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Native Vegetation Assessment Branch
Department of Environment Regulation
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Cloisters Square
Perth WA 6850

Our Reference: RTIO-HSE-0306057

17 March 2017

APPLICATION FOR A CLEARING PERMIT (PURPOSE PERMIT): POWERLINE NETWORK MAINTENANCE, IMPROVEMENT AND ASSOCIATED ACTIVITIES

Background

Rio Tinto's iron ore business in Western Australia (the Company) owns and operates an extensive power generation and distribution network that is used to distribute electricity to its mine, port, rail and town facilities located in the Pilbara region (Attachment 2 – Figure of the Powerline Network).

Protection and maintenance of the powerline network and associated infrastructure is critical to prevent fires and to maintain operations. As such, the company routinely conducts inspections and maintenance of the infrastructure (and is responsible for providing personnel with safe and direct passage to be able fulfil their duties).

Objective

A network-wide¹ purpose permit application is being submitted for clearing up to 500 ha of native vegetation, as required under Part V of the *Environmental Protection Act 1986* (WA), for powerline network maintenance, improvement and associated activities. This network-wide permit is in lieu of individual permits held by the Company for sections of the power network.

Any existing clearing permits along the power network covered by this purpose permit will be surrendered immediately where possible. As the company's current internal approvals permitting system issues permits for up to five (5) years (unless the valid approval duration is shorter), there will be clearing permits that are surrendered in the next few years as the existing approved works are completed.

The principal objective of this application is to streamline compliance with conditions and reporting requirements. This approach has been successfully undertaken for the company's rail network.

Biological Surveys and Environmental Sensitivities

The company's ecological specialist has undertaken a desktop review of the biological (flora and fauna) survey information of the entire powerline network, and the resulting report has been attached to support this application (Attachment 3). The results of these surveys and the potential impacts from the proposed native vegetation clearing are outlined in the report, along with a statement addressing the 10 Clearing Principles.

¹ Please note that the company is not considered to be an "energy operator" under the *Land Clearing and the Energy Operator (Powers) Act 1979*.

Cultural Heritage

The Company is aware of its requirements under the *Aboriginal Heritage Act 1972 (WA)* and Indigenous Land Use Agreements, and will ensure that recorded sites are avoided or appropriate approvals obtained prior to commencing any ground disturbing activities.

Environmental Management

The proposed activities will be undertaken in accordance with the companies Health Safety and Quality Management System (HSEQ MS). This includes:

- Planning work to ensure minimal disturbance;
- Weed hygiene practices during clearing; and
- Storing and disposing of waste correctly.

Requested Conditions

To align with existing infrastructure-wide clearing permits, the company requests the following conditions be considered when drafting this permit.

Permit Holder

The company requests the permit be held by Pilbara Iron Company (Services) Pty Ltd.

Duration of Permit

The company requests an expiry date of 31 December 2032

Purpose for which clearing may be done

The company requests this condition state “powerline network maintenance, improvement and associated activities” as this aligns with the condition imposed on CPS 5272 (Cape Lambert Purpose Permit).

Type of clearing authorised

The company requests that this condition not be placed as per CPS 5272 (Cape Lambert Purpose Permit).

Land on which clearing is to be done

The company requests that this condition aligns with the condition placed on CPS 4442 (Rail Purpose Permit):

Clearing authorised under this Permit is to be undertaken within land tenure or rights administered under Mining Act 1904 (WA), Mining Act 1978 (WA), Land Act 1933 (WA), Land Administrative Act (WA), Property Law Act 1969 (WA), Transfer of Land Act 1893 (WA), Strata Titles Act 1985 (WA), the Rights in Water and Irrigation Act 1914 (WA) or the following State Agreement Acts –

- *Iron Ore (Hamersley Range) Agreement Act 1963*
- *Iron Ore (Robe River) Agreement Act 1964*
- *Iron Ore (Hamersley Range) Agreement Act 1968 (Paraburdoo)*
- *Iron Ore (Mount Bruce) Agreement Act 1972*
- *Iron Ore (Channar Joint Venture) Agreement Act 1987*
- *Iron Ore (Hope Downs) Agreement Act 1992*
- *Iron Ore (Yandicoogina) Agreement Act 1996*

Area of clearing

The company requests a clearing limit of 500 hectares for this application and no boundary placed as the condition for “Land on which clearing is to be done” would condition the legal access to land for the company.

Period in which clearing is authorised & clearing not authorised

The company requests that these conditions not be placed as the key purpose of this clearing permit will be to continually retain safe corridors along the powerline network to prevent fires (especially in environmentally sensitive areas) and to protect and safely access the assets through maintenance of cleared areas.

Weed control

The company can utilise its internal management processes to meet the standard weed management condition.

Revegetation and Rehabilitation

The company requests that this condition not be placed as the key purpose of this clearing permit will be to continually retain safe corridors along the powerline network to prevent fires and to protect the assets through maintenance of vegetation and maintaining vegetation-free areas.

The company operates numerous iron ore mining operations across the Pilbara, with most of its activity covered under State Agreements. These agreements impose unique closure obligations.

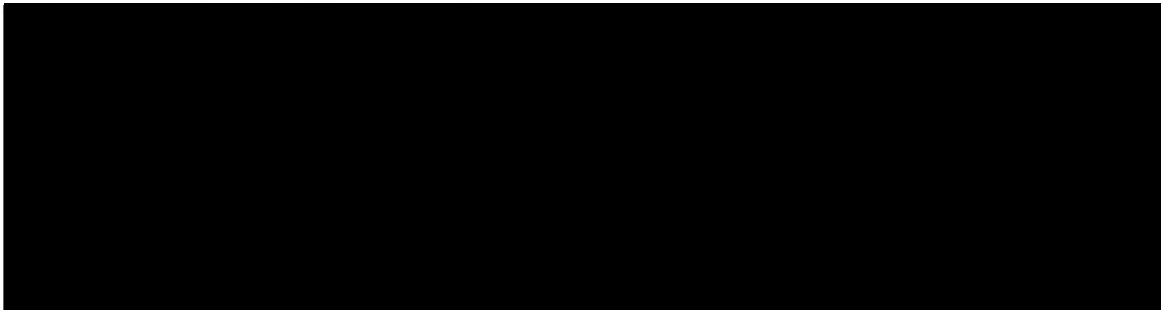
All State Agreements under which the company operates in the Pilbara contain clauses in relation to ownership of infrastructure, including both fixed and mobile infrastructure, following closure. Whilst the various State Agreements differ in specifics, the relevant clauses are similar in general terms:

- infrastructure remaining after closure becomes the property of the State; and
- if the Proponent intends to remove infrastructure during closure, it must provide the State prior opportunity to purchase at an agreed price.

The company is therefore required to negotiate with the State prior to closure and until this occurs, no final commitments can be made with regard to decommissioning and final rehabilitation.

Reporting

The company requests that this condition contain a reporting timeframe of 01 January – 31 December of the preceding calendar year, with the report being due on or before 30 June each year.



Attachments

1. Purpose Permit Application Forms C2 and C3
2. Map of the Existing Powerline Network
3. Biological Summary Report



Application for a clearing permit (purpose permit)

Environmental Protection Act 1986 s 51E

FORM C2

Clearing of native vegetation is prohibited in Western Australia except where a clearing permit has been granted or an exemption applies. A person who causes or allows unauthorised clearing commits an offence.

| |
|------------|
| CPS No. |
| |
| Date stamp |

Part 1 Assessment under the EPBC bilateral agreement

The native vegetation clearing processes under Part V of the *Environmental Protection Act 1986* (EP Act) have been accredited by the Commonwealth of Australia under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and can be assessed under an assessment bilateral agreement.

To be assessed under the assessment bilateral agreement, the proposed clearing action must be referred to the Commonwealth under the EPBC Act prior to submitting this application form and Annex C7 must also be completed.

For further information see Annex C7 and *A guide to native vegetation clearing processes under the assessment bilateral agreement* available at www.der.wa.gov.au.

Do you want your proposed clearing action assessed in accordance with, or under, an EPBC Act Accredited Process such as the assessment bilateral agreement?

Yes No Proceed to Part 2

Has the proposed clearing action been referred to the Commonwealth of Australia under the EPBC Act?

Yes EPBC Number

No It cannot be assessed under an Accredited Process until it has been referred to the Commonwealth. Proceed to Part 2.

Has a decision been made under the EPBC Act as to whether or not the proposed clearing action is a controlled action?

Yes No Proceed to Part 2

Is the proposed clearing action a controlled action under the EPBC Act?

No It cannot be assessed under an Accredited Process, proceed to Part 2

Yes Complete and attach the requirements of Annex C7 to this completed form

List the controlling provisions identified in the notification of the controlled action decision

Annex C7 is complete and the required supporting information is attached

Part 2 Land details

The location of the land where clearing is proposed must be accurately described.

FILE REFERENCE

Land description: volume and folio number, lot or location number(s), Crown lease or reserve number, pastoral lease number or mining tenement number of all properties.

Various – See cover letter.

Local government area

City of Karratha, Shire of Ashburton and Shire of East Pilbara

Part 3 Proposal

An aerial photograph or map with a north arrow must be attached, clearly marking the area proposed to be cleared or if you have the facilities, a digital map on CDROM of the area to clear as an ESRI shapefile with the following properties:

- Geometry type: polygon shape
- Coordinate system: GDA 1994 (Geographic latitude/longitude)
- Datum: GDA 1994 (Geocentric Datum of Australia 1994).

Total area of clearing proposed (hectares)

500ha

Proposed method of clearing or final land use

The firebreak will be established by a dozer/grader (blade down) whilst all other vegetation removal will be done so through the use of other items such as a chainsaw.

Period within which clearing is proposed to be undertaken, e.g. May 2013 – June 2018

Jan 2017 - Dec 2032

Purpose of clearing

Maintenance of power lines, installation of fire breaks, removal of vegetation in proximity to the power lines and associated activities.

Has this clearing application or any related matter been referred to the Environmental Protection Authority (EPA) Yes No

Part 4 Applicant

To apply for a permit you must either be:

- the landowner
- or*
- have the authority of the landowner to access the land and undertake the clearing.

Are you applying as an individual, a company or an incorporated body? Enter details for one only (please print).

An individual— applicant's given names, family name and title (Mr, Mrs, Ms, etc.)
or
A body corporate or other entity formed at law

Pilbara Iron Company (Services) Pty Ltd.

Ownership of land

A landowner can be:

- a person who holds the Certificate of Title
- a person who is the lessee of Crown land
- or*
- a public authority that is responsible for care of the land.

Form of ownership:

- Certificate of Title (please attach a copy of the certificate and all associated encumbrances with the application, available from the Western Australian Land Information Authority – Landgate)
- Pastoral lease (please attach a copy of the lease and all associated encumbrances with the application)
- Mining lease
- Public authority that has care, control or management of the land
- Other form of lease, land tenure or specific arrangement. Please state:

See cover letter

Authority to access land

Please specify the applicant's authority to access land to be cleared. For example, a letter from Department of Planning, a statutory power or letter of authority from the landowner.

Note: the letter of authority must explicitly state the applicant has authority to clear on the said land.

State nature of authority to access land (please attach copy of authority)

Owner and third party approval.

| | | |
|--|---|---|
| Contact details | <input checked="" type="checkbox"/> Contact details are the same as above or : | |
| <p>Person with whom the Department of Environment Regulation or Department of Mines and Petroleum should liaise concerning the clearing application.</p> <p>*If applying as a company or incorporated body, please also supply the registered business office address.</p> | <p>Given names, family name and title (Mr, Mrs, Ms, etc.)</p> <input type="text"/> | <p>Position title/Company</p> <input type="text"/> |
| <p>Postal/Business address*</p> <input type="text"/> | | |
| <p>Fixed telephone number</p> <input type="text"/> | | <p>Mobile telephone number</p> <input type="text"/> |
| <p>Fax number</p> <input type="text"/> | | <p>Email address</p> <input type="text"/> |

Part 5 Declaration and signature

| | | |
|--|---|--|
| <p>For your application to be accepted, it must be signed either on behalf of the company or as an individual.</p> <p>By signing this form you are declaring that the statements on this form are true and correct.</p> <p>The department in accepting this form accepts you are a person duly authorised to sign for and on behalf of the body corporate in applying for and in holding a permit.</p> <p>Knowingly providing false or misleading information is an offence under section 112 of the <i>Environmental Protection Act 1986</i> and may incur a penalty of up to \$50,000.</p> | <p>Please indicate if you are signing as an individual or a company:</p> <p><input type="checkbox"/> An individual. If an individual landowner is applying, all landowners must sign this form.</p> <p><input checked="" type="checkbox"/> A company. A person duly authorised to sign for and on behalf of the body corporate must sign this form. A company must be a legal entity and provide an Australian Company Number (ACN). Please note Australian Business Number (ABN) is not sufficient.</p> <p><input type="checkbox"/> Other entity formed at law. Provide details: <input type="text"/></p> <div style="background-color: black; width: 100%; height: 100%; margin-top: 10px;"></div> <p>Company name/ACN or other entity (incorporation etc.)</p> <input type="text" value="Pilbara Iron Company (Services) Pty Ltd"/> <input type="text" value="107 210 248"/> | |
|--|---|--|

Part 6 Prescribed fee

| | | |
|---|--|--|
| <p>Make cheques or money orders payable to:</p> <p>Department of Environment Regulation (for all clearing purposes other than mining and petroleum activities) or Department of Mines and Petroleum (for mining and petroleum clearing activities under the Mining Act, various Petroleum Acts or State Agreement Acts).</p> <p>To make payment with a credit card, please complete Form C3 and attach to this form.</p> <p>Do not send cash in the mail.</p> | <p>A \$200 fee is required for all purpose permit applications.</p> <div style="border: 1px solid black; width: 150px; height: 30px; float: right; text-align: center; margin-top: 10px;">OFFICE USE ONLY</div> <p>Payment method (tick applicable box):</p> <p><input type="checkbox"/> Cheque <input type="checkbox"/> Money order <input checked="" type="checkbox"/> Credit card (please complete Form C3 and attach)</p> | |
|---|--|--|

Part 7 Application checklist and documentation summary

Additional information to assist in the assessment of your proposal may be attached to this application—e.g. reports on salinity, fauna or flora studies or other environmental reports conducted for the site could be included in electronic format and submitted on CDROM.

Please ensure you have included the following as part of your application:

REQUIRED

- A completed application form that is signed and dated by all landowners, or the applicant acting on behalf of or likely to become the landowner.
- Payment.
- An aerial photograph or map with a north arrow clearly identifying the areas of vegetation proposed to be cleared or ESRI shapefile. An ERSI shapefile must be provided if the application requires an assessment under an EPBC Act Accredited process.
- Written authority from the landowner to access the land and undertake the clearing.
- I have read and understood the 'Confidential or commercially sensitive information' section at the bottom of this form.

REQUIRED IF APPLICABLE

- Copy of the Certificate of Title or pastoral lease.
- Form C3 if fee is to be paid by credit card.
- Annex C7 if the clearing applied for is also to be assessed under an EPBC Act Accredited Process.

Please provide a summary of all attached documentation.

Form C2, Form C3, Figure, Biological Summary, Cover Letter, CD, ESRI Files

Part 8 Lodgement

Send by email or post original applications for all clearing purposes (other than mining and petroleum activities) to:

Department of Environment Regulation

Locked Bag 33, CLOISTERS SQUARE
PERTH WA 6850
Email: nvp@der.wa.gov.au

Telephone: 6467 5020

For more information: www.der.wa.gov.au/nvp

Send original applications related to mining and petroleum clearing activities (under delegation) to:

Department of Mines and Petroleum

Environment Division
Mineral House
100 Plain St
EAST PERTH WA 6004

Telephone: 9222 3333

For more information: www.dmp.wa.gov.au

Please retain a copy of this form for your records.

Incomplete applications will be declined in accordance with section 51E (3) of the *Environmental Protection Act 1986*.

CONFIDENTIAL OR COMMERCIALY SENSITIVE INFORMATION

Information submitted as part of this application may be made publicly available. If you wish to submit information that you believe to be commercially sensitive or otherwise confidential, then you should submit that information in an appendix to this application, with a written statement of reasons why you request that each item of information be kept confidential. The department will take reasonable steps to protect confidential or commercially sensitive information. Please note in particular that all submitted information may be the subject of an application for release under the *Freedom of Information Act 1992*. If you have any enquiries regarding the provision of relevant information as part of this application contact either the Department of Environment Regulation or the Department of Mines and Petroleum.

If there is insufficient space on any part of this form, please continue on a separate sheet of paper and attach to this form.

Part 2 Lodgement

Please attach Form C3 to any relevant clearing permit application form and send by email or post original applications for all clearing purposes (other than mining and petroleum activities) to:

Department of Environment Regulation

Locked Bag 33, CLOISTERS SQUARE, PERTH WA 6850
Email: nvp@der.wa.gov.au

Telephone: 6467 5020

For more information: www.der.wa.gov.au/nvp

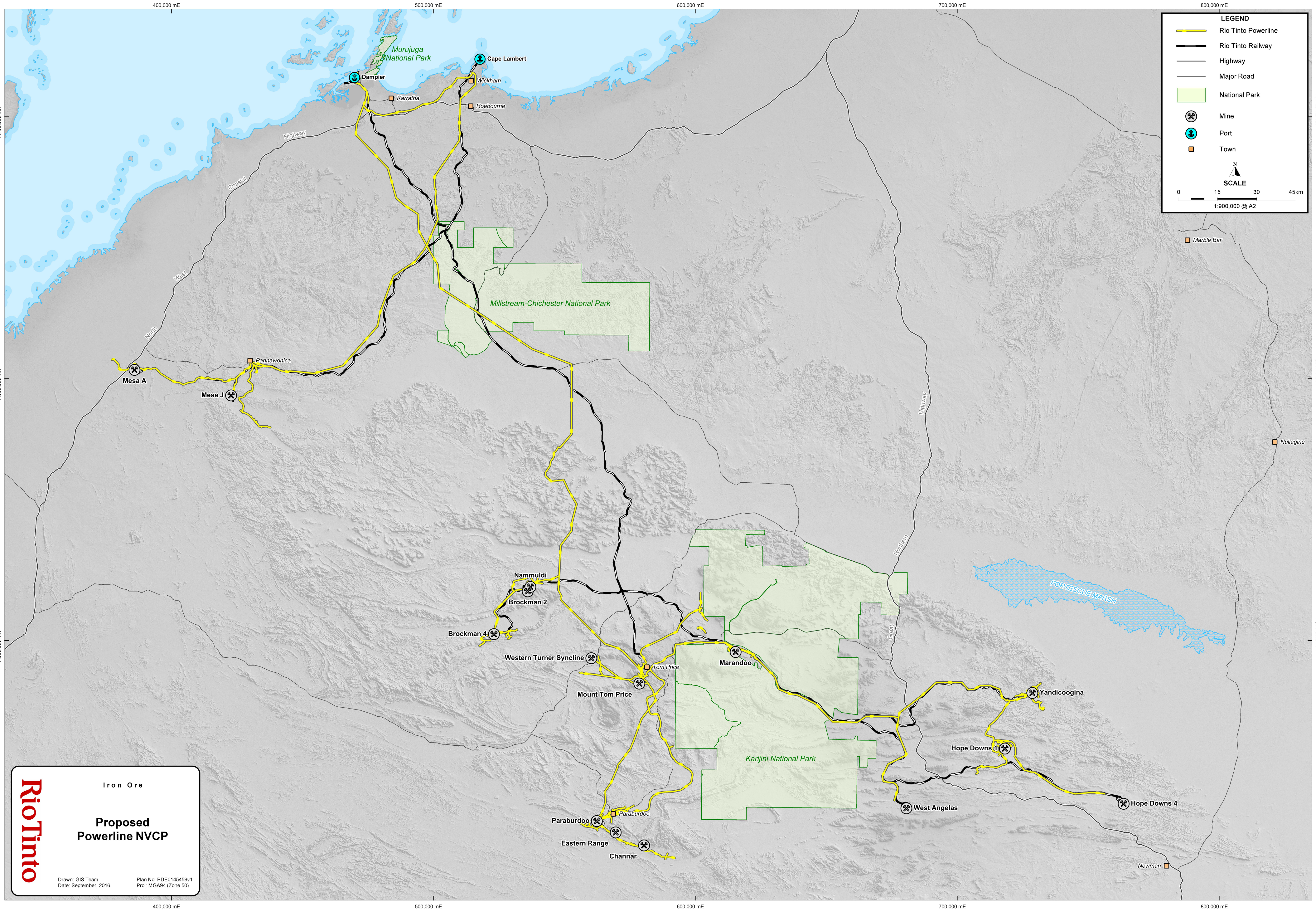
Please attach Form C3 to any relevant clearing permit application form and send original applications related to mining and petroleum clearing activities (under delegation) to:

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Telephone: 9222 3333

For more information: www.dmp.wa.gov.au



LEGEND

- Rio Tinto Powerline
- Rio Tinto Railway
- Highway
- Major Road
- National Park
- X Mine
- P Port
- Town

N
SCALE
0 15 30 45km
1:900,000 @ A2

Rio Tinto

Iron Ore

Proposed
Powerline NVCP

Drawn: GIS Team
Date: September, 2016

Plan No: PDE0145458v1
Proj: MGA94 (Zone 50)



Rio Tinto

Rio Tinto Powerline Network Flora, Vegetation and Fauna summary

Native Vegetation Clearing Permit – Supporting Information

(RTIO-HSE-0304895)

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

February 2017

| Document Status | | | | | | |
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This report has been prepared by Rio Tinto Iron Ore (Rio Tinto), on behalf of Pilbara Iron, specifically for the proposal. 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.

Rio Tinto

152-158 St George's Terrace

PERTH WA 6000

EXECUTIVE SUMMARY

Rio Tinto's iron ore business in Western Australia owns and operates an extensive power generation and distribution network that is used to distribute electricity to its mine, port, rail and town facilities in the Pilbara. Protection and maintenance of the powerline network and associated infrastructure is critical to prevent fires and to maintain operations.

A summary of previous flora, vegetation and fauna surveys was conducted to address the 10 Clearing Principles as part of the NVCP application process. The study area covers approximately 33,000 ha of predominantly disturbed ground, with areas of intact native vegetation.

The power network crosses two Environmentally Sensitive Areas, Millstream-Chichester National Park and Karijini National Park. Activities associated with maintenance of the network and maintaining a safe corridor to prevent fires will be continued to be required in these areas. All works will be discussed with Parks and Wildlife to ensure disturbance and impacts are minimised as far as possible.

The powerline network crosses eight Priority Ecological Communities including three subterranean communities which are considered unlikely to be impacted by the Proposal. Areas of Priority Ecological Communities mapped within the network are likely to be in a disturbed condition or have some signs of disturbance from historical works.

No species of Threatened Flora have been recorded in the powerline network, or are expected to occur.

A total of 32 Priority flora species have been previously recorded in the study area. Of these only three species, *Eucalyptus lucens*, *Eragrostis lanicaulis* and *Vigna triodiophila* are considered to be restricted in distribution. The locations of these species within the powerline network will be avoided where possible.

The majority of the study area has been previously disturbed for the construction and maintenance of the powerline network and therefore none of the habitats remaining in the study area are considered likely to be of significance for fauna. A total of 10 conservation listed species have been previously recorded in the study area. None of these species were considered to be dependent on the habitat within the powerline network and the conservation status of these species will not be impacted by the Proposal.

The proposal was assessed against the 10 Clearing Principles as defined in Schedule 5 (Principles for Clearing Native Vegetation) of the Environmental Protection Act 1986. A assessment against the Principles concluded that the proposal may be at variance with one of the Clearing Principles, due to the potential impacts to major watercourses.

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1 Introduction

1.1 Project background and study area location

Rio Tinto's iron ore business in Western Australia owns and operates an extensive power generation and distribution network (the powerline network) that is used to distribute electricity to its mine, port, rail and town facilities located in the Pilbara region.

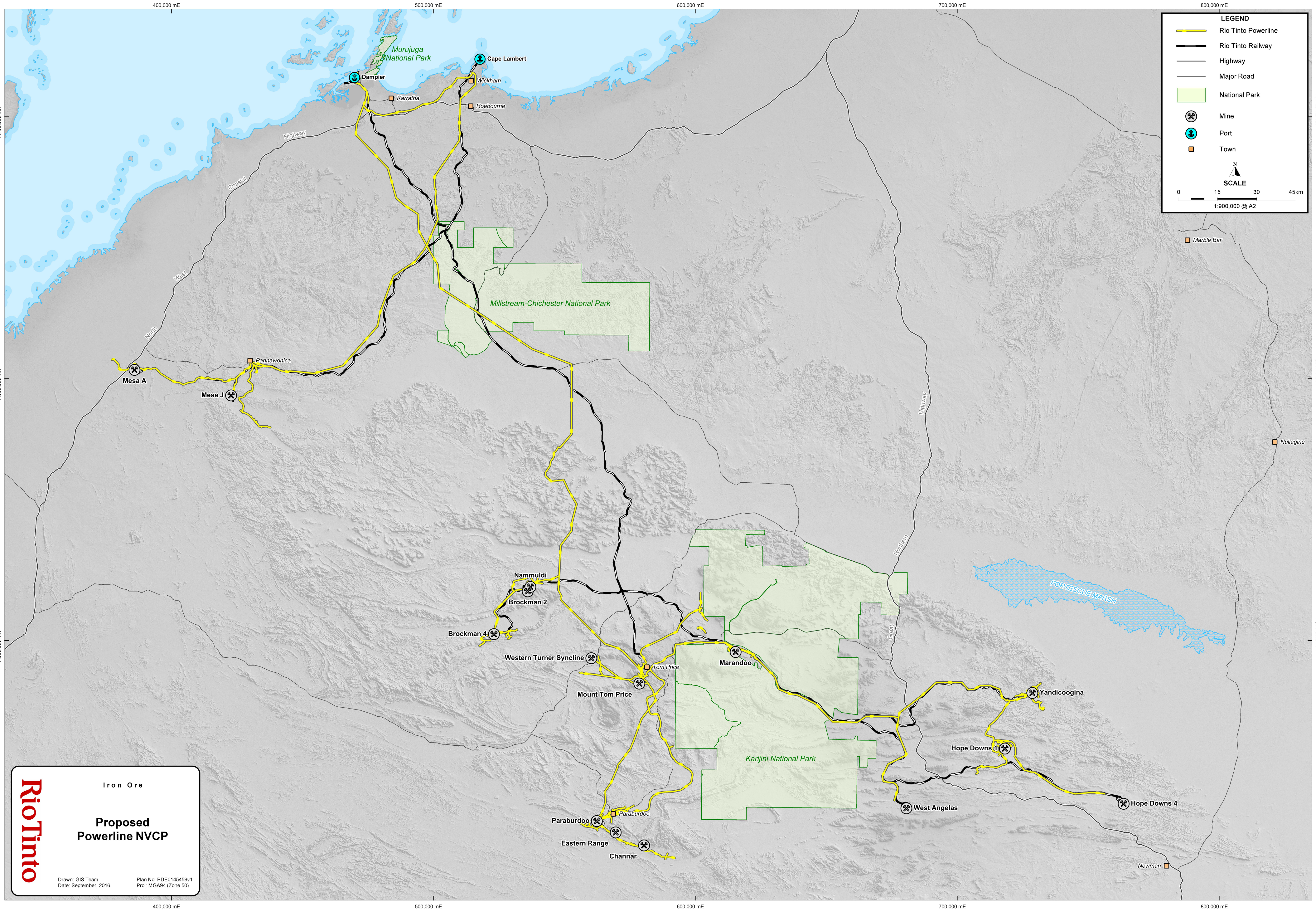
Protection and maintenance of the powerline network and associated infrastructure is critical to prevent fires and to maintain operations. As such, the company routinely conducts inspections and maintenance of the infrastructure (and is responsible for providing personnel with safe and direct passage to be able fulfil their duties) (the Proposal). Approval for clearing of native vegetation associated with the Proposal is required via a Native Vegetation Clearing Permit (NVCP) under Section 51A of the *Environmental Protection Act 1986* (EP Act).

A summary of previous flora, vegetation and fauna surveys was conducted to address the 10 Clearing Principles as part of the NVCP application process. The study area covers approximately 33,000 ha of predominantly disturbed ground, with areas of intact native vegetation (Figure 1-1).

1.2 Scope of survey

This report describes the methodology employed for the flora, vegetation and fauna summary of the study area, and documents the results of the assessment. In particular, this report identifies vegetation, flora and fauna of conservation significance relevant to the study area.

This report is intended as a supporting document for an NVCP application by Rio Tinto and has been prepared on the basis of a review of existing information for the study area.



LEGEND

- Rio Tinto Powerline
- Rio Tinto Railway
- Highway
- Major Road
- National Park
- X Mine
- Ⓜ Port
- Town

N
SCALE
0 15 30 45km
1:900,000 @ A2

Rio Tinto

Iron Ore

Proposed
Powerline NVCP

Drawn: GIS Team
Date: September, 2016

Plan No: PDE0145458v1
Proj: MGA94 (Zone 50)

2 Literature review

2.1 Literature review

Early systematic flora survey work in the Pilbara bioregion was undertaken by Burbidge (1959) and Beard (1975). These surveys involved the mapping of broad floristic formations and vegetation associations across the bioregion. More recently, the Department of Agriculture and Food Western Australia (DAFWA) conducted a regional inventory of flora, vegetation, vegetation condition, and land resources of the bioregion (Van Vreeswyk *et al.* 2004). In addition, the DEC (now Parks and Wildlife) undertook a comprehensive regional survey of the Pilbara (DEC 2011) which included counting, sampling, documenting, and mapping the way plant communities are distributed in relation to soil, climate, landforms and geology within the Pilbara.

Over recent decades there has been an expansion of resource development projects occurring within the Pilbara. As a result, there has been an increase in site-specific ecological surveys to fulfil the statutory requirements of the EP Act, the State Wildlife Conservation Act 1950 (WC Act), and the *Environmental Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

Numerous flora, vegetation and fauna surveys have previously been conducted in the locality of the study area. The findings of these surveys, in addition to the database searches, form the basis of this summary to determine conservation significant species that are known to, or may occur within the study area, as well as the flora, vegetation associations, ecosystems and fauna habitats.

2.1.1 Flora and vegetation

A large number of surveys conducted in the locality have been utilised as part of this flora and vegetation desktop assessment. In total 60 detailed baseline flora surveys have been conducted for Rio Tinto within or in close proximity to the power network, this includes both single and two season surveys. An additional 108 reconnaissance surveys have been conducted and 520 targeted or systematic Threatened and Priority Flora searches.

These reports have been consulted as part of the literature review to determine conservation significant species that may occur within the study area, as well as flora, vegetation units and ecosystems.

A review of additional published and unpublished reports of relevance to the area was also conducted. These reports comprised mostly regional scale reports such as the Department of Agriculture Land Systems mapping (van Vreeswyk *et al.* 2004).

2.1.2 Fauna and fauna habitat

A large number of fauna surveys have been conducted in the locality which have been utilised as part of this desktop assessment. A total of 44 Level two baseline fauna surveys have been conducted within and in the vicinity of the power network. An additional 45 targeted fauna surveys have also been completed.

These reports were reviewed as part of the literature review to determine conservation significant species that may occur within the study area and fauna habitats.

3 Results

3.1 Conservation areas and environmentally sensitive areas

Environmentally Sensitive Areas (ESAs) are defined in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005 under section 51B of the WA state EP Act. ESAs include areas declared as: World Heritage; included on the Register of the National Estate (RNE); defined wetlands; vegetation containing rare (Threatened) flora; Threatened Ecological Communities (TEC); and Bush Forever sites.

The power network crosses two ESAs, Millstream-Chichester National Park and Karijini National Park.

3.2 Priority ecological communities

Priority Ecological Communities (PECs) are possible TECs that do not meet survey criteria or are not adequately defined for the TEC list by the Department of Parks and Wildlife (Parks and Wildlife), and are ranked in Priorities 1, 2 and 3 (1 being the highest) (Parks and Wildlife, 2015b).

A total of eight PECs have been recorded within the study area. These are presented in Table 3-1. The three subterranean communities are considered unlikely to be impacted by works associated with the powerline network.

The majority of the powerline network has undergone some level of historical disturbance. Areas of PECs mapped within the network are likely to be a disturbed condition or have some signs of disturbance.

Table 3-1: PECs recorded within the study area

| Priority Ecological Community | Ranking | Area within the study area (ha) |
|--|---------|---------------------------------|
| Subterranean invertebrate community of pisolitic hills in the Pilbara | P1 | 94.0 |
| Subterranean invertebrate communities of mesas in the Robe Valley region | P1 | 14.4 |
| Four plant assemblages of the Wona Land System | P1 | 407.4 |
| Stygofaunal Community of the Bungaroo Aquifer | P1 | 420.13 |
| Roebourne Plains coastal grasslands with gilgai microrelief on deep cracking clays | P1 | 430.9 |
| Brockman Iron cracking clay communities of the Hamersley Range | P1 | 9.2 |
| West Angelas Cracking-Clays | P1 | 11.6 |
| Horseflat Land System of the Roebourne Plains | P3 | 494.3 |

3.3 Conservation listed flora recorded within the study area

Searches of Parks and Wildlife's Florabase Website (WAH 2016a), confirm three Threatened flora species; *Aluta quadrata*, *Pityrodia* sp. Marble Bar (G. Woodman & D. Coultas GWDC Opp 4) and *Thryptomene wittweri* occur in the Pilbara. No Threatened flora species however have been recorded within the study area.

Aluta quadrata is a shrub to 260 cm, known to occur to the south of Paraburdoo, at Channar and Western Range. No records are known within the study area and no suitable habitat has been identified.

Pityrodia sp. Marble Bar (G. Woodman & D. Coultas GWDC Opp 4) is a shrub to 150 cm that has been a recent addition to the Threatened Flora list. This species is known to occur approximately 90 km south of Port Hedland. Given the separation, and as this species has not been recorded during multiple surveys of the area, *Pityrodia* sp. Marble Bar (G. Woodman & D. Coultas GWDC Opp 4) would not be expected to occur.

Thryptomene wittweri is a shrub known to occur within Karijini National Park on Mount Meharry and in high altitude areas. Given the separation, and as this species has not been recorded during multiple surveys conducted in the study area, *Thryptomene wittweri* would not be expected to occur.

A total of 32 Priority flora species have been previously recorded in the study area. These species are discussed in detail below.

***Eremophila* sp. Hamersley Range (K. Walker KW 136) (P1)**

A single individual of *Eremophila* sp. Hamersley Range (K. Walker KW 136) has been recorded within the study area. This species has a range of approximately 196 km on NatureMap within the Pilbara region (Parks and Wildlife 2017) and 150 km from the Rio Tinto database. This species has a total population count of 3,057 plants from 345 records, within the Rio Tinto database and has previously been recorded from Angelo Central to Karijini National Park (Parks and Wildlife 2014). This species is not considered to be restricted to the study area.

***Eucalyptus lucens* (P1)**

Eucalyptus lucens is a small mallee to 3 m which occurs at higher altitudes. A single population of five individuals was recorded within the study area. This species has only been recorded on Mt Nameless in the Pilbara and is more commonly found in the Northern Territory. This species has two records within the Rio Tinto database with a population count of six, and a further three records are listed on FloraBase (WAH 2017). This species is restricted in distribution and therefore locations of individuals will be managed through internal restriction areas and avoided.

***Hibiscus* sp. Canga (P.J.H. Hurter & J. Naaykens 11013) (P1)**

This species is a large shrub to 3 m which occurs on Canga detrital formations. Eight populations with 320 individuals were recorded within the study area. This species has a range of 54 km on NatureMap (Parks and Wildlife 2017) and a range of 44 km on the Rio Tinto database. The database contains 1068 records representing 9715 individuals. This species is not considered to be restricted to the study area.

***Tephrosia rosea* var. Port Hedland (A.S. George 1114) (P1)**

Tephrosia rosea var. Port Hedland (A.S. George 1114) is a shrub to 1.7 m with maroon-purple flowers which occurs in coastal areas on sands. This species has been recorded from 14 locations within the study area representing 677 individuals. All records for the species within the Rio Tinto database come from the Cape Lambert area, however this species is also known from Port Hedland. The species has a range of 400 km on NatureMap (Parks and Wildlife 2017) and the Rio Tinto database contains 182 locations representing 4983 individuals. This species is not considered to be restricted to the study area.

***Eremophila forrestii* subsp. Pingandy (M.E Trudgen 2662) (P2)**

This species is a low shrub to 0.5 m tall with cream to pink flowers which occurs on low scree slopes and gibber plains. A total of 30 locations have been identified within the study area, representing 404

individuals. This species has a range of 130 km on NatureMap (Parks and Wildlife 2017) and has 238 records within the Rio Tinto database representing 4028 individuals. This species is not considered to be restricted to the study area.

***Euphorbia clementii* (P2)**

Euphorbia clementii is a small herb which has been recorded from one location within the study area (10 individuals). This species has a range of 330 km on NatureMap (Parks and Wildlife 2017) and is more commonly recorded near Port Hedland and in the Chichester Ranges. The Rio Tinto database only contains the one record which occurs in the study area at West Angelas. This record is from 2006 and may possibly represent a misidentification.

***Indigofera ixocarpa* (P2)**

Indigofera ixocarpa is a small shrub with pink pea-like flowers which has been recorded from four locations representing 22 locations. This species has a range of 270 km on NatureMap (Parks and Wildlife 2017) and has 303 records within the Rio Tinto database representing 3217 individuals. This species is not considered to be restricted to the study area.

***Pentalepis trichodesmoides* subsp. *hispida* (P2)**

Pentalepis trichodesmoides subsp. *hispida* is a shrub to 1 m with dull green leaves, dense white hairs and yellow flowers. This species was recorded from 20 locations within the study area representing 142 individuals spanning over 220 km. This species has a range of 280 km on NatureMap (Parks and Wildlife 2017) with 140 locations representing 600 individuals in the Rio Tinto database. This species is not considered to be restricted to the study area.

***Rhodanthe frenchii* (P2)**

This species is a small herb to 0.35 m which was recorded from one location near Yandi in 2001. This species is only known from the Gascoyne region and the record is considered likely to be a misidentification.

***Cucumis* sp. Barrow Island (D.W. Goodall 1264) (P2)**

This species has been recorded from two locations near Dempier with two individuals recorded. This species is only known from Barrow Island on NatureMap (Parks and Wildlife 2017) and the records within the Rio Tinto database may represent mis-identifications.

***Acacia subtiliformis* (P3)**

Acacia subtiliformis is a non-erect, spindly (wispy), single-stem shrub to 3.5 m tall which occurs in low, undulating country on calcareous rises adjacent to drainage lines. This species has been recorded in eight locations with the study area representing 6465 individuals within the study area. This species has a range of 134 km on NatureMap (Parks and Wildlife 2017) and has 478 records on the Rio Tinto database (80,563 individuals). This species is not considered to be restricted to the study area.

***Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3)**

This species is a small herb to 0.4 m with yellow flowers which has been recorded from 93 locations representing 1529 individuals within the study area. This species has a range of 362 km on NatureMap (Parks and Wildlife 2017) and has 1,888 records on the Rio Tinto database (68,901 individuals). This species is not considered to be restricted to the study area.

***Rostellularia adscendens* var. *latifolia* (P3)**

This species of shrub has angular stems and small blue flowers, and has been recorded from 10 locations representing 124 individuals within the study area. This species has a range of 424 km on NatureMap (Parks and Wildlife 2017) and has 217 records on the Rio Tinto database (4841 individuals). This species is not restricted to the study area.

***Goodenia lyrata* (P3)**

This species is a prostrate herb with yellow flowers which occurs on sand and clay flats. It has been recorded from nine locations representing 14 individuals within the study area. This species has a range of 906 km on NatureMap (Parks and Wildlife 2017) and has 17 records on the Rio Tinto database (22 individuals). This species is more commonly found in the Gibson Desert and Great Victoria Desert and is not considered to be restricted to the study area.

***Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)**

Rhagodia sp. *Hamersley* is a lax shrub or scrambler with small lanceolate leaves with small red fruit. This species has a range of 282 km on NatureMap (Parks and Wildlife 2017) and is represented by 1,463 records on the Rio Tinto database (3,152 individuals). This species is not considered to be restricted to the study area with only nine locations representing 18 individuals having been recorded.

***Acacia effusa* (P3)**

This species is a low (0.3 m high) spreading shrub with minnerich bark and yellow-brown flowers. It has been recorded from four locations representing 34 individuals within the study area. This species has a range of 111 km on NatureMap (Parks and Wildlife 2017) and has 92 records on the Rio Tinto database (1,176 individuals). This species is not restricted to the study area.

***Calotis latiuscula* (P3)**

Calotis latiuscula is an herbaceous perennial daisy with yellow flowers which grows upright to 0.2 m. This species can be found mostly along creek banks however it can also be found in moist open sites. This species has been recorded from one location representing one individual within the study area. There is a range of 1,313 km on NatureMap (Parks and Wildlife 2017) and there are 24 records on the Rio Tinto database of this species (68 individuals).

***Dampiera anonyma* (P3)**

Dampiera anonyma is a compact multi-stemmed perennial shrub with grey-green rough furry stems and blue-purple flowers which occurs on summits and upper slopes above 1,000m. This species has a range of 94 km on NatureMap (Parks and Wildlife 2017) and 83 records on the Rio Tinto database representing 416 individuals. This species has been recorded from three locations representing four individuals within the study area and is not considered to be restricted to the study area.

***Eragrostis lanicaulis* (P3)**

Eragrostis lanicaulis is a grass-like species to 0.5 m high which is found in red sandy clay areas often within drainage channels, shallow depressions and flood outs. This shrub flowers and fruits from March to October and has a range on NatureMap of 934 km (Parks and Wildlife 2017). It has been recorded from one location representing one individual within the study area (only record in the Rio Tinto database). This species is more commonly found within the Little Sandy Desert and areas to the east of the Pilbara. The location within the study area will be avoided.

***Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301) (P3)**

This species is a tall shrub to 2 m tall which produces deep pink coloured flowers; it has simple leaves that are symmetrically organised toward the end of its branches. This species was recorded from 16 locations within the study area from 40 individuals. This species has a range of 215 km on NatureMap (Parks and Wildlife 2017) and has 2,131 records on the Rio Tinto database (17,211 individuals). This species is not restricted to the study area.

***Olearia mucronata* (P3)**

Olearia mucronata is a shrub to 1 m tall with an unpleasant aroma; it can be densely branched with white and yellow flower heads. This species has been recorded in mesic areas amongst ironstone, boulders and along creek lines. *Olearia mucronata* has been recorded from 11 locations within the study area representing a total of 55 individuals. The range of this species shown on NatureMap is 834 km (Parks and Wildlife 2017), with a total of 67 records on the Rio Tinto database (264 individuals). This species is not restricted to the study area.

***Ptilotus subspinescens* (P3)**

This species is a round leafless shrub to 0.8 m tall with woolly flowers. It has been recorded from four locations within the study area, commonly along rocky scree slopes hummock grassland between mesas of ironstone with a total of 600 individuals. The range of this species shown on NatureMap is 69 km (Parks and Wildlife 2017), with a total of 1,232 records on the Rio Tinto database (32,012 individuals). This species is considered not to be restricted to the study area.

***Sida* sp. Barlee Range (S. van Leeuwen 1642) (P3)**

Sida sp. Barlee Range is a spreading, woody shrub to 0.5 m which grows down steep slopes. It appears woolly and velvety with yellow flowers from May to September. It has been recorded in five different locations with a total of five individuals within the study area. The range of this species is 374 km on NatureMap (Parks and Wildlife 2017) and has 1,594 records on the Rio Tinto database (10,832 individuals). This species is not restricted to the study area.

***Terminalia supranitifolia* (P3)**

This species is a shrub or small tree to 3 m tall with light green leaves spirally arranged, branches touching the ground and dark grey rough bark. *Terminalia supranitifolia* grows on volcanic rock piles or near rocky ridges in low hilly country relatively close to the coast. This species has been recorded in two locations within the study area with two individuals. The range of this species is 475 km on NatureMap (Parks and Wildlife 2017) and has 42 records on the Rio Tinto database (67 individuals). This species is not restricted to the study area.

***Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)**

Themeda sp. Hamersley Station (M.E. Trudgen 11431) is a tall kangaroo grass which is only found in the Pilbara, it flowers and fruits usually after rains often late in the season. It has been recorded in 11 locations within the study area representing 398 individuals. This species has a range of 393 km on NatureMap (Parks and Wildlife 2017) with 2,516 records on the Rio Tinto database (162,871 individuals). This species is not restricted to the study area.

***Triodia* sp. Robe River (M.E. Trudgen et al. MET 12367) (P3)**

Triodia sp. Robe River (M.E. Trudgen et al. MET 12367) is a hard spinifex grass, with light green tufted leaves to 0.5 m tall. It has been recorded in 15 locations within the study area representing 140 individuals. This species has a range of 174 km on NatureMap (Parks and Wildlife 2017) with 3443 records on the Rio Tinto database (238,760 individuals). This species is not restricted to the study area.

***Vigna triodiophila* (P3)**

This species is trailing herb with yellow flowers which is recorded on rockpiles near the coast. The species has been recorded from one location representing one individual within the study area. *Vigna triodiophila* has a range of 60 km on NatureMap (Parks and Wildlife 2017). The location of this species within the study area will be managed through internal restriction areas and avoided where possible.

***Eremophila magnifica* subsp. *magnifica* (P4)**

This species is an aromatic shrub to 1.3 m tall with purple flowers. This species has been recorded from five locations within the area of study from 48 individuals. This species has a range of 311 km on NatureMap (Parks and Wildlife 2017) with 946 records on the Rio Tinto database (13,188 individuals). This species is not restricted to the study area.

***Eremophila youngii* subsp. *lepidota* (P4)**

This species is a medium to large, narrow leaved shrub with branches and leaves covered with persistent, often lucid scales, flowers funnel-shaped, pink or white. This species has been recorded at one location within the study area with one individual present. It has a range of 1782 km on NatureMap (Parks and Wildlife 2017) with 10 records on the Rio Tinto database (13 individuals). This species is not restricted to the study area.

***Goodenia nuda* (P4)**

Goodenia nuda is an erect to ascending herb to 0.5 m tall with pale green- yellow flowers with a maroon centre. This species is seasonal and occurs mostly in clay soils and drainage lines often in mulga. It has a range of 930 km on NatureMap (Parks and Wildlife 2017) with 629 records on the Rio Tinto database (6,284 individuals). This species has been recorded in 10 locations throughout the study area representing 10 individuals. This species is not restricted to the study area.

***Lepidium catapycnon* (P4)**

Lepidium catapycnon is a shrub to 0.75 m with characteristic zigzag branches which is often found in skeletal soils and in hilly areas. This species has been recorded in 304 locations within the study area representing 5,124 individuals. This species has a range of 303 km on NatureMap (Parks and Wildlife 2017) with 3,337 records on the Rio Tinto database (32,275 individuals). This species is not restricted to the study area.

***Rhynchosia bungarensis* (P4)**

This species is a trifoliate shrub with sticky golden glandular hairs and small yellow pea flowers, to 0.5m tall. *Rhynchosia bungarensis* has been recorded in three locations throughout the study area representing three individuals. It has a range of 545 km with 1,134 records on the Rio Tinto database (10,950 individuals). This species is not restricted to the study area.

3.4 Environmentally significant areas

Rio Tinto manages all work, including clearing, through the Approvals Coordination System which ensures biological and heritage surveys are completed and all government regulatory approvals are in place prior to the commencement of works.

Environmentally significant features are uploaded into Rio Tinto's MapInfo database (GIS system) which includes a description highlighting the significance of these areas. Small populations or individuals are protected as buffered point locations, while larger spatial populations and significant habitat are protected as 'significant areas'. The GIS system is used as part of the Approvals Coordination System when reviewing the Proposal, thereby ensuring appropriate management conditions are in place.

3.5 Introduced flora occurring within the study area

Fifty-four introduced flora species were recorded from the study area (Table 3-2)

The ranking of all species as per the Parks and Wildlife Weed Prioritisation process (Parks and Wildlife 2013c) is shown in Table 3-1. One of these species, *Tamarix aphylla*, is listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act, under category C3 (Management) (DAFWA 2014).

Weed management protocols will be implemented during clearing of vegetation and subsequent earthworks to minimise the introduction and spread of weeds to or from the study area.

Table 3-2: Introduced species recorded in the study area and Parks and Wildlife weed prioritisation ranking.

| Species | Ranking (Parks and Wildlife 2013) | Number of locations recorded in study area |
|---------------------------------------|-----------------------------------|--|
| * <i>Acetosa vesicaria</i> | Medium | 6 |
| * <i>Aerva javanica</i> | Low | 392 |
| * <i>Alternanthera pungens</i> | Low | 4 |
| * <i>Argemone ochroleuca</i> | Low | 370 |
| * <i>Bidens bipinnata</i> | Low | 172 |
| * <i>Bidens pilosa</i> | N/A | 1 |
| * <i>Catharanthus roseus</i> | N/A | 1 |
| * <i>Cenchrus ciliaris</i> | Low | 1133 |
| * <i>Cenchrus setiger</i> | Low | 134 |
| * <i>Chloris barbata</i> | High | 215 |
| * <i>Chloris gayana</i> | High | 5 |
| * <i>Chloris virgata</i> | High | 12 |
| * <i>Citrullus colocynthis</i> | N/A | 77 |
| * <i>Citrullus lanatus</i> | N/A | 12 |
| * <i>Conyza bonariensis</i> | N/A | 59 |
| * <i>Cucumis melo subsp. agrestis</i> | Low | 8 |
| * <i>Cucurbita pepo</i> | N/A | 1 |
| * <i>Cynodon dactylon</i> | Low | 65 |
| * <i>Cyperus involucratus</i> | N/A | 3 |
| * <i>Datura leichhardtii</i> | Negligible | 5 |
| * <i>Digitaria ciliaris</i> | Negligible | 1 |
| * <i>Echinochloa colona</i> | Low | 16 |
| * <i>Euphorbia cyathophora</i> | N/A | 1 |
| * <i>Euphorbia hirta</i> | Negligible | 75 |

| | | |
|---|------------|-----|
| <i>*Flaveria trinervia</i> | N/A | 36 |
| <i>*Ipomoea batatas</i> | N/A | 1 |
| <i>*Lactuca serriola</i> | N/A | 44 |
| <i>*Leucaena leucocephala</i> | N/A | 1 |
| <i>*Malvastrum americanum</i> | Low | 311 |
| <i>*Melia azedarach</i> | N/A | 1 |
| <i>*Melinis repens</i> | N/A | 18 |
| <i>*Melochia pyramidata</i> | N/A | 1 |
| <i>*Ocimum basilicum</i> | N/A | 8 |
| <i>*Oxalis corniculata</i> | N/A | 1 |
| <i>*Passiflora foetida var. hispida</i> | Low | 20 |
| <i>*Phoenix dactylifera</i> | Medium | 3 |
| <i>*Phyla nodiflora</i> | Medium | 1 |
| <i>*Ricinus communis</i> | N/A | 3 |
| <i>*Rumex vesicarius</i> | Medium | 662 |
| <i>*Setaria verticillata</i> | Low | 100 |
| <i>*Sigesbeckia orientalis</i> | Low | 3 |
| <i>*Sisymbrium irio</i> | Low | 1 |
| <i>*Sisymbrium orientale</i> | Low | 134 |
| <i>*Solanum nigrum</i> | Low | 103 |
| <i>*Sonchus asper</i> | N/A | 20 |
| <i>*Sonchus oleraceus</i> | Negligible | 540 |
| <i>*Stylosanthes hamata</i> | Medium | 4 |
| <i>*Tamarindus indica</i> | Negligible | 1 |
| <i>*Tamarix aphylla</i> | Medium | 31 |
| <i>*Tribulus terrestris</i> | Low | 11 |
| <i>*Tridax procumbens</i> | N/A | 4 |
| <i>*Typha orientalis</i> | N/A | 8 |
| <i>*Vachellia farnesiana</i> | Low | 211 |
| <i>*Washingtonia filifera</i> | Very High | 4 |

3.6 Fauna habitats of significance

None of the fauna habitats occurring within the study area correspond to any ecosystems listed as Threatened under the EPBC Act and none are consistent with ecosystems listed as TECs by Parks and Wildlife (2015a).

None of the fauna habitats occurring within the study area are representative of listed PECs by Parks and Wildlife (2015b).

Three subterranean communities (Table 3-1) occur within the study area however it is considered unlikely that they will be impacted by works associated with the power network.

3.7 Other habitats of significance

The majority of the study area has been previously disturbed for the construction of the powerline network. None of the habitats remaining in the study area are considered likely to be of significance.

3.8 Conservation listed fauna recorded within the study area

A total of 10 conservation listed species have been previously recorded in the study area.

***Dasyurus hallucatus* – (Northern Quoll) – Schedule 2, Endangered**

The Northern Quoll typically inhabits and is more abundant in dissected rocky escarpments, however, they will utilise a range of habitats and den sites from rock crevices, tree hollows and goanna burrows, to the roofs of buildings (Van Dyck and Strahan 2008). A total of five records of this species have been made previously within the study area. The species is unlikely to be dependent on any of the habitats within the study area, and its conservation status will not be impacted by the Proposal.

***Liasis olivaceus barroni* (Pilbara Olive Python) –Schedule 3, Vulnerable**

Regarded as a Pilbara endemic, the Pilbara Olive Python has a known distribution that coincides roughly with the Pilbara bioregion (Environment Australia, 2012). This species typically shelters in logs, flood debris, caves, tree hollows and thick vegetation close to water and rock outcrops (Burbidge, 2004). This species has been recorded from 10 locations within the study area. While the Pilbara Olive Python may move through the study area at times, the Proposal would not be expected to alter the conservation status of this species.

***Macroderma gigas* (Ghost bat) – Schedule 3, Vulnerable**

Ghost Bat is Australia's largest microbat and is patchily distributed across the northern half of Australia. This species requires undisturbed roost sites which are often complex and contain multiple entrances; it has been known to utilise old abandoned mine shafts (Menkhorst and Knight 2001). No roost locations have been or are likely to occur within the study area. One record of this species has been previously made within the study area, and the species is likely to forage within the area from time to time. This species is unlikely to be impacted by the Proposal.

***Rhinonicteris aurantia* (Pilbara leaf-nosed bat) – Schedule 3, Vulnerable**

The Pilbara Leaf-nosed Bat inhabits abandoned mine shafts, granite rock pile terrain of the east Pilbara and caves formed in gorges that dissect sedimentary geology in the west Pilbara (van Dyck and Strahan 2008). This species is more influenced by the availability of suitable roost caves than by habitat type and high humidity is particularly important to this species (Churchill 1998). Two records of this species have been made within the study area, however no roosts have been identified and are unlikely to occur. Whilst PLNB may potentially forage within the study area, the conservation status of the PLNB is unlikely to be negatively impacted by the Proposal.

***Leggadina lakedownensis* (Lakeland Downs Mouse) – P4**

The Lakeland Downs Mouse occurs in a variety of habitats most of which however are seasonally inundated sandy-clay soils. In the Pilbara this species occurs in spinifex and tussock grasslands (van

Dyck and Strahan 2008). This species has been recorded from one location in the study area, and is not considered to be restricted to the study area. This species will not be negatively impacted by the Proposal.

***Notoscincus butleri* (Lined soil-crevice skink) – P4**

Notoscincus butleri occurs in spinifex dominated areas near creeks and river margins in arid, rocky near-coastal areas (Wilson and Swan 2010). This species has been recorded throughout the Pilbara and has been identified nine times within the study area. This species will not be significantly impacted by the Proposal.

***Pseudomys chapmani* (Western Pebble-mound Mouse) – P4**

The Western Pebble-mound Mouse is endemic to the Pilbara region of Western Australia and occurs west to the McKay Range and south to the Collier Range (Menkhorst and Knight 2001). The species is patchily distributed on gentle colluvial slopes of rocky, hummock grasslands with little or no soil and a sparse shrub layer. A total of 27 records of this species have been made within the study area. This species is not considered to be restricted to the study area and its conservation status will not be impacted by works associated with the power network.

***Ardea ibis* (Cattle Egret) – Schedule 5, Migratory**

The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been seen in arid and semi-arid regions however this is extremely rare. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass. This species has been previously recorded at one location within the study area, and due to its highly mobile nature is unlikely to be impacted by the Proposal.

***Ardea modesta* (Eastern Great Egret) – Schedule 5, Migratory**

Eastern Great Egrets are widespread in Australia, occurring in a wide range of wetland habitats mainly with permanent water. One record of this species occurs within the study area. This species is unlikely to be negatively impacted by the Proposal.

***Merops ornatus* (Rainbow Bee-eater) – Schedule 5, Migratory**

The Rainbow Bee-eater occurs across much of mainland Australia, mainly in open forests and woodlands, shrubland and in various cleared or semi cleared habitats. It nests in small burrows in flat or sloping sandy ground often in the banks of rivers or creeks, and also in roadside cuttings and windrows. Thirteen records of this species have been made within the study area. Given this species' highly mobile nature; individuals are unlikely to be impacted by the Proposal.

4 Statement addressing the 10 clearing principles

Rio Tinto's iron ore business owns and operates an extensive power generation and distribution network (the powerline network) that is used to distribute electricity to its mine, port, rail and town facilities located in the Pilbara region.

Protection and maintenance of the powerline network and associated infrastructure is critical to prevent fires and to maintain operations. As such, Rio Tinto routinely conducts inspections and maintenance of the infrastructure (and is responsible for providing personnel with safe and direct passage to be able fulfil their duties). The powerline network study area covers approximately 33,000 ha.

Based on specialist assessment of the study area and discussion below, it is deemed that the Proposal may be at variance with one of the Ten Clearing Principles under Schedule 5 of the EP Act.

4.1 Comprises high level of biological diversity

Native vegetation should not be cleared if it comprises a high level of biological diversity.

The Pilbara is one of Australia's 15 National Biodiversity Hotspots and is a secondary centre of endemism and species richness for *Acacia*, *Triodia*, *Corymbia* and *Sida* in Western Australia (Maslin 2001, Kendrick 2001 and Maslin & van Leeuwen 2008). The powerline network is located in all four sub-regions of the Pilbara bioregion.

A total of eight PECs have been recorded within the study area, including three subterranean communities. Due to the historical disturbance in the powerline network areas of the PEC within the network are likely to have undergone some level of disturbance and may be degraded. Internal restriction areas are placed around all PECs and further disturbance will be minimised as far as practicable. The subterranean fauna communities are considered unlikely to be impacted by the nature of the activities to be undertaken by the Proposal.

A total of 32 Priority flora species have been previously recorded in the study area, including four P1 species, six P2 species, 17 P3 species and five P4 species. Only two of these species were considered to be restricted in distribution and therefore may be impacted by the proposal. The locations of *Eucalyptus lucens* and *Vigna triodiophila* will be avoided. The remaining 30 species are not considered to be restricted to the study area, however disturbance will be minimised where practicable. The conservation status of these species is unlikely to be impacted by the Proposal.

A total of 10 conservation listed fauna species have been previously recorded within the study area. None of these species were considered to be restricted to the study area and the conservation status of this species is unlikely to be impacted by the Proposal.

The Proposal is not considered to be at variance with this principle.

4.2 Potential impact to any significant habitat for fauna indigenous to Western Australia

Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

A total of 10 conservation listed fauna species have been previously recorded within the study area. None of these species were considered to be reliant on habitat within the study area and the conservation status of all species will not be impacted by the proposed works. Due to historic disturbance in the powerline network, no fauna habitats present were considered to be of significance. Habitats present in the study area are considered to be well represented both locally and regionally.

The Proposal is unlikely to be at variance with this principle.

4.3 Potential impact to any rare flora

Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.

No Declared Rare / Threatened or EPBC Act listed Threatened flora have been previously recorded in the study area. Additionally, none of three Threatened flora species which are present in the Pilbara are expected to occur within the study area.

The Proposal is not considered to be at variance with this principle.

4.4 Presence of any threatened ecological communities

Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a threatened ecological community (TEC).

There are no Parks and Wildlife or Commonwealth listed TECs within or near the study area.

The Proposal is not considered to be at variance with this principle.

4.5 Significance as a remnant of native vegetation in the area that has been extensively cleared

Native vegetation should not be cleared if it is significant as remnant vegetation in an area that has been extensively cleared.

The majority of the Pilbara region has not been extensively cleared, however, grazing, inappropriate fire regimes and weed invasion have greatly altered the vegetation in some areas.

The current extent of the majority of the Beard (1975) mapping units in the Pilbara region are estimated to be over 90% of their pre-European extent remaining. The vegetation types within the study area would not therefore represent remnant stands of extensively cleared vegetation.

The Proposal is not considered to be at variance with this principle.

4.6 Impact on any watercourses and/or wetlands

Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

The powerline network crosses multiple major and minor ephemeral drainage lines that flow after significant rainfall events. A small amount of historical disturbance already exists in some areas from the construction and ongoing maintenance of the network.

To reduce the risk of fire to the network, all vegetation in creek, stream beds and on embankments that is greater than 1 m is proposed to be cut off at ground level within the vegetation control corridor along the centre line of the transmission line. The vegetation will be felled on to the embankment where possible. Where vegetation is felled into the creek/stream bed, it will be removed where possible provided that vehicular access can be gained without disturbing any further native vegetation (that is less than 1 m high) or disturbing the creek embankment. Where this cannot be achieved, the fallen vegetation will be cut into smaller pieces so as to maintain flow in these water courses. The vegetation will be cut off at ground level so that the root system stays intact and the ongoing stability of the creek/stream embankment is assured. The mulch will be dispersed in the vegetation control areas outside of the creek/stream, beds. No vehicles are to enter the area and all vehicles are to remain on existing tracks. There will be no establishment of blade down 6 m wide fire breaks in these areas.

Due to the potential impacts to major watercourses, the Proposal may be at variance with this principle.

4.7 Potential to cause appreciable land degradation

Native vegetation should not be cleared if the clearing of vegetation is likely to cause appreciable land degradation.

The study area lies within 38 Land Systems. These Land Systems are generally not prone to degradation and not susceptible to erosion. The Brockman, Cane, Cheerawarra, Horseflat, Jamindie, Jurrawarrina, Malina, River and Uaroo Land Systems can be susceptible to erosion in parts if vegetative cover is severely depleted. The Proposal is not expected to result in soil erosion, nutrient export, water-logging/flooding, acidification, salinization or deep subsoil compaction.

The Proposal is not considered to be at variance with this principle.

4.8 Potential to impact on the environmental values of adjacent or nearby conservation areas

Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The powerline network crosses both Millstream-Chichester National Park and Karijini National Park and historical disturbance from the construction and maintenance of the powerline already exists in these areas. Activities associated with maintenance of the network and maintaining a safe corridor to prevent fires will be continued to be required in these areas. All works will be discussed with Parks and Wildlife to ensure disturbance and impacts are minimised as far as possible.

As long as adequate consultation with Parks and Wildlife is conducted before any works are undertaken, the Proposal is not considered to be at variance with this principle.

4.9 Potential deterioration in the quality of surface or underground water

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Four semi-permanent pools occur within the powerline network. No blade do wn c learing will b e conducted in these areas. If vegetation control is required, it is proposed that vegetation greater than 1 m will be cut off at ground level within the vegetation control corridor along the centre line of the transmission line. The vegetation will be felled on to the embankment where possible.

The powerline network crosses the Bungaroo Creek Water Reserve, Harding Dam Catchment Area, Millstream Water Reserve, Paraburdoo Water Reserve and Marandoo Water Reserve. Given the activities covered and scale of the Proposal, there is no reason to expect that the Proposal would affect groundwater quality in the region.

The Proposal is not considered to be at variance with this principle.

4.10 Potential of clearing to cause, or exacerbate, the incidence or intensity of flooding

Native vegetation should not be cleared if the clearing of vegetation is likely to cause, or exacerbate, the incidence of flooding.

Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity. The type of activities and scale of clearing of the Proposal is not expected to exacerbate the incidence or intensity of flooding in the area.

The Proposal is not considered to be at variance with this principle.

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