-2 to the CEO.	Compliant - Ongoing	<p>This condition is still relevant; however it has been updated to reflect the status of the Project and a more contemporised condition X-2.</p>	NA	Refer to Condition X-2.
6-7	The proponent shall make publicly available the monitoring report required by condition 6-2 in a manner approved by the CEO.	Compliant - Ongoing		NA	

Condition		Compliant	Justification	Proposed Condition	
7	<b>Springs, Pools and Creeklines of Karijini National Park</b>			X	<b>Minthicoondunna Spring</b>
7-1	The proponent shall ensure that groundwater abstraction, dewatering and interception of surface water flows required to implement the proposal do not adversely affect any of the springs, pools or creeks in the Karijini National Park, or their surrounding vegetation or surrounding Aboriginal heritage sites.	Compliant - Ongoing	<p>This condition is still relevant however it has been agreed, in consultation with the OEPA and Parks and Wildlife, that the intent of the condition was to protect Minthicoondunna Spring.</p> <p>Further this condition has been reworded to reflect the current impact being managed at Minthicoondunna Spring.</p> <p>Therefore this condition has been retained but updated to reflect a more specific and relevant approach.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	X-1	The proponent shall ensure that any impacts to Minthicoondunna Spring, or its surrounding vegetation within the Karijini National Park, resulting from groundwater abstraction, dewatering and interception of surface water flows required to implement the project, are mitigated to the satisfaction of the CEO.
7-2	<p>To verify that the requirements of condition 7-1 are met:</p> <ol style="list-style-type: none"> <li>the proponent shall identify all sites and parameters to be monitored to the satisfaction of the CEO on advice from the Department of Environment and Conservation;</li> <li>undertake baseline monitoring of water levels and native vegetation health and abundance at all sites identified within the predicted cone of drawdown prior to dewatering;</li> <li>monitor groundwater and/or surface water levels at each of the agreed sites;</li> <li>monitor the health and cover of riparian vegetation at each of the agreed sites; and</li> <li>the proponent will engage with Aboriginal people recognised as traditional custodians under the Aboriginal Heritage Act 1972, such as representatives from the Innawonga Bunjima People, Martu Idja Banyjima People and Eastern Guruma People, to monitor the effect of dewatering on Minthicoondunna Spring (DIA 8296).</li> </ol> <p>This monitoring is to be carried out to the satisfaction of the CEO, and is to be carried out in such a way that, should a significant decline water levels be detected, it will be possible to determine whether the decline is attributable to the implementation of the proposal or to other causes.</p> <p>Monitoring is to continue until such time as groundwater levels in the project area have returned to pre-mining levels, or until such time the CEO determines that monitoring and management actions may cease.</p>	Compliant - Ongoing	<p>This condition is still relevant however it has been agreed, in consultation with the OEPA and Parks and Wildlife, that the intent of the condition was to protect Minthicoondunna Spring.</p> <p>Therefore this condition has been retained but updated to reflect this more specific approach.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	X-2	<p>To verify that the requirement of condition x-1 is met the proponent shall implement a Minthicoondunna Spring monitoring program, to the satisfaction of the CEO on advice from Parks and Wildlife, which includes:</p> <ol style="list-style-type: none"> <li>undertaking baseline monitoring of water levels and native vegetation health and abundance at the Spring;</li> <li>monitoring groundwater and/or surface water levels at the Spring; and</li> <li>monitoring the health and cover of riparian vegetation at the spring.</li> </ol>
7-3	The proponent shall submit annually the results of monitoring required by condition 7-2 to the CEO.	Compliant - Ongoing	This condition is still relevant; however it has been updated to reflect the status of the Project and a more contemporised condition X-2.	NA	Refer to condition X-2
7-4	<p>In the event that monitoring required by conditions 7-2 and 7-3 indicates a decline in water levels at any spring, pool or creek, or in the health and condition of the riparian vegetation:</p> <ol style="list-style-type: none"> <li>the proponent shall report such findings to the CEO within 7 days of the decline being identified;</li> <li>provide evidence which allows determination of the cause of the decline;</li> <li>if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to remediate the decline in consultation with the Department of Environment and Conservation;</li> <li>submit proposed actions to the CEO within 21 days of the determination being made; and</li> <li>implement actions to remediate the decline of riparian and groundwater dependent vegetation upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease.</li> </ol>	Compliant - Ongoing	<p>This condition is still relevant however so it has been retained but updated to reflect protection of Minthicoondunna Spring.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	X-3	<p>In the event that monitoring required by condition x-2 indicates a decline in water levels, or in the health and condition of the riparian vegetation, at Minthicoondunna Spring, the proponent shall:</p> <ol style="list-style-type: none"> <li>report such findings to the CEO within 7 days of the decline being identified;</li> <li>provide evidence which allows determination of the cause of the decline;</li> <li>if determined by the CEO to be a result of activities undertaken in implementing the project, the proponent shall submit actions to remediate the decline in consultation with the Department of Parks and Wildlife;</li> <li>submit proposed actions to the CEO within 21 days of the determination being made; and</li> <li>implement actions to remediate the decline upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease.</li> </ol>

Condition		Compliant	Justification	Proposed Condition	
7-5	The proponent shall make the monitoring reports required by conditions 7-2 and 7-3 and publicly available in a manner approved by the CEO.	Compliant - Ongoing	This condition is still relevant; however it has been updated to reflect the status of the Project and a more contemporised condition X-2.	NA	Refer to condition X-2
<b>8</b>	<b>Dewater Discharge</b>			<b>X</b>	<b>Discharge of water to local watercourse</b>
8-1	The proponent shall ensure that any dewater discharged to the environment does not exceed ANZECC/ARMCANZ* default criteria for the protection of marine and freshwater ecosystems. * Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, Australian Water Quality Guidelines for Fresh and Marine Waters and its updates.	Compliant - Ongoing	Water quality of any water discharged will be managed under the Part V Operating Licence	NA	None
8-2	The proponent shall ensure that dewatering discharge from the Marandoo Mine Phase 2 proposal does not cause water flow or pooling further than 20 kilometres downstream of the discharge points.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-1	The proponent shall ensure that dewatering discharge from the Marandoo Iron Ore Project does not cause water flow or pooling further than 20 kilometres downstream of the discharge points.
8-3	The proponent shall monitor the dewater discharge flow in order to substantiate whether condition 8-2 is being met.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-2	The proponent shall monitor the dewater discharge flow in order to substantiate whether condition X-1 is being met.
8-4	The proponent shall make the records of dewater discharge flow monitoring available on request of the CEO.	Compliant - Ongoing	This condition is not required as it is adequately managed under Condition 4 – Compliance Reporting. Therefore this condition has been removed.	NA	None
8-5	Prior to the commencement of dewater discharge; the proponent shall conduct a baseline survey of the extent and condition of the Hamersley Themeda Grassland to the satisfaction of the CEO on advice from the Department of Environment and Conservation.	Compliant - COMPLETE	This condition is no longer required as the work has been completed. Therefore this condition has been removed.	NA	None
8-6	Should the flow of dewater exceed the parameters defined in condition 8-2: 1. the proponent shall cease discharge of dewater to the environment immediately; 2. report such findings to the CEO within 7 days of the exceedance being identified; 3. determine actions in consultation with the Department of Environment and Conservation to be taken to prevent future exceedances and to remediate any impact resulting from the exceedance, with particular regard to the Hamersley Themeda Grasslands; 4. submit actions to be taken to the CEO within 21 days of reporting the exceedance; and 5. implement actions identified above upon approval of the CEO and prior to recommencement of dewater discharge.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-3	Should the flow of dewater exceed the parameters defined in condition X-2: 1. the proponent shall cease discharge of dewater to the environment immediately; 2. report such findings to the CEO within 7 days of the exceedance being identified; 3. determine actions in consultation with the Department of Environment and Conservation to be taken to prevent future exceedances and to remediate any impact resulting from the exceedance, with particular regard to the Hamersley Themeda Grasslands; 4. submit actions to be taken to the CEO within 21 days of reporting the exceedance; 5. implement actions identified above upon approval of the CEO and prior to recommencement of dewater discharge.
8-7	The proponent shall ensure that there is no increase in the variety or distribution of weed species in the vicinity of the dewater discharge channels as a result of dewater discharge to the environment.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-4	The proponent shall ensure that there is no increase in the variety or distribution of weed species in the vicinity of the dewater discharge channels as a result of dewater discharge to the environment.
8-8	To verify that the requirements of condition 8-6 are met: 1. the proponent shall undertake baseline monitoring of vegetation composition, weed species distribution and abundance; and 2. undertake regular monitoring of weed species and abundance during the operations phase of the proposal. This monitoring is to be carried out to the satisfaction of the CEO.			X-5	To verify that the requirements of condition X-4 are met: 1. the proponent shall undertake baseline monitoring of vegetation composition, weed species distribution and abundance; and 2. undertake regular monitoring of weed species and abundance during the operations phase of the proposal. This monitoring is to be carried out to the satisfaction of the CEO.

Condition		Compliant	Justification	Proposed Condition	
8-9	In the event that monitoring required by condition 8-6 indicates an increase in weed species or distribution: 1. the proponent shall report such findings to the CEO within 21 days of the increase being identified; 2. provide evidence which allows determination of the cause of the increase; 3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall submit actions to be taken to remediate the increase within 21 days of the determination being made to the CEO; and 4. the proponent shall implement actions to remediate the increase in weeds species and distribution upon approval of the. CEO and shall continue until such time the CEO determines that the remedial actions may cease.			X-6	In the event that monitoring required by condition X-4 indicates an increase in weed species or distribution the proponent shall: 1. report such findings to the CEO within 21 days of the increase being identified; 2. provide evidence which allows determination of the cause of the increase; 3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall submit actions to be taken to remediate the increase within 21 days of the determination being made to the CEO; and 4. implement actions to remediate the increase in weeds species and distribution upon approval of the. CEO and shall continue until such time the CEO determines that the remedial actions may cease.
8-10	The proponent shall submit annually the results of monitoring required by condition 8-3 and 8-6 to the CEO.		This condition is not required as it is managed under Condition 4 – Compliance Reporting	NA	None
8-11	The proponent shall make the monitoring reports required by condition 8-8 publicly available in a manner approved by the CEO.		Therefore this condition has been removed.	NA	None
<b>9</b>	<b>Sinkhole Formation</b>			<b>X</b>	<b>Sinkhole Formation</b>
9-1	The proponent shall conduct all works to ensure that sinkhole formation does not occur as a result of the proposal.	Compliant - Ongoing	This condition is still relevant and has been retained.	X-1	The proponent shall conduct all works to ensure that sinkhole formation does not occur as a result of the project.
9-2	The proponent shall ensure that any sinkhole formations attributable to the implementation of the proposal are detected in a timely manner using a monitoring strategy and schedule approved by the CEO on advice from the Department of Environment and Conservation prior to the commencement of dewatering activities.			X-2	The proponent shall ensure that any sinkhole formations attributable to the implementation of the proposal are detected in a timely manner using a monitoring strategy and schedule approved by the CEO on advice from the Department of Parks and Wildlife prior to the commencement of dewatering activities.
9-3	Should the monitoring required by condition 9-2 detect potential or actual sinkhole formation within the area of drawdown: 1. the proponent shall report such findings to the CEO within 7 days of the formation being identified; 2. provide evidence which allows determination of the cause of the sinkhole formation; 3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to rehabilitate or otherwise manage the sinkhole formation on an ongoing basis in consultation with the Department of Environment and Conservation; 4. submit actions to be taken within 21 days of the determination being made to the CEO for approval; and 5. implement actions to rehabilitate or manage the sinkhole formation upon approval of the CEO and shall continue until such time as the CEO determines on advice from Department of Environment and Conservation that the remedial actions may cease.			X-3	Should the monitoring required by condition X-2 detect potential or actual sinkhole formation within the area of drawdown: 1. the proponent shall report such findings to the CEO within 7 days of the formation being identified; 2. provide evidence which allows determination of the cause of the sinkhole formation; 3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to rehabilitate or otherwise manage the sinkhole formation on an ongoing basis in consultation with the Department of Environment and Conservation; 4. submit actions to be taken within 21 days of the determination being made to the CEO for approval; and 5. implement actions to rehabilitate or manage the sinkhole formation upon approval of the CEO and shall continue until such time as the CEO determines on advice from Department of Environment and Conservation that the remedial actions may cease.
9-4	The proponent shall submit annually a review of sinkhole prevention, monitoring and management strategies employed in relation to current best practice to the CEO.			X-4	The proponent shall submit annually a review of sinkhole prevention, monitoring and management strategies employed in relation to current best practice to the CEO.
9-5	The proponent shall make the monitoring reports required by condition 9-4 publicly available in a manner approved by the CEO.			X-5	The proponent shall make the monitoring reports required by condition X-4 publicly available in a manner approved by the CEO.



Condition		Compliant	Justification	Proposed Condition	
10	Rehabilitation			X	Rehabilitation and Closure
10-1	<p>The proponent shall undertake rehabilitation to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>The waste dump(s) and tailings storage facilities shall be non-polluting and shall be constructed so that their final shape, stability, surface drainage, resistance to erosion and ability to support local native vegetation are comparable to three suitable reference sites within the Karijini National Park or adjacent areas, with reference sites to be chosen in consultation with the Department of Environment and Conservation.</li> <li>Waste dumps, tailings storage facilities and other areas disturbed through implementation of the proposal (excluding mine pits), shall be progressively rehabilitated with vegetation composed of native plant species of local provenance (as agreed by the CEO in consultation with the Department of Environment and Conservation).</li> <li>The percentage cover of living vegetation in all rehabilitation areas shall be comparable with that of similar natural landforms in the area.</li> <li>No new species of weeds (including both declared weeds and environmental weeds) shall be introduced into the area as a result of the implementation of the proposal.</li> <li>The coverage of weeds (including both declared weeds and environmental weeds) within the rehabilitation areas shall be no greater than the average of three suitable reference sites within the Karijini National Park or adjacent areas, with reference sites to be chosen in consultation with the Department of Environment and Conservation.</li> <li>The composition of vegetation in the vicinity of the dewater discharge channels is returned to its pre-mining composition.</li> </ol>	Compliant - Ongoing	<p>This condition is still relevant, so it has been retained. However it has been updated to reflect contemporary Rehabilitation and Closure conditions.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	X-1	The proponent shall ensure that the project 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	Relevant Aboriginal people as identified in condition 7-2 (5) are to be consulted in relation to the final decommissioning and rehabilitation of the mining area to ensure that there are no adverse impacts to Aboriginal heritage sites.			X-2	The proponent shall implement the Marandoo Closure Plan in accordance with the Guidelines for Preparing Mine Closure Plans, June 2011 and any updates, to the requirements of the CEO on advice of the Department of Mines and Petroleum.
10-3	Rehabilitation activities shall continue as necessary until such time as the requirements of condition 10-1 are met, and are demonstrated by inspections and reports to be met, for a minimum of five years to the satisfaction of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.			X-3	The proponent shall review and revise the Marandoo Closure Plan required by Condition 10-2 at intervals not exceeding three years, or as otherwise specified by the CEO.
11	Conceptual Closure Strategy				
11-1	Prior to commencing ground-disturbing activity, the proponent shall submit a detailed and project-specific Conceptual Closure Strategy to the requirements of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.	Compliant - Ongoing	<p>This condition is still relevant and has been retained. However it has been reworded to reflect a contemporary Rehabilitation and Closure condition.</p> <p>The intent of the condition will continue to meet the EPAs objective for this factor.</p>	NA	Refer to Rehabilitation and Closure condition above.
11-2	<p>The Conceptual Closure Strategy shall include:</p> <ol style="list-style-type: none"> <li>a detailed risk assessment to identify any acidity and metal contamination hazards associated with mining related activities in the area of the proposal;</li> <li>details of a monitoring program to ensure that materials with potential to cause acid and/or metalliferous drainage are identified prior to excavation; and</li> <li>actions to be taken in the event that materials with the potential to cause acid and/or metalliferous drainage are identified through the monitoring program required by condition 11-2 (2).</li> </ol>				
11-3	The Conceptual Closure Strategy shall provide detailed technical information on proposed management measures to prevent pollution, environmental harm or human health impacts during implementation of the proposal and after mine completion and closure.				

Condition		Compliant	Justification	Proposed Condition	
11-4	The Conceptual Closure Strategy shall include maps, diagrams and Global Positioning System (GPS) coordinates, showing the proposed placement, dimensions, design and proposed methods of construction and closure of waste disposal facilities and mine pits.				
11-5	The Conceptual Closure Strategy shall demonstrate that waste dumps and tailings storage facilities will be located, designed and constructed to ensure that they are non-polluting and so that their final shape, height, stability, surface drainage, resistance to erosion and ability to support native vegetation are comparable to natural landforms in the area.				
11-6	The Conceptual Closure Strategy shall provide additional detailed modelling to verify that a perennial lake will not form in the pit void following completion and closure, and that any ephemeral water bodies which may form will not adversely impact groundwater quality in the area.				
11-7	The Conceptual Closure Strategy shall provide detailed technical information demonstrating that sufficient quantities of suitable materials are available on site for the implementation and closure (including unplanned or temporary closure) of the proposal.				
11-8	The Conceptual Closure Strategy shall include specific practicable procedures to ensure the protection of the environment in the event of unplanned or temporary mine closure.				
11-9	The proponent shall implement the proposal consistent with the Conceptual Closure Strategy referred to in conditions 11-1 to 11-8.				
<b>12</b>	<b>Final Closure and Decommissioning Plan</b>				
12-1	At least 5 years prior to mine completion, the proponent shall prepare and submit a Final Closure and Decommissioning Plan to the requirement of the CEO, on advice of the Department of Mines and Petroleum and the Department of Environment and Conservation.	Compliant – Not Yet Required	This condition is still relevant and has been retained. However it has been reworded to reflect a contemporary Rehabilitation and Closure condition. The intent of the condition will continue to meet the EPAs objective for this factor.	NA	Refer to Rehabilitation and Closure condition.
12-2	<p>The Final Closure and Decommissioning Plan shall be prepared consistent with:</p> <ul style="list-style-type: none"> <li>• ANZMECIMCA 2000, Strategic Framework for Mine Closure Planning; and</li> <li>• Department of Industry Tourism and Resources 2006 Mine Closure and Completion (Leading Practice Sustainable Development Program for the Mining Industry), Commonwealth Government, Canberra; <p>and shall provide detailed technical information on the following:</p> <ol style="list-style-type: none"> <li>1. final closure of all areas disturbed through implementation of the proposal so that they are safe, stable and non-polluting;</li> <li>2. decommissioning of all plant and equipment;</li> <li>3. disposal of waste materials;</li> <li>4. final Rehabilitation of waste dumps; tailings storage facilities and other areas (outside the mine pit(s));</li> <li>5. management and monitoring following mine completion; and</li> <li>6. inventory of all contaminated sites and proposed management.</li> </ol> </li></ul>				
12-3	The proponent shall close, decommission and rehabilitate the proposal consistent with the approved Final Closure and Decommissioning Plan.				
12-4	The proponent shall make the Final Closure and Decommissioning Plan required by 12-1 and 12-2 publicly available in a manner acceptable to the CEO.				

## MARANDOO IRON ORE - REVISED PROPOSAL

**Proposal:** The proposal is to amend the existing Marandoo Iron Ore Project and to consolidate all existing Marandoo Statements.

**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:** XXXX

**Report of the Environmental Protection Authority Number:** XXX

**Previous Assessment Number:** 599, 1428, 1686

**Previous Report of the Environmental Protection Authority:** 643, 1048, 1355

**Previous Statement Numbers:** 286: 6 October 1992; 598: 2 July 2002; 833: July 2010

The implementation conditions of this Statement supersede the implementation conditions of Statement 286, 598 and 833 in accordance with section 45B of the *Environmental Protection Act 1986*. The proposals referred to in the above reports of the Environmental Protection Authority may be implemented.

### 1 Proposal Implementation

1-1 The Proponent shall implement the project as assessed by the Office of the Environmental Protection Authority and as described in Schedule 1 of this Statement, associated EPA Reports, and subject to conditions of this Statement.

### 2 Contact Details

2-1 The proponent shall notify the Chief Executive Officer (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 Compliance Reporting

3-1 The proponent shall prepare and maintain a Compliance Assessment Plan to the satisfaction of the CEO. The Compliance Assessment Plan shall indicate:

- the frequency of compliance reporting;
- the approach and timing of compliance assessments;
- the retention of compliance assessments;
- the method of reporting of potential non-compliance and corrective actions to take;
- the table of contents of Compliance Assessment Reports; and
- public availability of Compliance Assessment Reports.

- 3-2 The proponent shall submit to the CEO the Compliance Assessment Plan required by condition 3-1 prior to the first Compliance Assessment Report required by condition 3-6.
- 3-3 The proponent shall assess compliance with the conditions in accordance with the Compliance Assessment Plan required by condition 3-1.
- 3-4 The proponent shall retain reports of all compliance assessments described in the Compliance assessment Plan required by condition 3-1 and shall make these reports available to the CEO upon request.
- 3-5 The proponent shall advise the CEO of any potential non-compliance within seven days of that non-compliance being known.
- 3-6 The proponent shall submit to the CEO Compliance Assessment Reports addressing compliance in the previous calendar year. Compliance Assessment Reports shall be submitted by the submissions date defined in the Compliance Assessment Plan required by condition 3-1.
- 3-7 The Compliance Assessment Report shall:
- be endorsed by the proponent's General Manager or a person delegated to sign on the general Manager's behalf;
  - include a statement as to whether the proponent has complied with the conditions;
  - identify all potential non-compliances and describe corrective and preventative actions taken;
  - be made publicly available in accordance with the approved Compliance Assessment Plan; and
  - indicate any proposed changes to the Compliance Assessment Plan required by condition 3-1.

#### **4 Public Availability of Data**

- 4-1 Subject to condition 4-2, within a reasonable time period approved by the CEO of the issue of this statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.
- 4-2 If any data referred to in condition 4-1 contains particulars of:
1. a secret formula or process; or
  2. confidential commercially sensitive information; and
  3. the proponent may submit a request for approval from the CEO to not make this data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

## **5 Environmental Management Program**

5-1 The proponent shall implement the project in accordance with the Marandoo Environmental Management Program, which consists of the following Management Plans:

- Coolibah Woodland;
- Minthicoondunna Spring; and
- Dewater discharge.

Each management Plan includes:

1. the specific environmental objectives and targets for each environmental factor;
2. the management measures to be applied to avoid and minimise the environmental impact of the project;
3. monitoring measures to measure the performance of management against targets; and
4. contingency measures to mitigate impacts.

## **6 Coolibah Woodlands**

6-1 The proponent shall ensure that groundwater abstraction required for the project, and any mitigation measures implemented, does not adversely impact the Coolibah Woodlands located within the Karijini National Park.

6-2 To verify that the requirement of condition 6-1 is met the proponent shall implement a monitoring program, to the satisfaction of the CEO on advice from Parks and Wildlife, which includes:

1. monitoring of groundwater levels and quality within the woodlands;
2. monitoring of soil moisture levels within the woodlands;
3. monitoring of the health and cover of vegetation within the woodlands, particularly Coolibah trees;

6-3 Monitoring required by condition 6-2 is to continue until such time as the groundwater levels in the unconfined aquifer below the Coolibah Woodlands have returned to pre-mining levels, or as otherwise determined by the CEO.

6-4 The proponent shall prepare a report to the CEO detailing the following:

1. trigger values to be applied to the monitoring program required by condition 6-2; and
2. a detailed strategy to avoid and mitigate any impacts to the Coolibah Woodland detected by the monitoring program required by condition 6-2.

6-5 In the event that monitoring required by condition 6-2 indicates an exceedance of the trigger values determined in condition 6-4(i):

1. the proponent shall immediately implement mitigation measures indicated in the report required by condition 6-4;
2. report to the CEO within 7 days of the exceedance being identified;
3. provide evidence which allows determination of the cause of the exceedance;

4. if determined by the CEO to be a result of activities undertaken in implementing the project, the proponent shall submit actions to be taken including those required by condition 6-4; and
5. implement actions including those required by condition 6-4 upon approval of the CEO on advice from the Parks and Wildlife and shall continue until such time the CEO determines that the remedial actions may cease.

## **7 Minthicoondunna Spring**

- 7-1 The proponent shall ensure that any impacts to Minthicoondunna Spring, or its surrounding vegetation within the Karijini National Park, resulting from groundwater abstraction, dewatering and interception of surface water flows required to implement the project, are mitigated to the satisfaction of the CEO.
- 7-2 To verify that the requirement of condition 7-1 is met the proponent shall implement a Minthicoondunna Spring monitoring program, to the satisfaction of the CEO on advice from Parks and Wildlife, which includes:
1. undertaking baseline monitoring of water levels and native vegetation health and abundance at the Spring;
  2. monitoring groundwater and/or surface water levels at the Spring; and
  3. monitoring the health and cover of riparian vegetation at the spring; and
- 7-3 In the event that monitoring required by condition 7-2 indicates a decline in water levels, or in the health and condition of the riparian vegetation, at Minthicoondunna Spring, the proponent shall:
1. report such findings to the CEO within 7 days of the decline being identified;
  2. provide evidence which allows determination of the cause of the decline;
  3. if determined by the CEO to be a result of activities undertaken in implementing the project, the proponent shall submit actions to remediate the decline in consultation with the Department of Parks and Wildlife;
  4. submit proposed actions to the CEO within 21 days of the determination being made; and
  5. implement actions to remediate the decline upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease.

## **8 Discharge to water to local watercourse**

- 8-1 The proponent shall ensure that dewatering discharge from the Marandoo Iron ore Project does not cause water flow or pooling further than 20 kilometres downstream of the discharge points.
- 8-2 The proponent shall monitor the dewater discharge flow in order to substantiate whether condition 8-1 is being met.
- 8-3 Should the flow of dewater exceed the parameters defined in condition 8-2:
1. the proponent shall cease discharge of dewater to the environment immediately;
  2. report such findings to the CEO within 7 days of the exceedance being identified;



3. determine actions in consultation with the Department of Parks and Wildlife to be taken to prevent future exceedances and to remediate any impact resulting from the exceedance, with particular regard to the Hamersley Themeda Grasslands;
  4. submit actions to be taken to the CEO within 21 days of reporting the exceedance;
  5. implement actions identified above upon approval of the CEO and prior to recommencement of dewater discharge.
- 8-4 The proponent shall ensure that there is no increase in the variety or distribution of weed species in the vicinity of the dewater discharge channels as a result of dewater discharge to the environment.
- 8-5 To verify that the requirements of condition 8-4 are met:
1. the proponent shall undertake baseline monitoring of vegetation composition, weed species distribution and abundance; and
  2. undertake regular monitoring of weed species and abundance during the operations phase of the proposal.
  3. This monitoring is to be carried out to the satisfaction of the CEO.
- 8-6 In the event that monitoring required by condition 8-5 indicates an increase in weed species or distribution the proponent shall:
1. report such findings to the CEO within 21 days of the increase being identified;
  2. provide evidence which allows determination of the cause of the increase;
  3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall submit actions to be taken to remediate the increase within 21 days of the determination being made to the CEO;
  4. implement actions to remediate the increase in weeds species and distribution upon approval of the CEO and shall continue until such time the CEO determines that the remedial actions may cease;

## **9 Sinkhole Formation**

- 9-1 The proponent shall conduct all works to ensure that sinkhole formation does not occur as a result of the project.
- 9-2 The proponent shall ensure that any sinkhole formations attributable to the implementation of the proposal are detected in a timely manner using a monitoring strategy and schedule approved by the CEO on advice from the Department of Parks and Wildlife prior to the commencement of dewatering activities.
- 9-3 Should the monitoring required by condition 9-2 detect potential or actual sinkhole formation within the area of drawdown:
1. the proponent shall report such findings to the CEO within 7 days of the formation being identified;
  2. provide evidence which allows determination of the cause of the sinkhole formation;
  3. if determined by the CEO to be a result of activities undertaken in implementing the proposal, the proponent shall determine actions to be taken to rehabilitate or

otherwise manage the sinkhole formation on an ongoing basis in consultation with the Department of Environment and Conservation;

4. submit actions to be taken within 21 days of the determination being made to the CEO for approval; and
5. implement actions to rehabilitate or manage the sinkhole formation upon approval of the CEO and shall continue until such time as the CEO determines on advice from Department of Environment and Conservation that the remedial actions may cease.

## **10 Rehabilitation and Closure**

- 10-1 The proponent shall ensure that the project is decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed outcomes and land uses, and without unacceptable liability to the state.
- 10-2 The proponent shall implement the Marandoo Closure Plan in accordance with the *Guidelines for Preparing Mine Closure Plans*, June 2011 and any updates, to the requirements of the CEO on advice of the Department of Mines and Petroleum.
- 10-3 The proponent shall review and revise the Marandoo Closure Plan required by Condition 10-2 at intervals not exceeding three years, or as otherwise specified by the CEO.

## **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 to offset the clearing of 'good to excellent' condition native vegetation, including the loss of habitat for conservation significant species, in the Hamersley IBRA subregion, and calculated pursuant to condition 8-2. This funding shall be provided to a government-established conservation offset fund or an alternative offset arrangement providing an equivalent outcome as determined by the Minister.
- 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 \$750 AUD (excluding GST) per hectare of 'good to excellent' condition native vegetation cleared within the Mine/Plant Development Envelope (delineated in Figure 1 and defined by the geographic coordinates in Schedule 2) in excess of the 2,445 ha approved in the original proposals (MS 286 and MS 833 and via NVCPs).
- 11-3 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.
- 11-4 The proponent shall prepare and submit an Impact Reconciliation Procedure to the satisfaction of the CEO.
- 11-5 The Impact Reconciliation Procedure required pursuant to condition 11-4 shall:
  1. include a methodology to identify clearing of 'good to excellent' condition native vegetation in the Hamersley IBRA subregion;
  2. require the proponent to submit spatial data identifying areas of 'good to excellent' condition native vegetation that has been cleared;
  3. include a methodology for calculating the amount of clearing undertaken during each biennial time period; and

4. state dates for the commencement of the biennial time period and for the submission of results of the Impact Reconciliation Procedure, to the satisfaction of the CEO.

## Schedule 1

### The Revised Proposal (Assessment No. xxx)

#### General Description

The Revised Proposal is to expand operations at Marandoo by increasing the clearing limit to support ongoing operations and the management of topsoil and subsoil within a defined Marandoo Mine/Plant Development Envelope. The Revised Proposal includes rationalisation of existing Statements for Marandoo.

The Revised Proposal is described in the Marandoo ERMP (O'Brien 1992); MMP2 PER (Rio Tinto 2008) and Marandoo Revised Proposal (Rio Tinto 2014).

**Table 1: Summary of the Revised Proposal**

<b>Proposal Title</b>	Marandoo Iron Ore Project
<b>Proponent Name</b>	Hamersley Iron Pty Limited
<b>Short Description</b>	<p>Development and operation of an open cut iron ore mine and associated infrastructure at the Marandoo iron Ore Mine, 37 km east of Tom Price in the Pilbara region.</p> <p>Surplus dewater management options include use on site, transfer to Tom Price, re-injection to Southern Fortescue Borefield; irrigated agriculture and discharge to the environment.</p> <p>115 km Railway and associated infrastructure from Rosella Siding to Homestead Junction with spur loop at Marandoo and three sidings (Eagle, Juna Downs; and Dove).</p>

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

Column 1	Column 2	Column 3
Element	Location	Authorised Extent
Mining Area (AWT and BWT)	Figure xx	Clearing of up to 2,502 ha of localised impact including riparian vegetation along drainage lines within the Marandoo Mine/Plant Development Envelope (3,277 ha).
Marandoo Camp	Figure xx	Clearing of up to 221 ha within the Camp Development Envelope (221 ha)
Borefield	Figure xx	Clearing of up to 200 ha within the Borefield Development Envelope (1,501 ha).
Linear Infrastructure	Figure xx	Clearing of up to 161 ha within the Linear Infrastructure Development Envelope (692 ha).