Fortescue
The New Force in Iron Ore

Report

Conservation Significant Fauna Management Plan

Environment

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	Conservation Significant Fauna Management Plan		
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ACRONYMS

The following acronyms, defined in Table 1, have been used throughout this Plan.

Table 1: Acronyms

Acronym	Definition
BMS	Business Management System
Cwlth	Commonwealth of Australia
DoEE	Department of the Environment and Energy
DWER	Department of Water and Environmental Regulation (formerly Office of the Environmental Protection Authority)
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPA Services of the DWER	Environmental Protection Authority Services of the DWER
EP Act	Environmental Protection Act 1986
EPBC	Environment Protection and Biodiversity Conservation Act 1999
GIS	Geographical Information Systems
HSE	Health Safety and Environment
LUC	Land Use Certificate
MS	Ministerial Statement
PaWS	Parks and Wildlife Service (within the Department of Biodiversity, Conservation and Attractions)
PIMS	Project Information Management System
RASCI	Responsible Accountable Supported Consulted Informed Model

1. INTRODUCTION

Fortescue Metals Group (Fortescue) is an integrated business comprised of mine, rail and port operations based in the Pilbara region of Western Australia, with its head office located in Perth.

Detailed background information regarding the timing and nature of Fortescue's environmental approvals under the *Environmental Protection Act 1986* (WA), the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), details of the location and nature of current operations, environmental information relevant to these locations and plans for future expansion are contained in Appendix 1 and 2.

1.1 Requirement for Management Plan

The Conservation Significant Fauna Management Plan (this Plan) is required by State and Commonwealth Government Ministers as part of development approval for Fortescues Iron Ore related infrastructure in the Pilbara approved under *Environmental Protection Act 1986* (WA):

- State Government approvals:
  - MS 690 - Pilbara Iron Ore & Infrastructure Project: Port & North-South Railway (Stage A).
  - MS 899 (as amended by MS962 & 1010) – Cloudbreak Life of Mine.
  - MS 1033 - Christmas Creek Mine, East-West Railway and Mindy Mindy Mine
  - MS 1062 – Solomon Iron Ore Project – Sustaining Production
  - Eliwana Mine and Rail Project (Currently under Public Environmental Review under the *Environmental Protection Act 1986* (WA).
- Commonwealth Government approvals:
  - EPBC 2005/2205 – Cloudbreak Open Pit Iron Ore Mine.
  - EPBC 2010/5513 – Additional Rail Infrastructure between Herb Elliot Port Facility and Cloudbreak Mine Site.
  - EPBC 2010/5567 – Solomon Iron Ore Project.
  - EPBC 2013/7055 - Christmas Creek Iron Ore Mine expansion project.
  - EPBC 2014/7275 – Solomon Iron Ore Project – Sustaining Production (submitted).

The State and Commonwealth Government approval conditions relevant to this Plan, and how they are addressed by this Plan, are detailed in Appendix 3.

The conditioned environmental objectives and targets for fauna management are outlined in Table 2.

In accordance with the EPA's *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Plans*, a Schedule has been developed for approval conditions relevant to this Plan under MS 1033 (Appendix 6), MS 1062 (Appendix 7) and Eliwana Mine and Rail Project currently under Public Environmental Review under the *Environmental Protection Act 1986* (Appendix 8).

1.2 Environmental Management Plan Provisions

The following Ministerial Statements contain management-based conditions for terrestrial fauna management at Fortescue controlled sites:

- Condition 7 of MS 690 (MS690) – Pilbara Iron Ore & Infrastructure Project: Port & North-South Railway (Stage A).
- Condition 10 of MS 899 (MS899 as amended by MS962 & 1010)– Cloudbreak Life of Mine.
- Condition 6 and 8 of MS 1033 (MS1033) –Christmas Creek Mine, East-West Railway and Mindy Mindy Mine
- Condition 7 and 12 of MS 1062 (MS 1062) – Solomon Iron Ore Project – Sustaining Production.

1.3 Objective and Scope

This Plan addresses EPA's objective for the key environmental factor Terrestrial Fauna: "To protect terrestrial fauna so that biological diversity and ecological integrity are maintained."

The objective of this Plan is to identify the potential direct and indirect impacts on conservation significant fauna species and develop management and monitoring measures that maximize the ongoing protection and long term conservation of these species within and adjacent to Fortescue controlled sites[1].

This plan addresses management issues relevant to conservation significant fauna within Fortescue controlled sites as defined in Section 1.4 of this Plan.

[1] Fortescue controlled site means sites that are under the legislative control of Fortescue including exploration sites, sites under construction, operational sites (sites that are managed and operated by Fortescue and sites that are managed by Fortescue but operated by contractors) and the Perth offices.

The conditioned environmental objectives and targets for fauna management are outlined in Table 2.

Table 2: Conditioned environmental management objectives/ requirements and measures/targets

Approval	Condition Type	Conditioned Environmental Objectives/Requirements [2]	Measure/ Target
MS690 Condition 7	Management	**Condition:** Conduct fauna surveys prior to ground-disturbing activities and if significant fauna are identified, do not disturb the land surface until significant fauna have been relocated or otherwise appropriately protected in accordance with a Site Fauna Management Plan. **Objective 1**: Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	100% of conservation significant fauna high risk areas are identified and available in the spatial system
		Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	No direct mortality to recorded conservation significant fauna within their recorded habitats as a result of ground disturbance activities within the project area. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved [3] for disturbance.
		Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]
MS 899 Condition 10	Management	**Objective 1**: Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	100% of conservation significant fauna risk areas are identified and available in the spatial system.

[2] Under EPBC 2005/2205, EPBC 2010/5513, EPBC 2010/5567, EPBC 2012/6530. EPBC 2013/7055 - there are no conditioned environmental objectives

[3] Approved refers to an approval issued under the *Environmental Protection Act 1986*, *Environment Protection and Biodiversity Conservation Act 1999*, the *Mining Act 1978* or the *Bush Fires Act 1954*.

[4] When conservation significant species have been recorded in low densities during previous surveys, they may not have adequate population numbers to allow statistical comparison over time. Analytical test and power levels will be set at appropriate levels to detect change in spatial distribution and relative abundance of low density species. Where records are still inadequate, only ongoing presence will be measured to demonstrate compliance with Objective 3.

Approval	Condition Type	Conditioned Environmental Objectives/Requirements [2]	Measure/ Target
		Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat that is not approved[3] for disturbance within the project area.
		Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]
MS 1033 Condition 8	Management	**Condition:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat, including but not limited to the Pilbara Olive Python, Northern Quoll, Greater Bilby, Night Parrot and migratory birds. **Objective 1**: Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	100% of conservation significant fauna risk areas are identified and available in the spatial system.
		Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved[3] for disturbance.
		Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]

Approval	Condition Type	Conditioned Environmental Objectives/Requirements [2]	Measure/ Target
MS 1062 Condition 12	Management	**Condition:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll, and Pilbara Leaf-nosed Bat. **Objective 1:** Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	100% of conservation significant fauna risk areas are identified and available in the spatial system.
		Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved[3] for disturbance.
		Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]
Eliwana Mine and Rail	Management	**Condition:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat **Objective 1:** Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	100% of conservation significant fauna risk areas are identified and available in the spatial system.
		Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites.	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved[3] for disturbance.
		Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites.

Approval	Condition Type	Conditioned Environmental Objectives/Requirements [2]	Measure/ Target
		programs to detect any impacts on conservation significant fauna and their critical habitats	OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]

1.4 Definition of Conservation Significant Fauna

'Conservation significant fauna' and 'threatened fauna' are defined as those listed as critically endangered, endangered, vulnerable or migratory under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* or as a Schedule species in accordance with the *Wildlife Conservation Act 1950.*

Species of national conservation significance listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are classified as:

- Critically Endangered - If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
- Endangered - If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
- Vulnerable - If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.
- Migratory:
    - migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II);
    - migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA); and
    - native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Four classes (Schedules 1-4) of rare and endangered fauna are recognised under the *Biodiversity Conservation Act 2016*. Three other classes (Schedules 5-7) recognised under the Act are relevant to this plan. These are:

- Schedule 1: Fauna that is rare or likely to become extinct as critically endangered fauna (CR).
- Schedule 2: Fauna that is rare or likely to become extinct as endangered fauna (EN).
- Schedule 3: Fauna that is rare or likely to become extinct as vulnerable fauna (VU).
- Schedule 4: Fauna presumed to be extinct (EX).
- Schedule 5: Migratory birds protected under an International Agreement (IA).

- Schedule 6: Fauna that is of special conservation need as conservation dependent fauna (CD).
- Schedule 7: Other specially protected fauna (OS).

For the purposes of this Plan, conservation significant fauna have been limited to terrestrial vertebrate fauna species that meet the criteria above and have been recorded within Fortescue controlled sites or where monitoring requirements have been specified in State and/or Commonwealth approval conditions – see Table 3 [5]. This Table is correct at the time of writing and will be updated when the Plan is reviewed (see Section 8 of the Plan) to reflect any changes in conservation significant species identified within Fortescue controlled sites.

[5] Table 3 is current at the time of finalising Revision 3 of this plan. This Table will be updated outside of this plan's review period to reflect any new conservation significant species identified during project surveys or ongoing monitoring activities.

Table 3: Conservation Significant Fauna Species Recorded in Fortescue Controlled Sites

Class	Genus	Species	Subspecies	Common Name	EPBC Act 1999	Wildlife Conservation Act 1950	Cloudbreak	Christmas Creek	Solomon	Mainline Rail (including duplication)	Hamersley Rail	Eliwana Rail	Eliwana Mine
Aves	*Pezoporus*	*occidentalis*		Night Parrot	EN	CR	Recorded	MS1033 [6]		EPBC 2010/5513 [6]			
Mammalia	*Dasyurus*	*hallucatus*		Northern Quoll	EN	EN	Recorded	MS1033[6]	Recorded	Recorded	Recorded		Recorded
Mammalia	*Rhinonicteris*	*aurantia*		Pilbara Leaf-nosed Bat	VU	VU	Recorded[7]		Recorded[7]	EPBC 2010/5513[6]		Recorded	Recorded
Mammalia	*Macrotis*	*lagotis*		Greater Bilby	VU	VU	EPBC 2005/2205 [6]	Recorded		Recorded			
Reptilia	*Liasis*	*olivaceus*	barroni	Pilbara Olive Python	VU	VU		Recorded	Recorded	EPBC 2010/5513 [6]	Recorded		Recorded
Aves	*Falco*	*hypoleucos*		Grey Falcon		VU	Recorded			Recorded	Recorded		
Aves	*Apus*	*pacificus*		Fork-tailed Swift	M	Sc5 - M			Recorded				Recorded
Aves	*Tringa*	*Glareola*		Wood Sandpiper	MI	Sc5 - M		Recorded		Recorded			
Aves	*Tringa*	*nebularia*		Common Greenshank	MI	Sc5 - M		Recorded		Recorded			
Aves	*Actitis*	hypoleucos		Common Sandpiper	MI	Sc5 - M				Recorded			

[6] This species has not been recorded and is not likely to occur within Fortescue sites however MS 1033 and/or Controlled Actions, EPBC 2010/5513, 2005/2205, and EPBC 2010/5706 requires management and/or monitoring strategies to be implemented.

[7] This species has been recorded foraging within Fortescue Controlled Sites but no roosting or nesting sites have been recorded and as a result no management and monitoring strategies will be implemented.

Class	Genus	Species	Subspecies	Common Name	EPBC Act 1999	Wildlife Conservation Act 1950	Cloudbreak	Christmas Creek	Solomon	Mainline Rail (including duplication)	Hamersley Rail	Eliwana Rail	Eliwana Mine
Mammalia	*Macroderma*	*gigas*		Ghost Bat	VU	Sc3 - VU		Recorded	Recorded	Recorded		Recorded	Recorded
Aves	*Falco*	*peregrinus*		Peregrine Falcon[8]		Sc7 - FRSP	Recorded	Recorded	Recorded	Recorded	Recorded		

1.5 Legislation and Regulatory Framework

Fortescue employees and contractors are obliged to comply with all relevant environmental Commonwealth and State legislation. Legislation directly relevant to the management of conservation significant fauna in Western Australia is provided in Table 4.

Table 4: Commonwealth and State Legislation Relating to Conservation Significant Fauna

Legislation	Application
Biosecurity and Agriculture Management Act 2007 (WA)	Prevention of new animal and plant pests and diseases from entering the State and management of and limitation to the spread of those pests and diseases already present.
Biodiversity Conservation Act 2016	Conservation and protection of biodiversity and biodiversity components. This Act repeals parts of the *Wildlife Conservation Act 1950*.
Conservation and Land Management Act 1984 (WA)	Provides for the vesting or reservation of land for conservation purposes, and the ability to enter into agreements with private landholders and pastoral lessees. It establishes a number of statutory bodies including the Conservation Commission of Western Australia.
Environmental Protection Act 1986 (WA)	State environmental impact assessment and Ministerial approval process.
Wildlife Conservation Act 1950 (WA)	State process that assesses the conservation significance of fauna species and forms the framework for significant species protection.
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)	Assesses the conservation significance of fauna species and forms the framework for significant species protection at the Federal level.

The following standards and guidelines are also of relevance to this Plan:

- *EPBC Act referral guidelines for the endangered northern quoll, Dasyurus hallucatus. EPBC Act Policy Statement* 3.25. Australian Government, Department of Sustainability, Environment, Water, Population and Communities (2011).
- *EPBC Act Survey Guidelines for Australia's Threatened Bats, Guidelines for Detecting Bats Listed as Threatened Under the EPBC Act 1999*. Australia Government. Department of Water, Heritage and the Arts (2010).
- *EPBC Act Survey Guidelines for Australia's Threatened Birds, Guidelines for Detecting Birds as Threatened Under the EPBC Act 1999*. Australian Government. Department of Water, Heritage and the Arts (2010). (Note, for Night Parrot refer to the Night Parrot recovery team's survey methods: https://nightparrot.com.au/index.php/advice/)
- *EPBC Act Survey Guidelines for Australia's Threatened Frogs, Guidelines for Detecting Frogs Listed as Threatened Under the EPBC Act 1999*. Australian Government. Department of Water, Heritage and the Arts (2010).
- *EPBC Act Survey Guidelines for Australia's Threatened Fish, Guidelines for Detecting Fish Listed as Threatened Under the EPBC Act 1999.* Australian Government, Department of Sustainability, Environment, Water, Population and Communities (2011).

- *EPBC Act Survey Guidelines for Australia's Threatened Mammals, Guidelines for Detecting Mammals Listed as Threatened Under the EPBC Act 1999.* Australian Government, Department of Sustainability, Environment, Water, Population and Communities (2011).
- *EPBC Act Referral guidelines for the endangered northern quoll, Dasyurus hallucatus. EPBC Act Policy Statement 3.25*. Australian Government, Department of the Environment (2016)
- *EPBC Act Survey Guidelines for Australia's Threatened Reptiles, Guidelines for Detecting Reptiles Listed as Threatened Under the EPBC Act 1999*. Australian Government, Department of Sustainability, Environment, Water, Population and Communities (2011).
- *Guidance Statement No.56 Terrestrial Fauna Surveys for Environmental Impact Assessments in Western Australia*. West Australian Government, Environmental Protection Authority, (2004).
- *Guidelines for surveys to detect the presence of bilbies, and assess the importance of habitat in Western Australia, Department of Biodiversity, Conservation and Attractions (2017)*.
- *Pilbara Northern Quoll Regional Project, Surveying and monitoring Dasyurus hallucatus in the Pilbara*. West Australian Government, Department of Parks and Wildlife (2014).
- *Technical Guide – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Technical Report of the Environmental Protection Authority and the Department of Environment and Conservation (DEC) Edited by B.M. Hyder, J. Dell and M.A. Cowan. September 2010.
- *Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3*. West Australian Government, Environmental Protection Authority, (2002).

2. ROLES AND RESPONSIBILITIES

All Fortescue employees and contractors are required to comply with the requirements of this Plan.

Accountability for fulfilling the requirements of this Plan is dependent on the stage of project development (construction, operations, decommissioning) and the project type (port, rail or mine).

During construction stages, whether activities are undertaken by an external service provider or internal Fortescue personnel, the Project Director (Port/ Rail or Mine) will be accountable for ensuring the requirements of this Plan are met.

During operational, decommissioning and closure stages, the General Manager (Port/ Rail or Mine) will be accountable for ensuring the requirements of this Plan are met.

Where responsibilities are delegated, this must be clearly recorded and communicated.

In Section 4 specific Management Actions have been attributed to the appropriate personnel.

When site specific Conservation Significant Fauna Management Programs are developed to support this Plan, the RASCI framework should be utilised to delegate roles, responsibilities, and review and approval levels. RASCI is used to denote:

R-Responsible Those who do the work to achieve the task.

A-Accountable Those who are ultimately accountable for the completion of the deliverable or task and the one to whom the Responsible person is accountable.

S-Supportive Resources allocated to the Responsible person and who will also assist in completing the task.

C-Consulted Those whose opinions are sought, two-way communication.

I-Informed Those whom are kept informed, one-way communication.

3. ENVIRONMENTAL MANAGEMENT

A series of environmental management objectives have been developed to mitigate environmental impacts on conservation significant fauna that could potentially be caused by Fortescue's activities (exploration, construction, operation and decommissioning). These are:

1. Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats[1] within Fortescue controlled sites,
2. Establish management strategies to minimise the potential impacts on conservation significant fauna within Fortescue controlled sites,
3. Where species presence and/or critical habitat [9] has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats.

For each objective, management actions have been developed to ensure the impacts from Fortescue's operations are managed, and that appropriate monitoring, reporting and corrective action functions are implemented to support the successful implementation of the management actions.

The key elements of the environmental management process associated with each objective are described in Table 5.

Table 5: Description of Key Elements of Environmental Management Process to Achieve Identified Objectives

Element	Definition/Description
Objective	What is intended to be achieved?
Management Action	Tasks undertaken to enable the objective to be met.
Performance Indicators	Metrics for evaluating the outcomes achieved by Management Action.
Reporting/Evidence	Demonstrates that the Management Action has been applied and the outcome evaluated.
Timing	Period during which the Management Action should be undertaken.
Responsibility	Accountability for ensuring management action is completed. The responsible role is dependent on project timing.

The key management actions, performance indicators, evidence, timing and responsibilities for each objective are provided in Table 6.

[9] Critical habitat are areas with a high biodiversity value (IUCN, 2017). For the purposes of this plan are, critical habitat for conservation significant fauna species has been determined as being denning habitat areas for Northern Quolls, roosting areas for Pilbara Leaf-nosed and Ghost Bats, burrowing areas for Greater Bilbys, shelter areas for Pilbara Olive Pythons, nesting areas for Conservation significant bird species.

3.1 Managing Environmental Risk

Fortescue actively manages risk by undertaking an Annual Environmental Impact Risk Review. Although the review considers all environmental risks, there is a focus on the inherently moderate to high risk impacts. The review considers the effectiveness of management actions that are currently in place for these impacts. The review also considers any relevant incidents that may have occurred, if the actions from incident investigations have translated into new management actions, and generally considers the need for any new management actions to ensure lower risk targets can be achieved.

Appendix 5 provides details as to the relationship between key conservation significant fauna risk impacts and the management actions currently in place. (Namely, the management actions that are detailed in Table 6, under Objective 2).

Table 6: Key management actions for Conservation Significant Fauna Management in Fortescue Controlled Sites

Objective 1	Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites								
Reference	**Site Location**					**Management Action**	**Performance Indicators**	**Reporting/Evidence**	**Timing**	**Responsibility**
	Rail	**Christmas Creek**	**Cloudbreak**	**Solomon**	**Eliwana**					
1.1	X	X	X	X	X	Undertake targeted fauna surveys in accordance with applicable EPA and DoEE guidance (outlined in Section 1.6 of this Plan) to determine presence or absence of conservation significant fauna.	• Fauna surveys undertaken in accordance with applicable EPA and DoEE guidance. • GIS and PIMS updated	• Survey Reports • Approval documentation • GIS dataset • PIMS records	Design	Manager, Environmental Approvals
1.2	X	X	X	X	X	Where conservation significant fauna presence has been recorded undertake mapping surveys, where data is not available, to determine relevant species critical habitat and if future monitoring is required.	• Mapping survey completed of species critical habitat • GIS and PIMS updated • Future monitoring defined	• Survey Reports • GIS dataset • PIMS record • Monitoring planned	Operations	Group Manager, Environment
1.3	X	X	X	X	X	Conduct a risk assessment to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely.	• Risk assessment conducted to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely. • High risk areas identified • See management target in Table 2	• Risk assessment outcomes / report	Design/ Construction/ Operation	Manager Environmental Approvals/ Project Manager/ Site HSES Manager
1.4	X	X	X	X	X	Conduct a desktop fauna assessment for LUC[10] applications for construction and operational activities when a Level 2 fauna survey (EPA, 2004) of the area has been previously conducted. When a Level 2 survey has not been conducted and conservation significant fauna have been identified during the desktop assessment ensure a fauna survey is conducted in accordance with EPA and DoE guidance (outlined in Section 1.6 of this Plan) and reassess accordingly.	• Desktop fauna assessment for LUC conducted prior to disturbance	• Survey Reports • Approval documentation • Desktop Assessment	Development/ Construction/ Operation	Project Manager/ Site HSES Manager

[10] An internal permit system required to undertake on-ground activities.

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites								
Reference	**Site Location**					**Management Action**	**Performance Indicators**	**Reporting/Evidence**	**Timing**	**Responsibility**
	Rail	**Christmas Creek**	**Cloudbreak**	**Solomon**	**Eliwana**					
2.1	X	X	X	X	X	Ensure staff and contractors are provided with appropriate training to ensure conservation significant fauna and associated critical habitat are protected.	• Inductions completed • Pre-start meetings informed. • Role dependent training completed	• Induction materials and register of attendees • Record of Pre-start meetings • Training materials/ registers	Development/ Construction/ Operation	Project Manager/ Site HSES Manager
2.2	X	X	X	X	X	Prior to conducting ground disturbance activities, ensure known locations of conservation significant fauna and their associated critical habitat and buffers are identified and management measures are implemented.	• LUC obtained • Management measures implemented • Groundwater and Surface water management measures implemented where required • Weed management measures implemented where required • See management targets in Table 2	• Completed LUC • Annual Compliance Reporting	Construction/ Operation	Project Manager/ Site HSES Manager
2.3	X	X	X	X	X	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes to minimise interference and disruption of natural surface water flows that support conservation significant fauna habitat.	• Location and design of drainage infrastructure aligns with risk assessment outcomes where possible • See Action 3.4 of this table.	• Risk assessment • Monitoring reports	Construction/ Operation	Project Manager/ Site HSES Manager
2.4	X	X	X	X	X	When conservation significant fauna species have been recorded in proposed impact areas within associated habitat, and the records have been verified through survey activities undertaken in the last five years, ground-truth the area and similar habitats within the area. Where individual animals are present implement mitigation measures, including the relocation of fauna, prior to disturbance.	• Impact areas where fauna has been recorded within associated habitat are assessed prior to ground disturbance • BMS/GIS updated • PaWS consulted and mitigation measures implemented • Number of fauna successfully relocated • See management targets in Table 2	• BMS record • GIS Table • Annual Compliance Reporting • Consultation records	Construction/ Operation	Project Manager/ Site HSES Manager
2.5			X	X		Direct lighting onto active construction and operational areas to minimise the potential for light overspill resulting in fauna disturbance, injuries or deaths.	• Light overspill mitigation measures incorporated where required • No evidence of fauna disturbance, injury or death from light overspill • Pre-start meetings informed.	• Incident reports in BMS • Toolbox meeting minutes • Record of Pre-start meetings	Construction/ Operation	Project Manager/ Manager Mining
2.6	X	X	X	X	X	Prior to conducting ground disturbance activities, ensure known locations of priority weed populations are identified and management measures to minimise the potential for weed spread are included in the LUC.	• Degradation of fauna habitat minimised • Weed populations and management measures are identified in the LUC	• Completed LUC	Construction/ Operation	Project Manager/ Site HSES Manager

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites								
Reference	**Site Location**					**Management Action**	**Performance Indicators**	**Reporting/Evidence**	**Timing**	**Responsibility**
	Rail	**Christmas Creek**	**Cloudbreak**	**Solomon**	**Eliwana**					
2.7		X	X	X	X	Fauna management measures, including exclusion or exit/egress structures, to minimise potential impacts to conservation significant fauna, are in place: • For mining infrastructure that poses a fauna entrapment and drowning risk (including storage ponds, operational mine void water and tailings storage areas). • When conducting excavation or trenching activities.	• See management targets in Table 2 • No mortality of conservation significant fauna: o Due to entrapment and drowning in mining infrastructure o As a result of excavation or trenching activities	• BMS record • Annual Compliance Reporting	Construction/ Operation	Project Manager/ Manager Mine Services or Manager Technical Services/ Site HSES Manager
2.8		X	X	X	X	Develop and implement a Feral Animal Control Program to effectively manage and control feral animals within Fortescue controlled sites to minimise impacts on conservation significant fauna.	• No significant increase in feral animal records from sightings and road transect counts • Awareness material included in site induction programs • All opportunistic feral animal sightings are registered in BMS	• Annual Compliance Reporting	Construction/ Operation/ Decommissioning	Project Manager/ Site HSES Manager
2.9		X	X	X	X	To minimise the potential for dust deposition on vegetation on conservation significant fauna habitat, implement relevant dust suppression measures within identified high risk areas.	• Dust suppression measures implemented • Vegetation Health Monitoring Program includes dust	• Annual Compliance Reporting • Monitoring report	Construction/ Operation	Project Manager/ Manager Mining
2.10		X	X	X	X	When constructing a fire break or carrying out a prescribed burn where conservation significant fauna and habitat have been identified, adhere to the requirements outlined in the: • LUC • Local shire's Firebreak Notice issued under the *Bush Fire Act 1954* • Permit to Burn issued by the local Bushfire Control Officer and the Burn Prescription that is developed.	• Fire breaks undertaken to the requirements of the Firebreak Notice • Prescribed burns undertaken to the requirements of Permit to Burn and the Burn Prescription • Fire breaks and prescribed burns are undertaken in accordance with the requirements of the LUC	• Relevant permits • Notice from the local authority • Correspondence with relevant Pastoral Lessee • Completed LUC	Construction/ Operation	Project Manager/ Site HSES Manager
2.11	X	X	X	X	X	To minimise the potential for fauna injuries or deaths, implement appropriate traffic mitigation measures such as speed limit restrictions and the prohibition of off-road driving.	• Appropriate signage in areas identified as high-risk areas • Awareness programs delivered	• Incident reports in BMS • Staff induction materials • Site notices	Construction/ Operation	Project Manager/ Site HSES Manager
2.12		X	X	X	X	All surface holes drilled for the purpose of resource definition are to be plugged immediately after drilling and sampling to prevent fauna entering the hole.	• See management targets in Table 2 • Drill holes plugged immediately after drilling and sampling.	• Inspection reports	Operation	Manager Mining

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites								
Reference	**Site Location**					**Management Action**	**Performance Indicators**	**Reporting/Evidence**	**Timing**	**Responsibility**
	Rail	**Christmas Creek**	**Cloudbreak**	**Solomon**	**Eliwana**					
2.13	X	X	X	X	X	Where a conservation significant fauna injury or death has occurred as a result of Fortescue Operations, internally report, investigate the incident and notify PaWS. Update management actions, where required, to inform an adaptive management approach.	• Incident reported in BMS • Incident investigated • Notify regulator	• BMS incident record • Annual Compliance Reporting	Construction/ Operation	Project Manager/ Site HSES Manager
2.14	X	X	X	X	X	Conduct progressive rehabilitation of disturbed areas no longer required for operations prioritising areas with known conservation significant fauna and associated habitat.	• Disturbed areas no longer required for operations and with known conservation significant fauna and associated habitat progressively rehabilitated	• Annual Compliance Reporting • GIS table and BMS record	Exploration Development/ Operation/ Decommissioning/ Closure	Manager Exploration/ Manager Mining

Objective 3	Where species presence and/or critical habitat [11] has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats.								
Reference	**Site Location**					**Management Action**	**Performance Indicators**	**Reporting/Evidence**	**Timing**	**Responsibility**
	Rail	**Christmas Creek**	**Cloudbreak**	**Solomon**	**Eliwana**					
3.1	X	X	X	X	X	Undertake a baseline conservation significant fauna survey prior to the first monitoring event where possible to: • Document conservation significant fauna populations within impact and reference sites • Identify the baseline for existing conservation significant fauna populations at impact and reference sites • Compare conservation significant fauna populations between potential impact and reference sites (and/or regional PaWS monitoring sites where available).	• Baseline survey undertaken for all monitoring sites • Baseline survey undertaken prior to the first monitoring event where possible • Baseline survey undertaken in accordance with the Technical Guide (EPA, 2016)	• Baseline monitoring reports	Construction/ Operation	**Construction:** Project Manager **Operations**: Group Manager, Environment
3.2	X	X	X	X	X	Where populations of conservation significant fauna listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* have been recorded in Fortescue controlled sites and critical habitat has been identified, implement a Conservation Significant Fauna Monitoring Program.	• Conservation significant fauna and critical habitat identified • Monitoring Program developed and implemented • Where monitoring identifies the absence of conservation significant fauna, an independent review (see Section 5.2.9) of the monitoring results is undertaken. • See management targets in Table 2	• Monitoring Reports • Annual Compliance Reporting	Construction/ Operation/ Decommissioning/ Closure	Group Manager, Environment
3.3	X	X	X	X	X	When monitoring indicates a potential impact on conservation significant fauna, implement contingency actions defined in Table 11 and any reporting requirements defined in Section 9.3. Update this Plan where required, to inform an adaptive management approach to fauna management across the business using the approach detailed in Section 7.	• Corrective actions implemented • Reporting requirements met • Plan updated where required • See management targets in Table 1	• Monitoring reports • Reporting records • Updated Plan	Construction/ Operation	**Corrective Actions:** Project Manager/ Site HSES Manager **Reporting and Plan Update**: Group Manager Environment
3.4	X	X	X	X	X	Implement the vegetation health monitoring program as defined in the Vegetation Health Monitoring and Management Plan to detect any impacts on conservation values of conservation significant fauna critical habitat.	• See Vegetation Health Monitoring and Management Plan (includes groundwater and surface water monitoring requirements)	• Vegetation Health Monitoring reports	Construction/ Operation/ Decommissioning/ Closure	Group Manager, Environment

[11] Critical habitat are areas with a high biodiversity value (IUCN, 2017). For the purposes of this plan are, critical habitat for conservation significant fauna species has been determined as being denning habitat areas for Northern Quolls, roosting areas for Pilbara Leaf-nosed and Ghost Bats, burrowing areas for Greater Bilbys, shelter areas for Pilbara Olive Pythons, nesting areas for Conservation significant bird species.

4. MONITORING GUIDELINES

A conservation significant fauna monitoring program is required to measure the effectiveness of the broad management actions outlined in this Plan. The outcomes of the monitoring program for each site will contribute to ongoing improvements in management actions to ensure an adaptive management approach is adopted.

4.1 Objectives

The overall objective of Fortescue's fauna monitoring program is to monitor and measure the success of management actions to minimise impacts on conservation significant fauna species and ensure compliance with applicable State and Commonwealth approval conditions.

The guiding objectives of the conservation significant fauna monitoring program include:

1. Undertake baseline surveys to determine presence of conservation significant fauna and their critical habitat.
2. Where baseline surveys have recorded conservation significant fauna and/or their critical habitat:
    (a) Measure impacts of Fortescue's activities on conservation significant fauna within Fortescue controlled sites,
    (b) Monitor and measure spatial and temporal changes in the abundance and distribution of conservation significant fauna within Fortescue controlled sites, and
    (c) Monitor and measure the success of management measures to inform an adaptive management approach.
    (d) Conduct an independent expert review of monitoring data every three years to inform monitoring frequency and ongoing monitoring requirements.

Baseline and operational monitoring will be informed by the findings of the monitoring itself as they become available. These findings may similarly lead to ongoing refinements to this Plan and its management strategies to ensure an adaptive management approach is undertaken during Fortescue activities.

Eliwana Mine and Rail monitoring sites will be selected once the project is approved and the mine plan is finalised. The Plan will be updated accordingly.

4.2 Program Summary

An effective long-term conservation significant fauna monitoring program may be adaptive. Innovations in monitoring techniques and methods should be incorporated into the program design over time. This would, however, be dependent on, and driven by, the quality and quantity of data collected from each site, coupled with a periodic review of monitoring methods. Further, program design should be based on replicable sampling at impact and reference sites.

The intention of the program is the repeat sampling at the same impact sites throughout the monitoring program. However, if access is prevented due to developments of the mine, changes to land access agreements or similar, sites will be relocated to the nearest suitable location. Any changes will be documented in annual monitoring reports.

Initial baseline survey(s) should be conducted during the pre-construction phase to obtain accurate baseline data on the presence of habitat and species and population and distribution in accordance with the relevant EPBC Act Referral Guidelines (DWHA 2010a, 2010b, 2010c) and DoE (2011a, 2011b, 2011c) and Level 2 terrestrial vertebrate fauna surveys (EPA, 2004 and 2010, Fortescue 2011).

Where baseline survey results are available, monitoring sites should be established at locations where species have been previously recorded (through direct or indirect methods), in suitable habitat and denning/shelter zones outside of direct impact areas (control sites) and in suitable locations within impact areas (impact sites) to allow for replication of results. Critical habitat types for the conservation significant species will be represented in the monitoring program, with a least one monitoring site per representative habitat type where possible.

The timing of monitoring programs for each species is variable and based on the period of highest activity for each species whilst avoiding the reproductive season and undue stress to breeding individuals (see Table 10).

The number and approach to the selection of monitoring sites varies dependent upon the species being monitored.

4.2.1 Night Parrot Monitoring Sites

The Night Parrot monitoring program will be revised to align with recommendations outlined in the report by night parrot expert Stephen Murphy "*Night Parrot surveys at Fortescue Marsh, Western Australia: Habitat analyses, survey review and recommendations*" (Fortescue 2018) and findings from the Night Parrot Research Project.

Monitoring sites will be selected within high priority areas which have been defined by classifying existing vegetation mapping into Night Parrot habitats assigned high, medium or low priority.

Night Parrot surveys will be undertaken within the optimal survey period defined as 1-3 months following significant rainfall (i.e falls > 1 standard deviation from the mean).

During post wet periods, sites will be selected in high priority areas about 5km apart using automatic recorders for 4-6 nights. During dry periods sites will be approximately 1km apart using the same methods and monitoring effort as post wet periods.

Table 8 has been updated to reflect these recommendations. Spatial data reflecting the priority areas as defined within the report will be used to support future monitoring efforts.

A Night Parrot Monitoring Procedure will be developed to consolidate these research findings. This Procedure will be reviewed by night parrot experts including specialist within the PaWS prior to implementation.

4.2.2 Northern Quoll Monitoring Sites

Northern Quoll monitoring sites (Figure 1) are located in Northern Quoll critical habitat (i.e. breeding and denning habitat) within Fortescue operational sites where the species has been confirmed. This includes 3 sites at Main Line Rail (Figure 2), 3 sites at Hamersley Rail (Figure 3) and 3 sites at Solomon Mine (Figure 5).

At Christmas Creek mine site 3 sites (Figure 4) have been established using non-invasive techniques, due to the absence of confirmed records of the species. Control data is utilised from PaWS regional Northern Quoll monitoring program (i.e. PaWS sites at Indee, Hoopoley and Mt Florance), to which the methods are aligned

4.2.3 Conservation Significant bats (Ghost Bat and Pilbara Leaf-nosed Bat) Monitoring Sites

Conservation significant bat monitoring sites (Figure 6) are located in known bat foraging (no critical habitat (i.e. roosting habitat) are believed to occur) within Fortescue operational sites and offsite for reference sites. Twelve impact and twelve reference sites are established at Christmas Creek (Figure 7) mine sites, Main Line Rail (Figure 8) and Solomon Mine (Figure 9). Monitoring sites will be relocated if monitoring results indicate that recording units need to be more targeted (i.e. detection of a roost case for abundance monitoring).

4.2.4 Greater Bilby Monitoring Sites

Great Bilby monitoring methods are aligned to the PaWS regional Bilby monitoring program, and comprise abundance monitoring and occupancy monitoring sites (Figure 10).

Abundance monitoring sites have been established at two known populations, one reference site and one potential impact site at Main Line Rail (Figure 11). Due to the nomadic nature of Greater Bilby populations, these two sites will not be static and will follow the population if they move (as far as practical).

Occupancy monitoring sites are located in potential critical habitat (i.e. burrowing habitat) at Main Line Rail (approx. 40 sites) (Figure 12-15) and Christmas Creek mine site (approx. 30 sites) (Figure 16). These occupancy search sites are not fixed locations, but located throughout the habitat mapping shown these figures.

4.2.5 Pilbara Olive Python Monitoring Sites

Pilbara Olive Python monitoring sites (Figure 17) are positioned in Pilbara Olive Python foraging and critical habitat (i.e. shelter habitat) within Fortescue operational sites and offsite for reference sites. Three impact and three reference sites are established at the Christmas Creek Mine (Figure 18) and Solomon Mine (Figure 19). Vehicle transects are also conducted at each site.

4.2.6 Conservation Significant Birds (excl. Night Parrot) Monitoring Sites

Conservation significant bird (excl. Night Parrot) monitoring sites (Figure 20) are positioned in suitable habitat within Fortescue operational sites and offsite for reference sites. Three impact and three reference sites are established at Cloudbreak and Christmas Creek mine sites (Figure 21), Main Line (Figure 22 and Figure 23), Main Line/ Hamersley Rail Line (Figure 24) and Solomon Mine (Figure 25). To note, Cloudbreak and Christmas Creek share reference sites.

4.2.7 Monitoring Program Implementation

A conservation significant fauna monitoring program will be undertaken annually. The program will be led by appropriately skilled, Pilbara experienced, ecologists who will conduct in-field monitoring, analyse monitoring results and write monitoring reports.

4.2.8 Monitoring parameters and methods

A set of monitoring parameters and methods have been selected to provide broad coverage of potential changes in spatial distribution and relative abundance of conservation significant fauna that can be expected under a range of different mining related impacts. The number of parameters will vary depending on the site specific conditions and the target conservation significant fauna.

A summary of monitoring parameters and methods have been provided in Table 7.

Table 7: Conservation Significant Fauna Monitoring Parameters and Methods

Monitoring Parameter	Method
Individual data/ biometric data	Direct results from trapping and observation monitoring methods
Population	Cumulative results from single season monitoring programs, as well as over annual programs
Habitat characteristics	Observation, habitat mapping, photographs etc.
Meteorological data	Data from Weather Stations installed near monitoring site locations
Environmental threats	Observation, mapping, photographs etc.

Table 8 provides the monitoring parameters to be monitored for each conservation significant fauna species recorded within Fortescue controlled sites.

Table 8: Summary of Conservation Significant Fauna Monitoring

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Fortescue Sites	Method	Monitoring Parameters	Monitoring Effort [12]	Timing
Night Parrot (*Pezoporous occidentalis*)	CR	CR	Cloudbreak (EPBC 2005/2205, EPBC 2010/5696) Christmas Creek [13] (EPBC 2013/7055, MS1033)	**Non-invasive:** Acoustic recording units	Presence Habitat characteristics Meteorological data Environmental threats	Minimum Effort (or suitable equivalent) [14] During post-wet periods, 1 automatic recorder per sampling site within high priority areas for 4-6 nights. Sites are about 5 km apart Dry periods: 1 automatic recorder per sampling site within high priority areas for 4-6 nights. Sites are approximately 1km apart. Methods will be confirmed following outcomes of Night Parrot Research Program, and advice from relevant Night Parrot experts	Post wet season
Northern Quoll (*Dasyurus hallucatus*)	EN	EN	Hamersley Rail Corridor Mainline Corridor Christmas Creek (EPBC 2010/5706) (MS 1033) (EPBC 2013/7055, MS1033) Solomon (MS 1062) Eliwana Mine	**Non-invasive:** Active searches and searches for scats and other signs, motion cameras **Invasive:** Cage traps and Elliott traps. Replicated control and impact sites.	Individual data/ biometric data • Sex • Body measurements • Health • Breeding status/ Reproductive condition • Behaviour Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert usage	Minimum Effort (or suitable equivalent) Elliott and Cage Traps: in alignment with "Pilbara northern Quoll Project, Surveyed and Monitoring *Dasyurus hallacatus* in the Pilbara, Western Australia" - (PaWS 2014). Alternative Effort (or suitable equivalent) Active searches and searches for scats and other signs: ten hours per sampling site. Motion cameras: 5 cameras per sampling site. 4 nights Where possible, monitoring will align with DPaW regional monitoring programs.	May to August
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)	VU	VU	Mainline Corridor (EPBC 2010/5513) Hamersley Rail Corridor (EPBC 2010/5567) Solomon (MS 1062) Eliwana Mine Eliwana Rail	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights[15]. Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Greater Bilby (*Macrotis lagotis*)	VU	VU	Mainline Corridor (EPBC 2010/5513) Christmas Creek (EPBC 2013/7055, MS1033)	**Non-invasive:** Diurnal monitoring and diurnal searches for tracks and other signs, motion cameras on burrows, spotlighting, hair funnels	Abundance Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert Usage	Abundance (where known population) sites: • Diurnal monitoring and diurnal searches for tracks and other signs (2 ha sites) • Scat collection and genetic analysis to determine population size (2 ha sites) • Food plots (3 per site) • Remote cameras Occupancy sites: • Diurnal monitoring and diurnal searches for tracks and other signs (2 ha sites) • Two phase sampling (subset of sites) Where possible, monitoring should align with PaWS regional monitoring program.	No specified time.

[12] Monitoring frequency subject to review. See section 5.2.9

[13] This species has not been recorded at this site but a condition of a Ministerial Statement or Controlled Action specifies monitoring for this species.

[14] Minimum effort and monitoring methods are in accordance with the recommendations outlined in the *Night parrot surveys at Fortescue Marsh: Habitat analyses, survey review and recommendations, Western Australia* (Fortescue 2018).

[15] Bat monitoring methods were amended in 2017 following discussion with DBCA. This included decreasing the number of recording units at each site (from 4 to 1), but increasing the number of monitoring sites to improve spatial coverage of the monitoring. Net monitoring effort remains unchanged.

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Fortescue Sites	Method	Monitoring Parameters	Monitoring Effort [12]	Timing
Ghost Bat (Macroderma Gigas)	VU	VU	Cloudbreak Christmas Creek Mainline Corridor (EPBC 2010/5513) Solomon (MS 1062) Eliwana Mine Eliwana Rail	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	As a minimum, SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights, until such time that a new method suitable for Ghost Bat monitoring is developed (i.e. scat analysis) Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Pilbara Olive Python (*Liasis olivaceus barroni*)	VU	VU	Christmas Creek (EPBC 2013/7055, MS1033) Mainline Corridor (EPBC 2010/5513)[12] Solomon (MS 1062) Eliwana Mine	Searches for signs, spotlighting	Individual data/biometric data • Weight • Length • General body condition Area of occupancy Habitat characteristics Meteorological data Environmental threats	Searches for signs: 2 hour search time for each hectare sampling site. 7 nights. Spotlighting: monitor two 200m transects per 5 hectare site, replicate across habitat types in areas > 5 hectares. Repeat same transects for a minimum of two separate nights. 7 nights. Where possible, monitoring will align with PaWS regional monitoring programs.	December to February
Grey Falcon (*Falco hypoleucos*)		VU	Cloudbreak	Area searches, transect point monitoring	Area of occupancy Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site.	December to February
Wood Sandpiper (*Tringa glareola*)	M	IA	Christmas Creek (EPBC 2013/7055, MS1033) Mainline Corridor	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February
Common Greenshank (*Tringa nebularia*)	M	IA	Christmas Creek (EPBC 2013/7055, MS1033)	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February
Fork-tailed Swift (*Apus pacificus*)	M	Sc3	Solomon (MS 1062) Eliwana Mine	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February

4.2.9 Monitoring Program Review

The overarching monitoring program will be technically assessed and reviewed upon acceptance of this plan[16] and then every three years thereafter. The main objective of the assessment and review will be to ensure that the methods, parameters and frequency used are considerate and appropriate to the findings of the monitoring program. If no triggers are exceeded (detailed in Table 10) after three years, the frequency of monitoring will be reduced to a frequency supported by the review. Where no conservation significant fauna has been recorded over the three-year period the review will determine whether monitoring may cease.

Monitoring sites may need to be adapted over time in response to project impacts.

The assessment and review will be undertaken by an independent Pilbara ecology expert with a relevant tertiary qualification and a minimum 10 years terrestrial Pilbara ecology experience.

Contingency action (Section 5.3) and reporting requirements (Section 6) will be implemented where required.

4.2.10 Data handling and Statistical Analysis

Data will be handled in accordance with the data handling protocol established as part of the annual monitoring tender. The protocol will include the requirements as to data storage and protection, data extraction, quality control, analysis, interpretation, reporting and presentation. The protocol will also directly reference and align with the requirements detailed in *Document Control, Information Management (100-ST-DC-001)* and *Geographic Information Systems and Raw Data Guidelines (100-GU-EN-0009)*.

Statistical analysis of data will be undertaken where data permits. Where data capture allows, analysis will include univariate or multivariate analysis, as deemed appropriate, to determine whether there are any statistical variation in monitoring data.

Monitoring reports will also be provided to the State and Commonwealth Governments as dictated by annual reporting requirements. In addition, the monitoring raw data will be made available to the Western Australian State Government and the Commonwealth Government upon request or where conditioned to provide.

[16] This is primarily due to the fact that a number conservation significant fauna species monitoring programs have been ongoing for over 5 years.

4.3 Contingency Actions

Contingency actions will be initiated during construction, operational and decommissioning activities when an exceedance of a trigger is identified and monitoring indicates that implemented management measures are not successfully mitigating impacts on conservation significant fauna and their supporting habitats and/or the management objectives are not being achieved.

Contingency actions for conservation significant fauna monitoring triggers have been developed to meet requirements under the environmental approvals listed in Table 9 of this Plan.

Table 9: Trigger criteria and associated contingency measures

Approval	Trigger	Contingency Measure
MS690 MS899	• Statistically significant decline in the relative abundance of conservation significant species across impact sites compared to reference sites. • No continued presence of conservation significant species recorded within the impact areas.	• Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Re-examine applied monitoring parameters to validate they are operating within management levels. • Identify the reason for the change and where it was caused by construction, operation or decommissioning activities, review management measures with an adaptive management response.
MS1033 MS1062 Eliwana Mine and Rail	• Statistically significant decline in the relative abundance of conservation significant species across impact sites compared to reference sites. • No continued presence of conservation significant species recorded within the impact areas.	• Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Re-examine applied monitoring parameters to validate they are operating within management levels. • Identify the reason for the change and where it was caused by construction, operation or decommissioning activities, review management measures with an adaptive management response. Submit revised Plan to the EPA Services of the DWER for review and approval. • REPORTING - Where the exceedance is attributable to construction, operation and decommissioning activities, report the exceedance within 21 days of the exceedance being identified.

5. COMPLIANCE

Fortescue ensures compliance with its legal obligations through first party quality assurance by site environment teams with a focus on effective environmental management through the corporate Environmental Management System (EMS).

Fortescue has adopted a risk based approach to monitor compliance with its legal obligations. Site environment teams will monitor their compliance with this Plan and the required site-specific management and monitoring programs using the *Self-Verification of High Risk Environmental Legal Obligations Guideline* (100-GU-EN-0030).

Where non-conformance issues are identified these will be documented and managed via BMS.

6. REPORTING

6.1 Annual Monitoring Report

An Annual Monitoring Report will be developed with the results of the conservation significant fauna monitoring programs across all Fortescue controlled sites. The report will outline the conservation significant fauna monitoring undertaken during the period, the data captured and the analysis completed during the reporting period. Further, it will report compliance against management targets and conditioned environmental objectives.

6.2 Annual Compliance Reporting

6.2.1 State Government Reporting

Fortescue is required to report against its compliance with this Plan in the Compliance Assessment Report prepared in accordance with the OEPA's Post Assessment Guideline for Preparing a Compliance Assessment Report, Post assessment Guideline No. 3.

Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with the following Ministerial Statements with conservation significant fauna related conditions:

- Condition 5-1 of MS690.
- Condition 4-6 of MS899.
- Condition 3-6 of MS1033
- Condition 3-6 of MS 1062.

The reporting requirements against management targets and conditioned environmental objectives are provided in Table 1. In the event that trigger criteria were exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions that have been implemented to manage the impact and any adaptive management measures applied as a result of the exceedance.

6.2.2 Australian Government Reporting

Fortescue is required to report against its compliance with this Plan in the annual compliance report prepared in accordance with the DoEEs Annual Compliance Report Guidelines, 2014.

Annual Compliance Reports are required to be submitted in accordance with the following EPBC Act Decisions with conservation significant fauna related conditions:

- Condition 8 of EPBC 2005/2205
- Condition 2-f of EPBC 2010/5513
- Condition 4 of EPBC 2013/7055.

6.3 Reporting of Potential Non-Compliances

6.3.1 Reporting to State Government

Fortescue is required to report against exceedances of management targets for management based environmental conditions within conditioned timeframes. This requirement is specific to MS1033 and MS 1062.

In the event that monitoring, tests, surveys or investigations indicate an exceedance of a management target in Table 1 has occurred within the reporting period, Fortescue will:

- Where the exceedance is attributable to construction, operation or decommissioning activities, report the exceedance in writing to the EPA Services of the DWER within 21 days of the exceedance being identified in accordance with Condition 6-4 (1) of MS1033 and Condition 7-4(1) of MS1062.
- Investigate to determine the cause of the management targets being exceeded in accordance with Condition 6-4(2) of MS1033 and Condition 7-4(2) of MS1062.
- Provide a report to the EPA Services of the DWER within 90 days of the exceedance being reported as required by Condition 6-4(1) in accordance with the requirements of condition 6-4(3) of MS1033 and Condition 7-4(3) of MS1062.

In the event that monitoring of compliance, tests, surveys or investigations indicate that one or more management actions have not been implemented within the reporting period, Fortescue will:

- Report the failure to implement management action(s) in writing to the EPA Services of the DWER within 7 days of identification in accordance with Condition 6-5 (1) of MS1033 and Condition 7-5(1) of MS1062.
- Investigate to determine the cause of the management action(s) not being implemented in accordance with Condition 5-5(2) of MS1033 and Condition 7-5(2) of MS1062.
- Investigate to provide information for the EPA Services of the DWER to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions in accordance with Condition 6-5(3) of MS1033 and Condition 7-5(3) of MS1062.

- Provide a report to the EPA Services of the DWER within 21 days of the reporting required by condition 6-5(1) in accordance with the requirements of condition 6-5(4) of MS1033 and Condition 7-5(4) of MS1062.

7. ADAPTIVE MANAGEMENT

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures, monitoring and evaluation against management targets, to more effectively meet the conditioned environmental objective. Adaptive management practices that will be assessed for the conservation significant fauna management and monitoring program as part of this approach will include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions,
- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program,
- Re-evaluation of the risk assessment and revision of risk-based priorities as a result of monitoring outcomes,
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem,
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for conservation significant fauna management, and
- Assessment of changes which are outside the control of the project and the management measures identified (i.e. a new project within the area or region; regional change affecting conservation significant fauna management).

8. REVIEW OF PLAN

Review of this Plan will be undertaken every five years or as required by a condition. Revisions of this Plan will be submitted to the relevant State and Commonwealth Governments for approval, in accordance with relevant approval conditions.

9. STAKEHOLDER CONSULATION

Fortescue has undertaken an extensive stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design of the mine sites and port and rail infrastructure through the environmental approvals process.

The then Department of Environment Regulation (DER), the then Office of the Environmental Protection Authority (OEPA) and the then Department of the Environment (DoE) were consulted and, where required, approved the content of the original plans for which this Plan will replace.

Revision 2 of this Plan was submitted to the then OEPA to satisfy the requirements of Condition 10 of MS899 and was approved in November 2013 (CB-EN-0137.01). The Plan was also submitted to the then OEPA to satisfy the requirements of Condition 7-1 of MS 690 and MS707 and Condition 12-1 of MS862 and was approved in October 2014 (100-EN-0441.03).

Revision 2 was also submitted to the then Department of Environment (DoE) to satisfy condition 9 of EPBC 2005/2205, Condition 9 of EPBC 2010/5513 and Condition 10 of EPBC 2010/5567 in April 2014 (100-EN-0492). The DoE approved the revision 2 of The Plan in April 2015 (PUI-000008).

Revision 3 was submitted to the EPA Services of the DWER to satisfy condition 8 of MS 1033 in August 2017 (CC-EN-0313) and was approved in March 2018 (CC-EN-0313.06).

The current revision of this Plan has been submitted to the EPA Services of the DWER for their review, comment and approval, and PaWS for their review and comment, in accordance with condition 12 of MS 1062.

Table 10 will be updated following receipt of stakeholder comment as a result of the review and approvals process.

Table 10: Stakeholder Consultation, Comments and Responses

Stakeholder	Correspondence	Comment	Changes
EPA Services of the DWER	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0313) • **DWER:** Comments provided on Plan (DWERA-000284) (Fortescue reference (CC-EN-0313.01)) • **Fortescue:** Rev 3a of Plan provided for approval (CC-EN-0313.03)	MS 1033 CC-EN-0313.01 CC-EN-0313.04	MS 1033 CC-EN-0313.03 CC-EN-0313.05

Stakeholder	Correspondence	Comment	Changes
	• **DWER:** Comments provided on Rev 3a (CC-EN-0313.04) • **Fortescue:** Rev 3b of Plan provided for approval (CC-EN-0313.05) • **DWER:** Approval granted (CC-EN-0313.06) • **Fortescue:** Plan updated to reflect approval by EPA Services of DWER, Rev4 IFU MS 1062 – Solomon Iron Ore Project – Sustaining Production • **Fortescue:** Plan issued for review (SO-EN-0283)		
DoEE	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0312) EPBC 2010/5567 – Solomon Iron Ore Project • **Fortescue**: Plan issued to satisfy condition (SO-EN-0285)	MS 1033 No comments received	
PaWS	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review: CC-EN-0315 MS 1062 – Solomon Iron Ore Project – Sustaining Production • **Fortescue:** Plan issued for review: SO-EN-0284	MS 1033 No comments received	

10. REFERENCES

Environmental Protection Authority, WA (2017). “Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans” Version 1.1, 6 April 2017.”

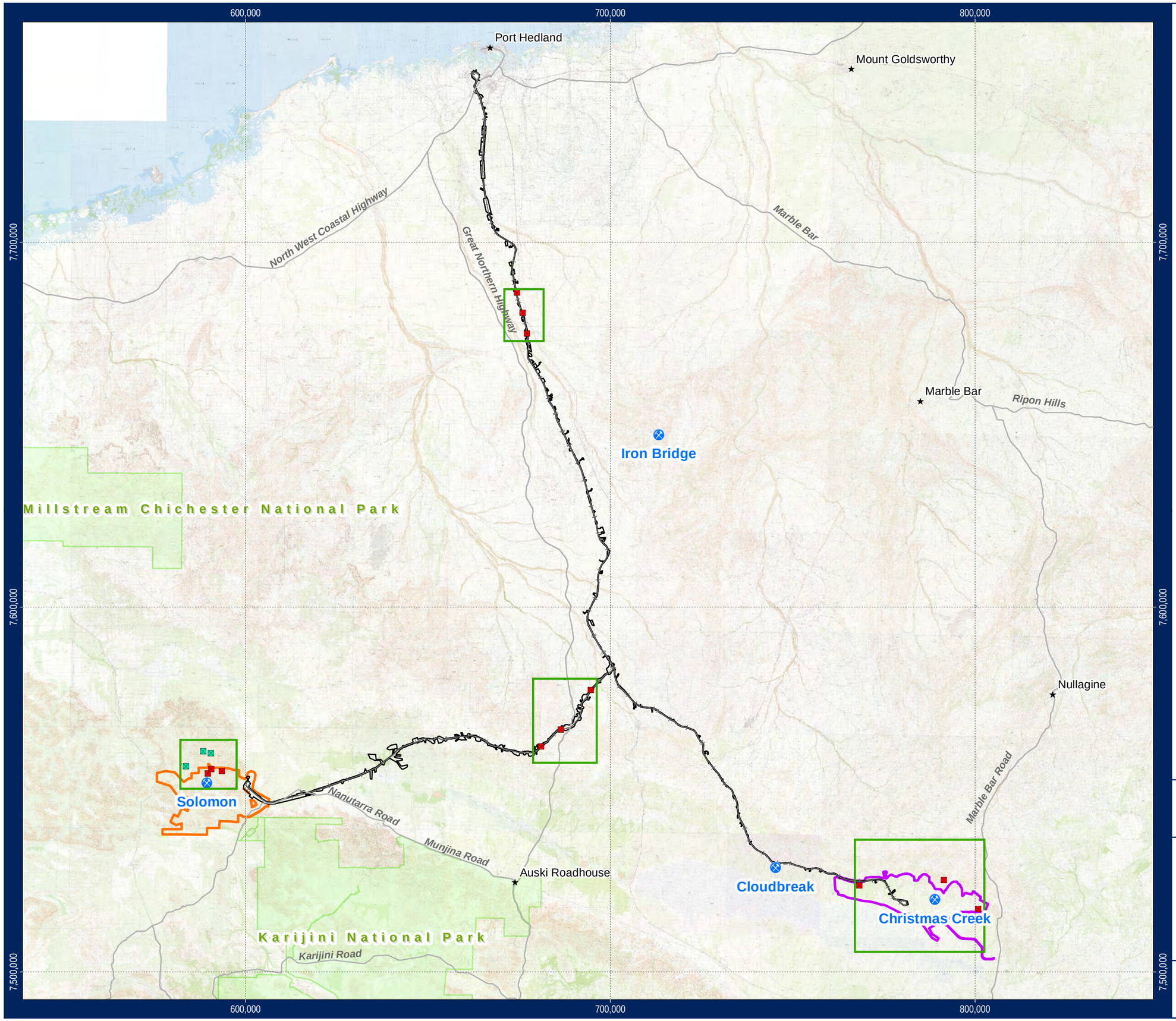
Environmental Protection Authority, WA (2016). “Technical Guide – terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment”

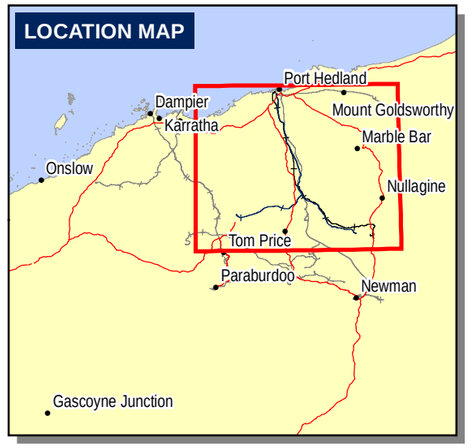
Fortescue Metals Group, WA (2013) “Environmental Management System Manual – 100-MA-EN-0004”.

Fortescue Metals Group, WA (2018) “Night Parrot surveys at Fortescue Marsh, Western Australia: Habitat analyses, survey review and recommendations – 100-RP-EN-9674

International Union for the Conservation of Nature (IUCN), (2017) “Red List of Threatened Species”

Figure 1: Northern Quoll monitoring sites – regional overview





LEGEND

- Northern Quoll Monitoring Sites - Impact
- Northern Quoll Monitoring Sites - Reference
- Towns
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Solomon Mine
- National Park
- Map Index

Data Sources:
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 10 20 30 40 50
Kilometres

Fauna Monitoring
Northern Quoll

Requested By: Todd Edwards
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:1,000,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.022_r1_Overview_NQ

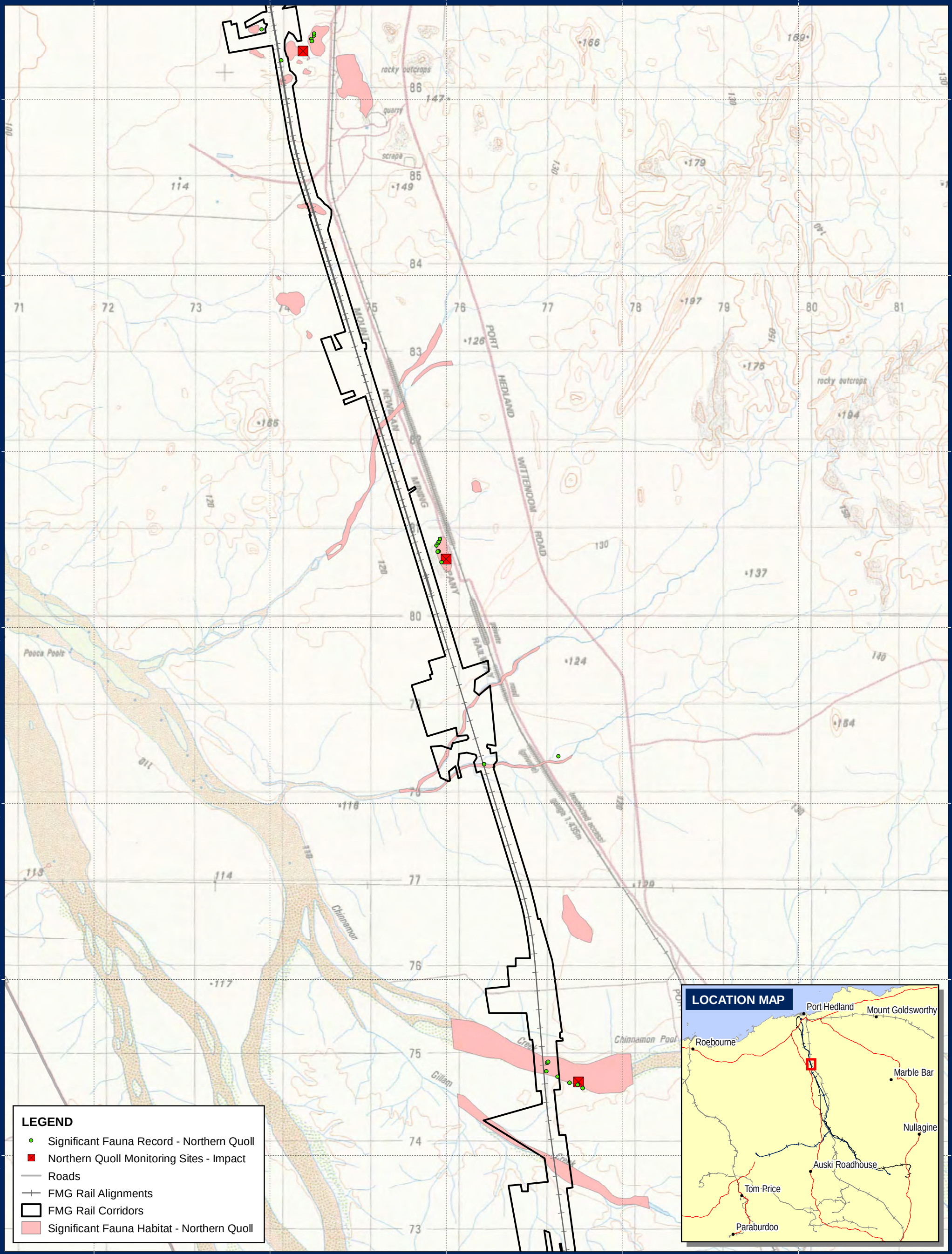
Date: 28-Feb-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 2: Northern Quoll monitoring sites – Main Line Rail

672,000 674,000 676,000 678,000 680,000

7,686,000 7,684,000 7,682,000 7,680,000 7,678,000 7,676,000 7,674,000



LEGEND

- Significant Fauna Record - Northern Quoll
- Northern Quoll Monitoring Sites - Impact
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Northern Quoll

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 1 2 3
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:40,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.001_r0

Date: 08-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Northern Quoll

Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 3: Northern Quoll monitoring sites – Hamersley Rail

680,000 685,000 690,000 695,000

7,580,000 7,575,000 7,570,000 7,565,000 7,560,095

YANDEEARRA ABORIGINAL

LEGEND

- Significant Fauna Record - Northern Quoll
- Northern Quoll Monitoring Sites - Impact
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Northern Quoll

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

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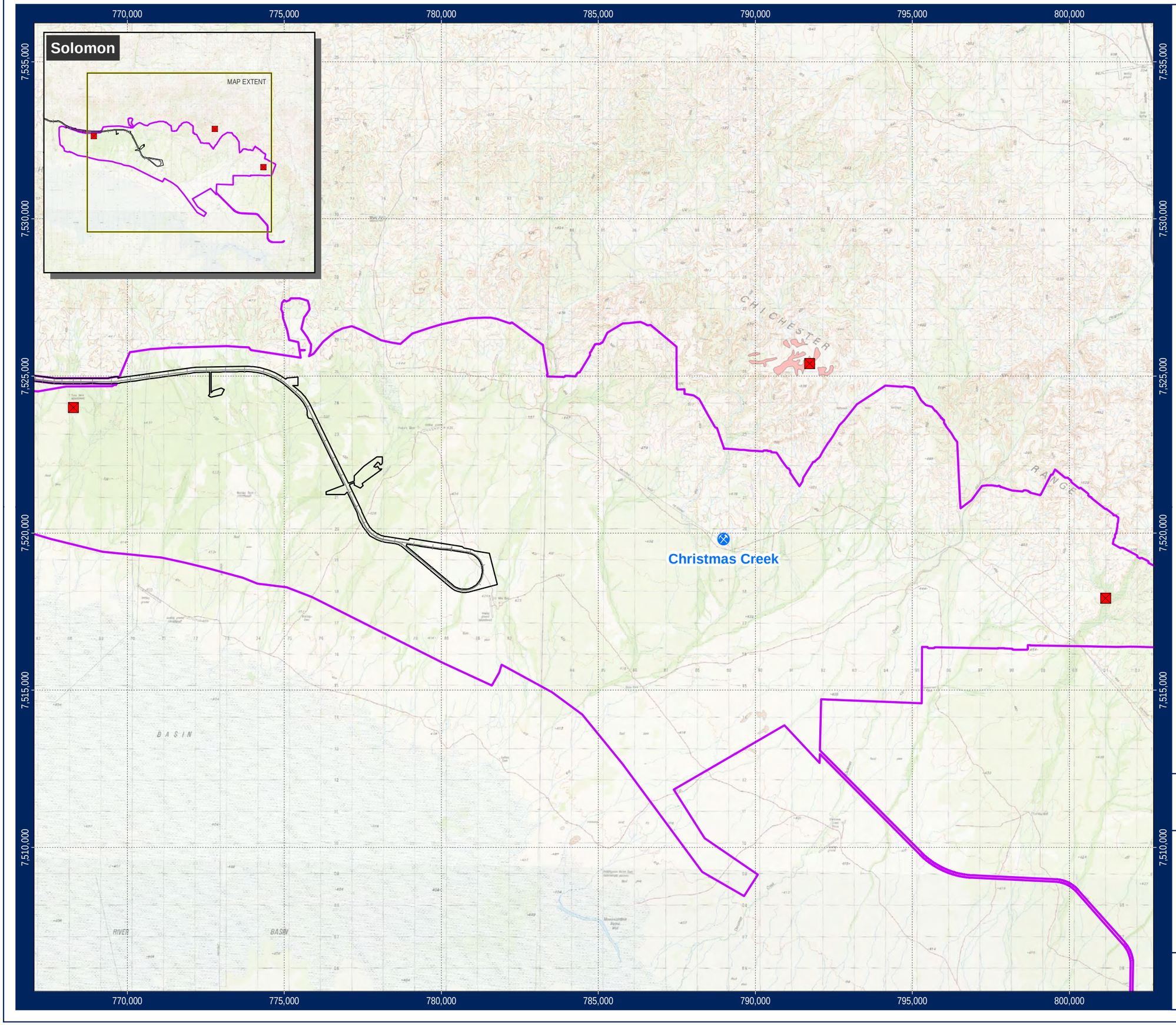
Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.002_r1

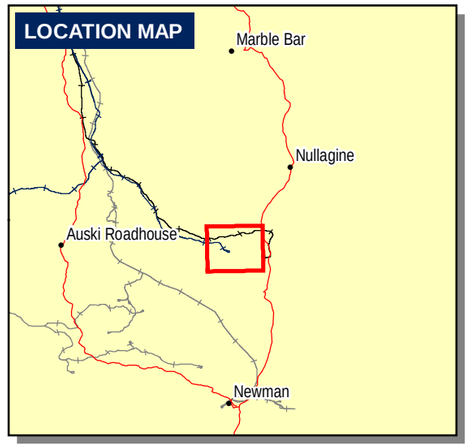
Date: 16-Feb-18
Size: A3P
Revision: 1
Confidentiality: 1

Fauna Monitoring: Northern Quoll
Hamersley Rail Line

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 4: Northern Quoll monitoring sites – Christmas Creek Mine





LEGEND

- Significant Fauna Record - Northern Quoll
- Northern Quoll Monitoring Sites - Impact
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Significant Fauna Habitat - Northern Quoll

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 1 2 3 4 5
Kilometres

Fauna Monitoring: Northern Quoll

Christmas Creek Mine

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:115,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.004_r1

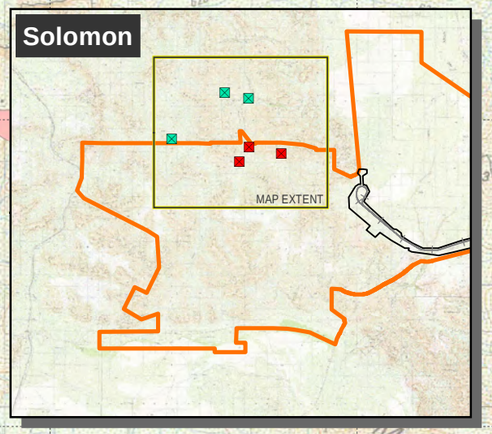
Date: 09-Feb-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 5: Northern Quoll monitoring sites – Solomon Mine

582,500 585,000 587,500 590,000 592,500 595,000 597,500

7,562,500 7,560,000 7,557,500 7,555,000 7,552,500



Solomon

LEGEND

- Significant Fauna Record - Northern Quoll
- Northern Quoll Monitoring Sites - Impact
- Northern Quoll Monitoring Sites - Reference
- FMG Mine
- Solomon Mine
- Significant Fauna Habitat - Northern Quoll

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 1 2 3
Kilometres

Fauna Monitoring: Northern Quoll

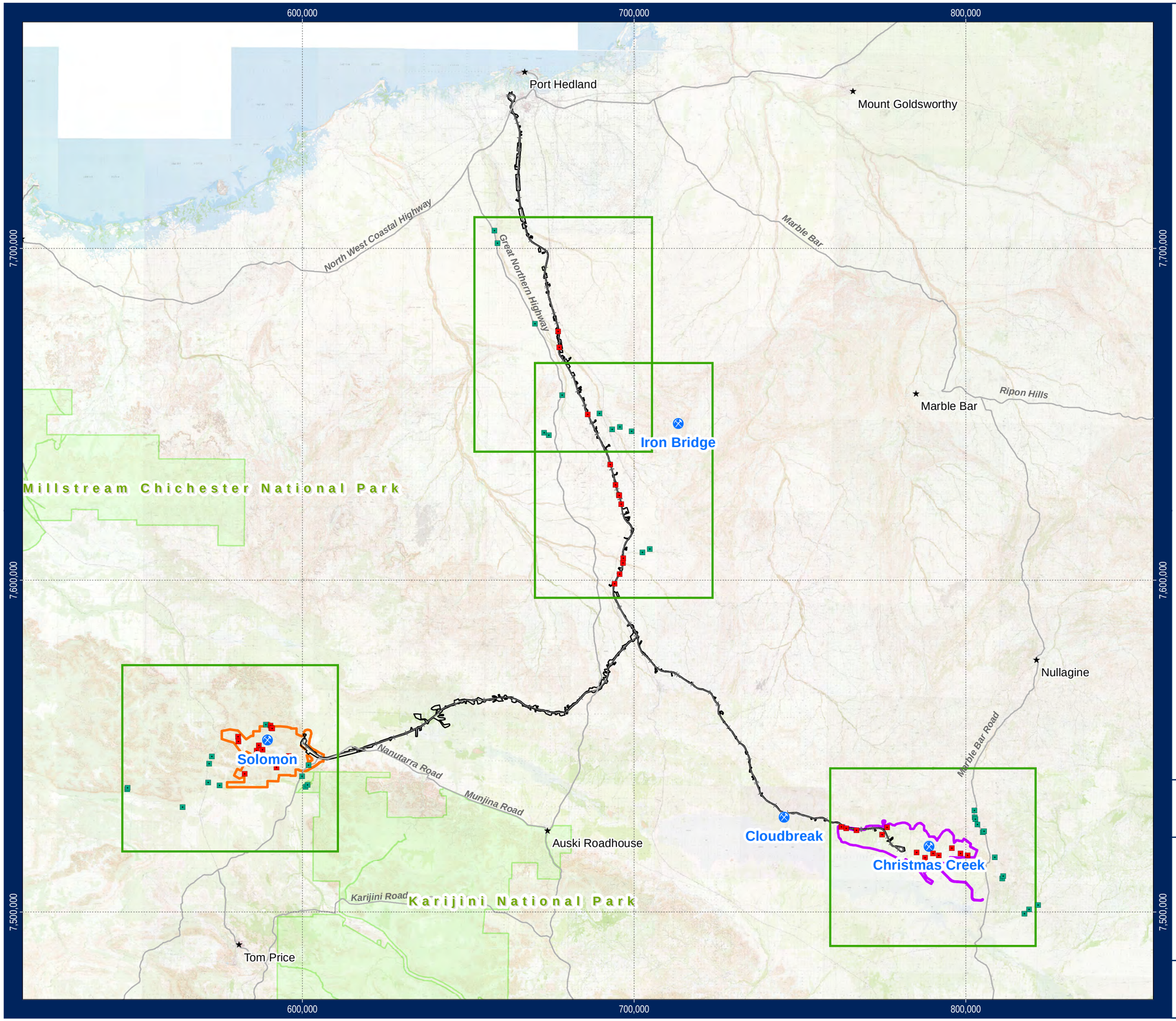
Solomon Mine

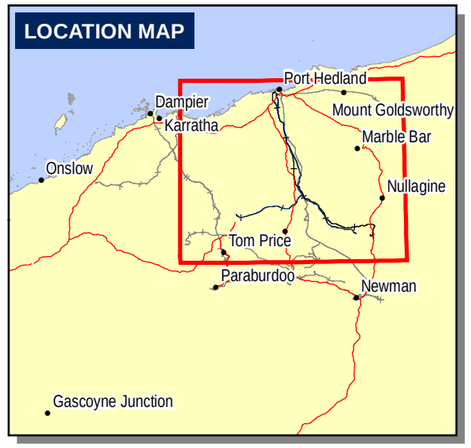
Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:50,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.003_r2

Date: 27-Apr-18
Size: A3L
Revision: 2
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 6: Conservation Significant Bats monitoring sites – Regional Overview





LEGEND

- Bat Monitoring Site - Impact
- Bat Monitoring Site - Reference
- Towns
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Solomon Mine
- National Park
- Map Index

Data Sources:
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 10 20 30 40 50
Kilometres

Fauna Monitoring
Bats

Requested By: Todd Edwards
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:1,100,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.023_r0_Overview_Bats

Date: 28-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

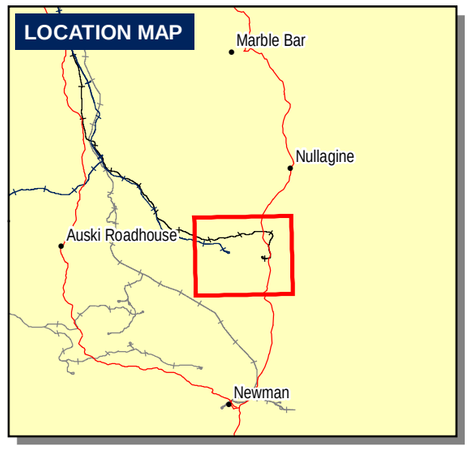
Figure 7: Conservation Significant Bats monitoring sites – Christmas Creek Mine

760,000 770,000 780,000 790,000 800,000 810,000 820,000

7,540,000 7,530,000 7,520,000 7,510,000 7,500,000 7,490,000

Christmas Creek

LOCATION MAP



LEGEND

- Ghost Bat
- Pilbara Leaf-nosed Bat
- Bat Monitoring Site - Impact
- Bat Monitoring Site - Reference
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Significant Fauna Habitat - Bats

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Fauna Monitoring: Bats
Christmas Creek Mine

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:200,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.005_r0

Date: 14-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 8: Conservation Significant Bats monitoring sites – Main Line Rail

660,000 670,000 680,000 690,000 700,000

7,700,000 7,690,000 7,680,000 7,670,000 7,660,000 7,650,000 7,640,000

LEGEND

- Ghost Bat
- Pilbara Leaf-nosed Bat
- Bat Monitoring Site - Impact
- Bat Monitoring Site - Reference
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bats

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:200,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.007_r1

Date: 2/15/2018
Size: A3P
Revision: 1
Confidentiality: 1

Fauna Monitoring: Bats
Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

680,000 690,000 700,000 710,000 720,000

7,660,000 7,650,000 7,640,000 7,630,000 7,620,000 7,610,000 7,600,000

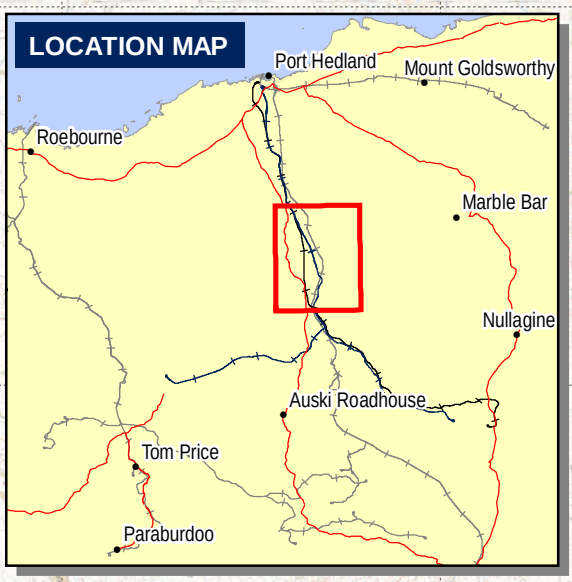
Iron Bridge

YANDEEARRA ABORIGINAL LAND

LEGEND

- Ghost Bat
- Pilbara Leaf-nosed Bat
- Bat Monitoring Site - Impact
- Bat Monitoring Site - Reference
- FMG Mines
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bats

LOCATION MAP



Data Source(s):
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Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:200,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.008_r1

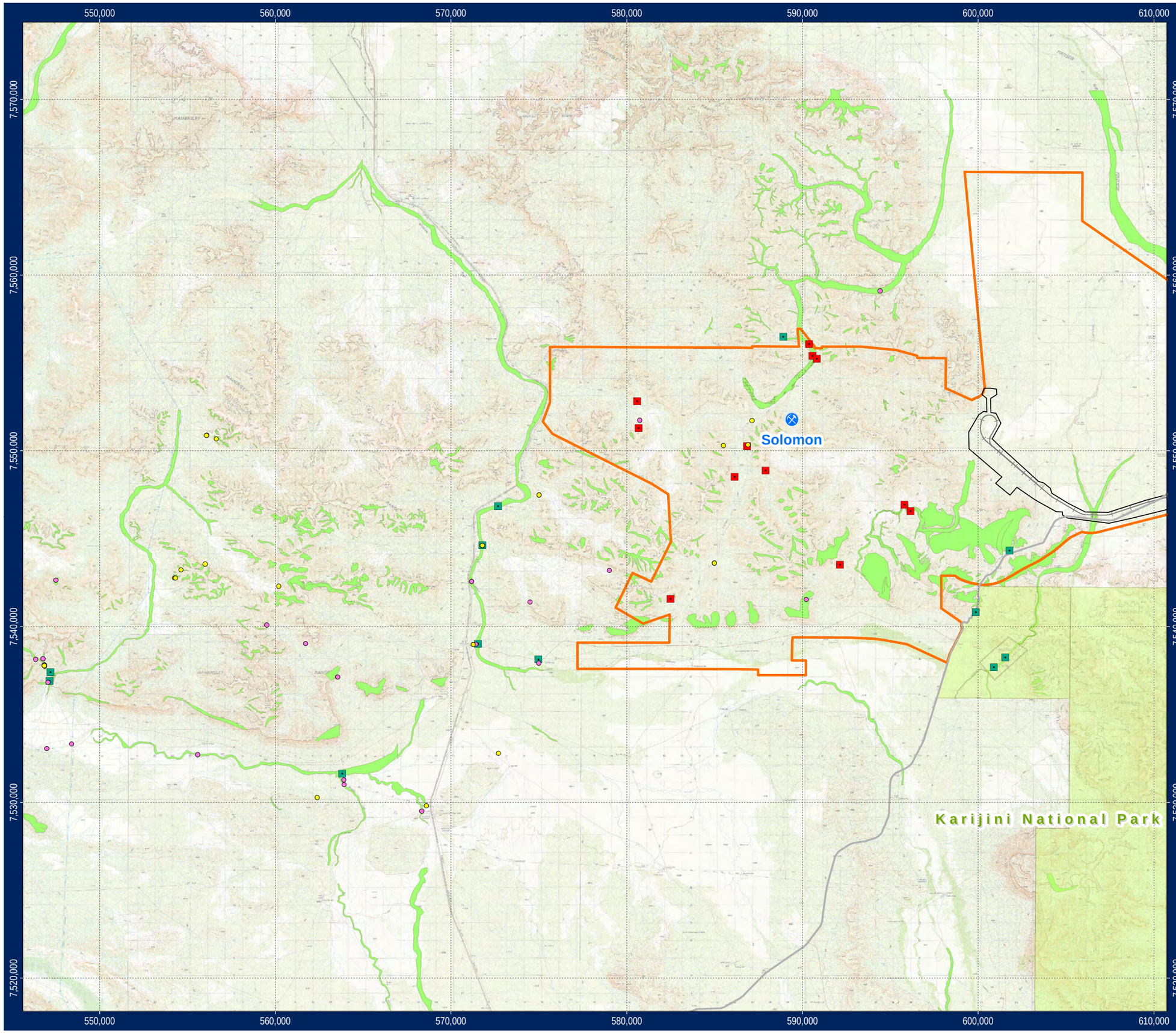
Date: 16-Feb-18
Size: A3P
Revision: 1
Confidentiality: 1

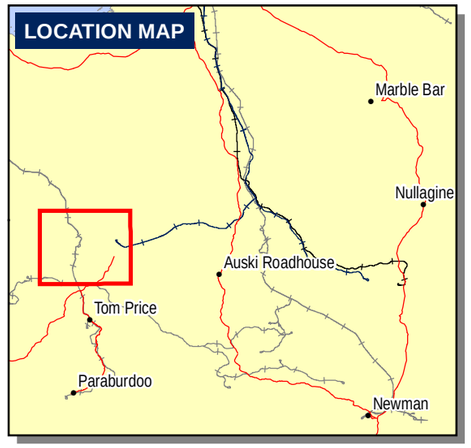
Fauna Monitoring: Bats

Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 9: Conservation Significant Bats monitoring sites – Solomon Mine





LEGEND

- Ghost Bat
- Pilbara Leaf-nosed Bat
- Bat Monitoring Site - Impact
- Bat Monitoring Site - Reference
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- National Park
- Solomon Mine
- Significant Fauna Habitat - Bats

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Fauna Monitoring: Bats
Solomon Mine

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:210,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.006_r1

Date: 27-Apr-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 10: Greater Bilby monitoring sites – Regional Overview

600,000
700,000
800,000
7,700,000
7,600,000
7,500,000

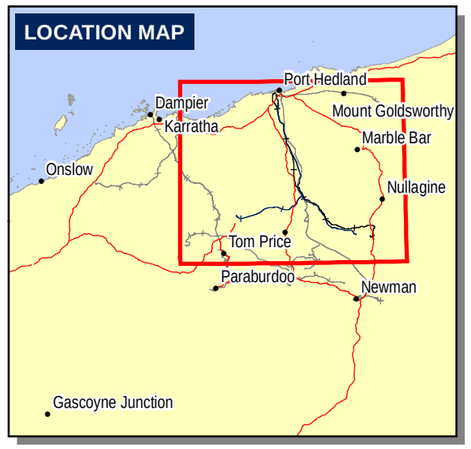
Port Hedland
Mount Goldsworthy
Marble Bar
Tom Price
Nullagine
Auski Roadhouse

North West Coastal Highway
Great Northern Highway
Marble Bar
Ripon Hills
Nanutarra Road
Munjina Road
Karijini Road
Marble Bar Road

Millstream Chichester National Park
Karijini National Park

Iron Bridge
Solomon
Cloudbreak
Christmas Creek

LOCATION MAP



LEGEND

- Bilby Monitoring Site - Impact
- Bilby Monitoring Site - Reference
- Towns
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Solomon Mine
- National Park
- Map Index

Data Sources:
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 10 20 30 40 50
Kilometres

Fauna Monitoring
Greater Bilby

Requested By: Todd Edwards
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:1,100,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.024_r0_Overview_Bilby

Date: 28-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 11: Greater Bilby monitoring site – Main Line to Port

660,000 670,000 680,000

7,740,000 7,730,000 7,720,000 7,710,000 7,700,000

LEGEND

- Significant Fauna Record - Bilby
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bilby

LOCATION MAP

Port Hedland
Mount Goldsworthy
Roebourne
Marble Bar
Nullagine
Auski Roadhouse
Tom Price
Paraburdoo

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:140,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.010_r0

Date: 08-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Bilby

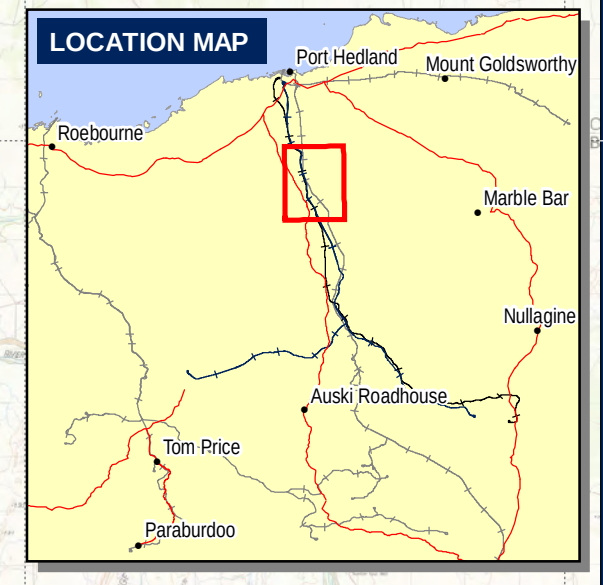
Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 12: Greater Bilby monitoring site – Main Line Rail site 1

670,000 680,000 690,000 700,000

7,700,000 7,690,000 7,680,000 7,670,000 7,660,000



LEGEND

- Significant Fauna Record - Bilby
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bilby

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:140,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.011_r0

Date: 08-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Bilby
Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 13: Greater Bilby monitoring site – Main Line Rail Site 2

680,000 690,000 700,000 710,000

7,650,000 7,640,000 7,630,000 7,620,000 7,610,000

Iron Bridge

YANDEEARRA

ADORIGINAL

LAND

YANDEEARRA

LEGEND

- Significant Fauna Record - Bilby
- FMG Mines
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bilby

LOCATION MAP

Port Hedland
Mount Goldsworthy
Roebourne
Marble Bar
Nullagine
Auski Roadhouse
Tom Price
Paraburdoo

680,000 690,000 700,000 710,000

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:140,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.012_r0

Date: 08-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Bilby

Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 14: Greater Bilby monitoring site – Main Line and Hamersley Rail

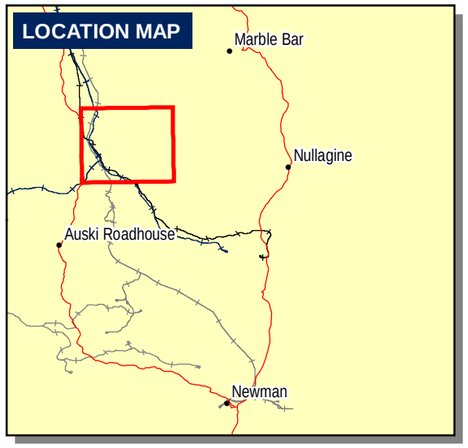
690,000 700,000 710,000 720,000 730,000 740,000

7,610,000
7,600,000
7,590,000
7,580,000
7,570,000

R_F_P_MRGB-I16

R_F_P_MRGB-C16

LOCATION MAP



LEGEND

- Significant Fauna Record - Bilby
- Bilby Monitoring Site - Impact
- Bilby Monitoring Site - Reference
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bilby

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Fauna Monitoring: Bilby

Mainline Rail (Including duplication)

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:190,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.009_r0

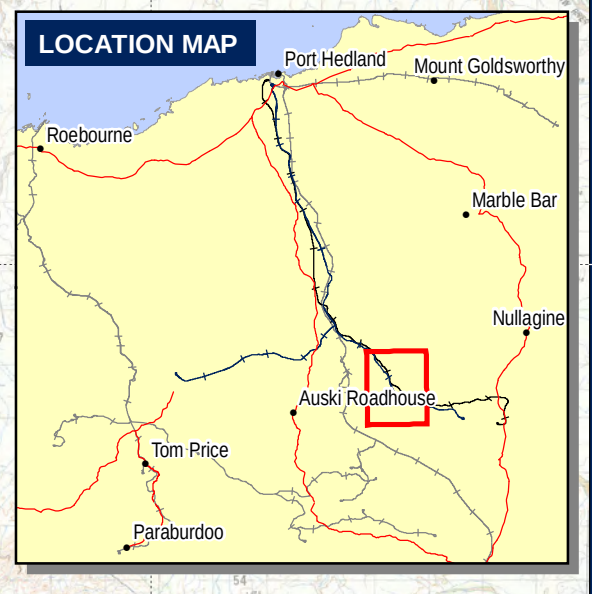
Date: 08-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 15: Greater Bilby monitoring site – Main Line to Cloudbreak Mine

730,000 740,000 750,000

7,560,000 7,550,000 7,540,000 7,530,000 7,520,000



Cloudbreak

CHICHESTER RANGE

FORTESCUE RIVER BASIN

LEGEND

- Significant Fauna Record - Bilby
- FMG Mines
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Bilby

730,000 740,000 750,000

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:140,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.013_r0

Date: 08-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Bilby

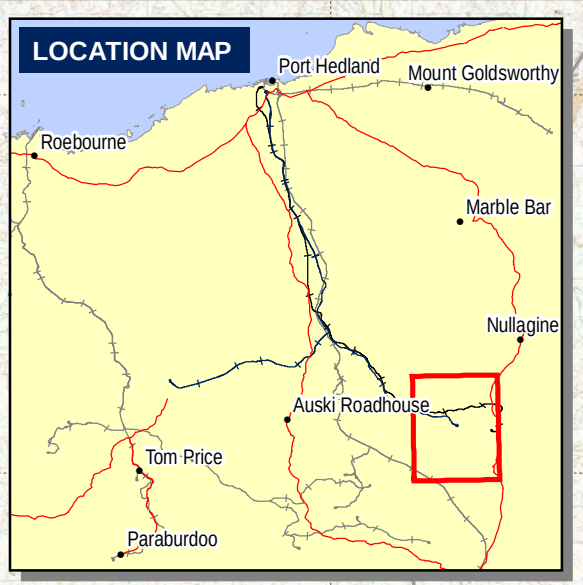
Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 16: Greater Bilby monitoring site – Christmas Creek Mine

760,000 770,000 780,000 790,000 800,000

7,550,000 7,540,000 7,530,000 7,520,000 7,510,000 7,500,000 7,490,000



Christmas Creek

LEGEND

- Significant Fauna Record - Bilby
- FMG Mines
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Significant Fauna Habitat - Bilby

760,000 770,000 780,000 790,000 800,000

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:200,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.014_r0

Date: 09-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Bilby

Christmas Creek Mine

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 17: Pilbara Olive Python monitoring sites- Regional overview

600,000 700,000 800,000

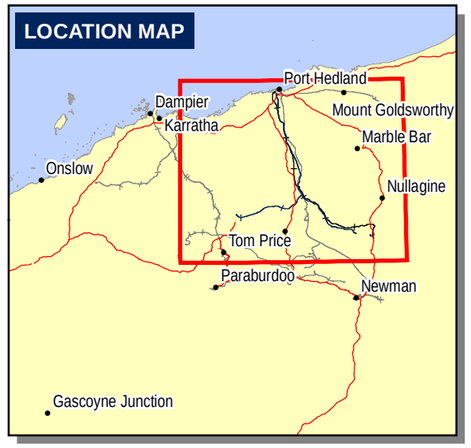
7,700,000 7,600,000 7,500,000

Port Hedland
Mount Goldsworthy
Marble Bar
Iron Bridge
Nullagine
Solomon
Cloudbreak
Christmas Creek
Auski Roadhouse
Tom Price

North West Coastal Highway
Great Northern Highway
Marble Bar
Ripon Hills
Nanutarra Road
Munjina Road
Karijini Road
Marble Bar Road

Millstream Chichester National Park
Karijini National Park

LOCATION MAP



LEGEND

Pilbara Olive Python Monitoring Sites

- Impact
- Reference

Pilbara Olive Python Transects

- Impact
- Reference
- Towns
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Solomon Mine
- National Park
- Map Index

Data Sources:
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 10 20 30 40 50
Kilometres

Fauna Monitoring
Pilbara Olive Python

Requested By: Todd Edwards
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:1,100,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.025_r0_Overview_POP

Date: 28-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

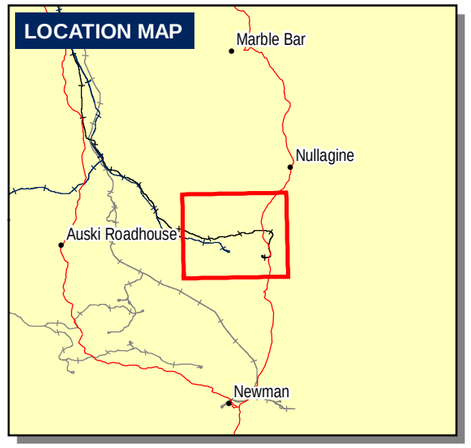
Figure 18: Pilbara Olive Python monitoring sites- Christmas Creek Mine

760,000 770,000 780,000 790,000 800,000 810,000

7,550,000 7,540,000 7,530,000 7,520,000 7,510,000

Christmas Creek

LOCATION MAP



LEGEND

- Significant Fauna Record - Pilbara Olive Python

Pilbara Olive Python Monitoring Sites

- Impact
- Reference

Pilbara Olive Python Transects

- Impact
- Reference
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Significant Fauna Habitat - Pilbara Olive Python

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Fauna Monitoring: Pilbara Olive Python

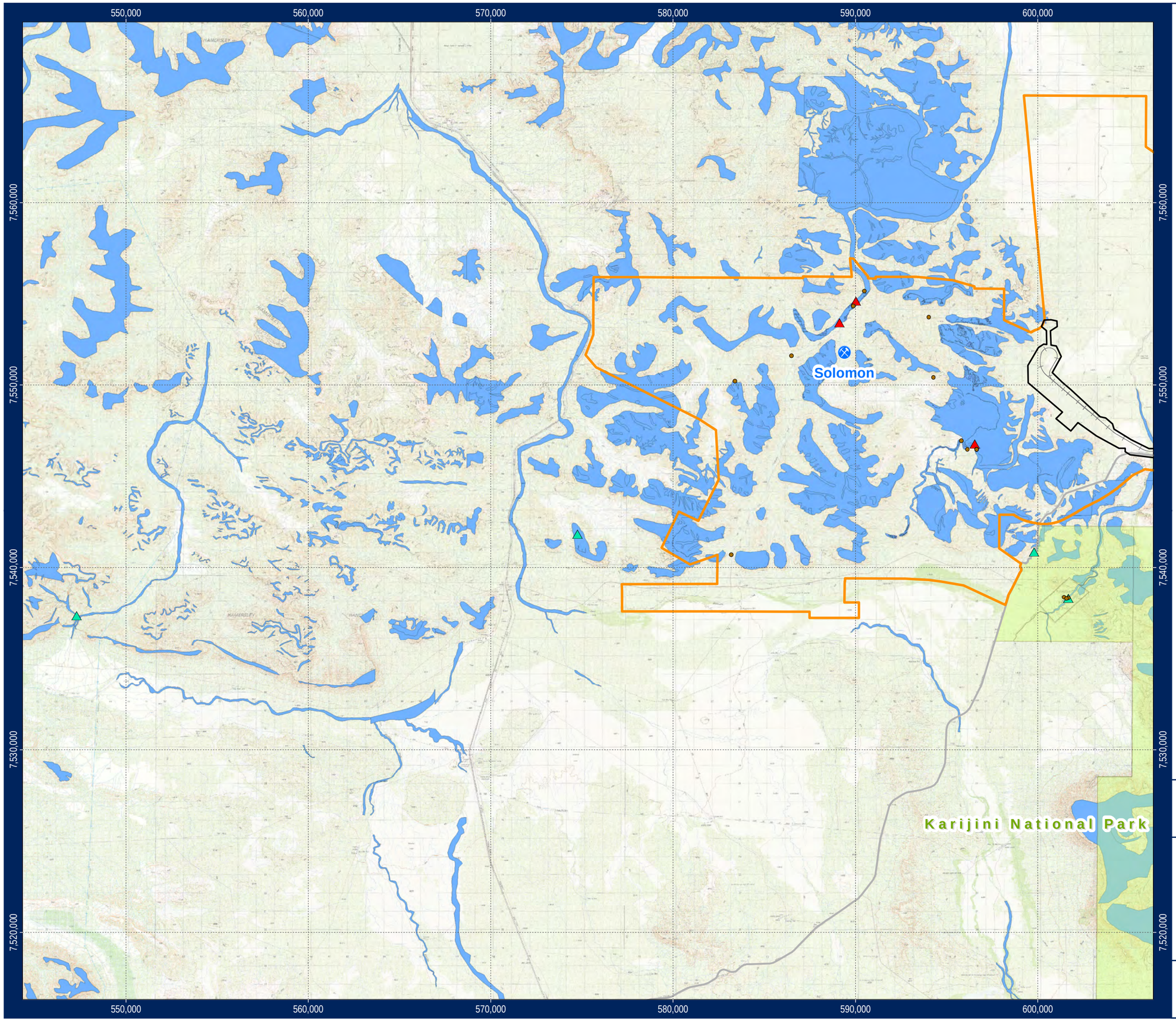
Christmas Creek Mine

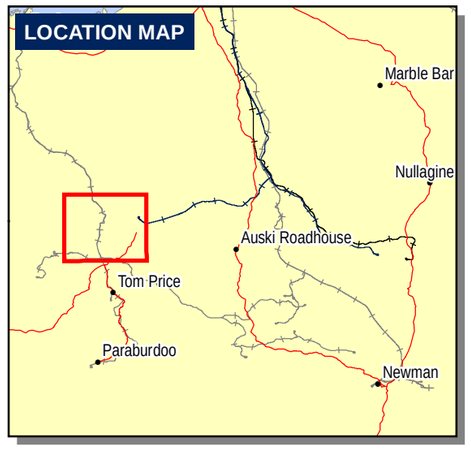
Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:215,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.015_r0

Date: 09-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 19: Pilbara Olive Python monitoring sites- Solomon Mine





LEGEND

- Significant Fauna Record - Pilbara Olive Python

Pilbara Olive Python Monitoring Sites

- Impact
- Reference
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Solomon Mine
- Significant Fauna Habitat - Pilbara Olive Python
- National Park

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Fauna Monitoring: Pilbara Olive Python

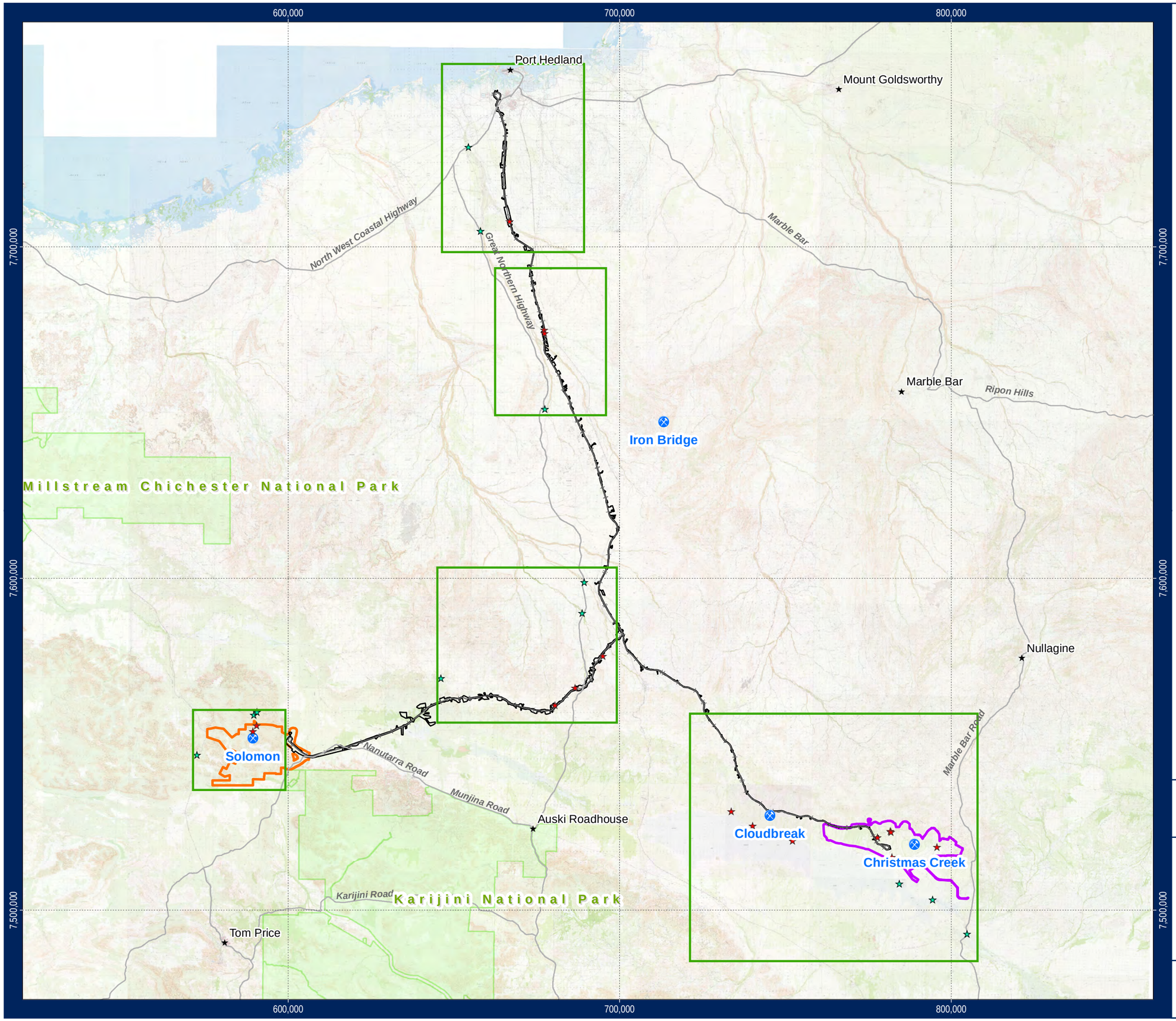
Solomon Mine

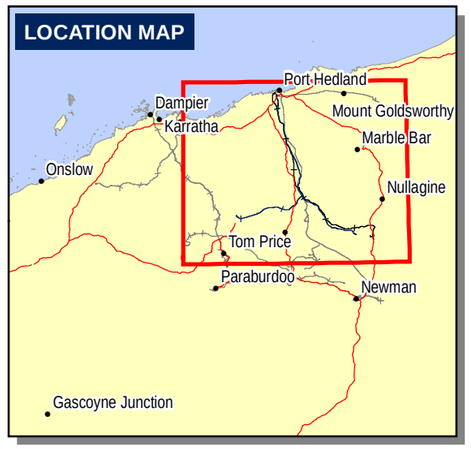
Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:200,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.016_r2

Date: 27-Apr-18
Size: A3L
Revision: 2
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 20: Conservation Significant Birds monitoring sites – regional overview





LEGEND

- Bird Monitoring Sites - Impact
- Bird Monitoring Sites - Reference
- Towns
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Solomon Mine
- National Park
- Map Index

Data Sources:
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 10 20 30 40 50
Kilometres

Fauna Monitoring
Birds

Requested By: Todd Edwards
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:1,100,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.026_r0_Overview_Birds

Date: 28-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 21: Conservation Significant Birds monitoring sites – Christmas Creek and Cloudbreak Mines

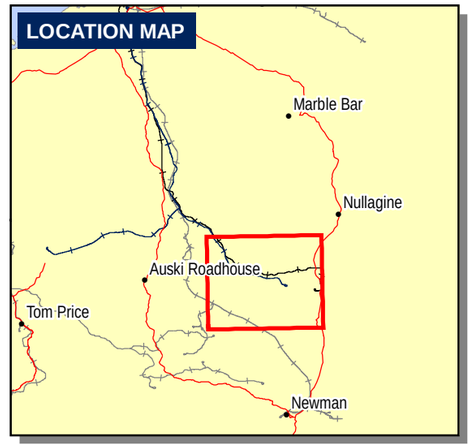
730,000 740,000 750,000 760,000 770,000 780,000 790,000 800,000

7,550,000 7,540,000 7,530,000 7,520,000 7,510,000 7,500,000 7,490,000

Cloudbreak

Christmas Creek

LOCATION MAP



LEGEND

Significant Fauna Records

- Common Greenshank
- Common Sandpiper
- Fork-tailed Swift
- Grey Falcon
- Peregrine Falcon
- Wood Sandpiper

Bird Monitoring Sites

- Impact
- Reference
- FMG Mine
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Christmas Creek Mine
- Cloudbreak Mine
- Significant Fauna Habitat - Birds

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 5 10 15
Kilometres

Fauna Monitoring: Birds

Christmas Creek & Cloudbreak Mines

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:280,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.018_r1

Date: 16-Feb-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 22: Conservation Significant Birds monitoring sites – Main Line Rail Site 1

650,000 660,000 670,000 680,000

7,750,000 7,740,000 7,730,000 7,720,000 7,710,000 7,700,000

Port Hedland

LEGEND

Significant Fauna Records
- Common Greenshank
- Common Sandpiper
- Fork-tailed Swift
- Grey Falcon
- Peregrine Falcon
- Wood Sandpiper

Bird Monitoring Sites
- Impact
- Reference
- Towns
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Birds

650,000 660,000 670,000 680,000

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:160,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.019_r0

Date: 12-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Birds

Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 23: Conservation Significant Birds monitoring sites – Main Line Rail Site 2

670,000 680,000 690,000

7,690,000 7,680,000 7,670,000 7,660,000 7,650,000

LEGEND

Significant Fauna Records

- Common Greenshank
- Common Sandpiper
- Fork-tailed Swift
- Grey Falcon
- Peregrine Falcon
- Wood Sandpiper

Bird Monitoring Sites

- Impact
- Reference
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Birds

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:125,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.020_r0

Date: 12-Feb-18
Size: A3P
Revision: 0
Confidentiality: 1

Fauna Monitoring: Birds

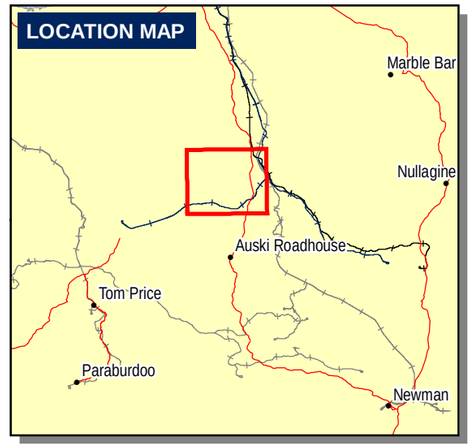
Mainline Rail (Including duplication)

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 24: Conservation Significant Birds monitoring sites – Main Line and Hamersley Rail

650,000 660,000 670,000 680,000 690,000

7,600,000 7,590,000 7,580,000 7,570,000 7,560,000



LEGEND

Significant Fauna Records

- Common Greenshank
- Common Sandpiper
- Fork-tailed Swift
- Grey Falcon
- Peregrine Falcon
- Wood Sandpiper

Bird Monitoring Sites

- Impact
- Reference
- Roads
- FMG Rail Alignments
- FMG Rail Corridors
- Significant Fauna Habitat - Birds

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 2 4 6 8 10
Kilometres

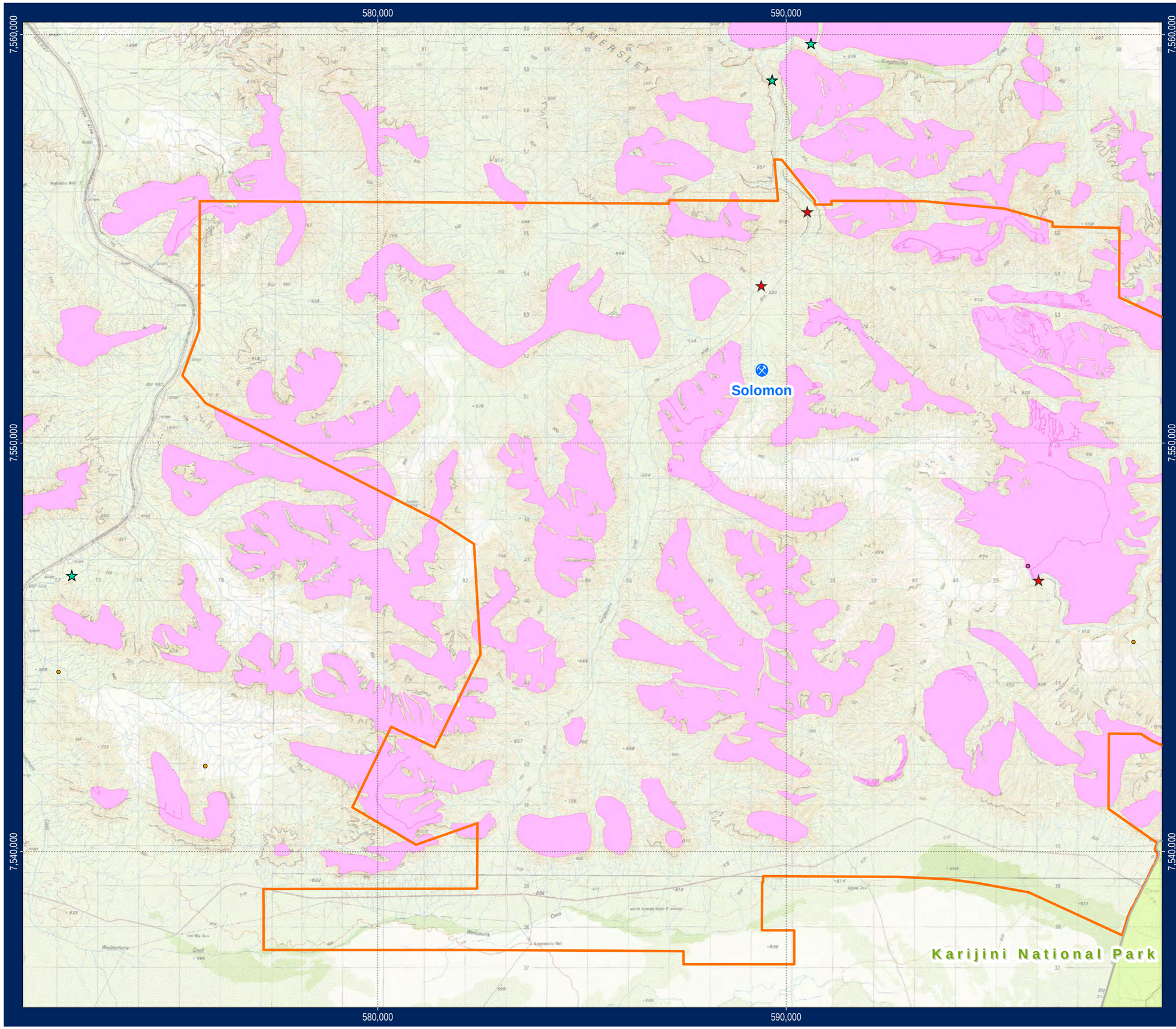
Fauna Monitoring: Birds
Hamersley Rail Line

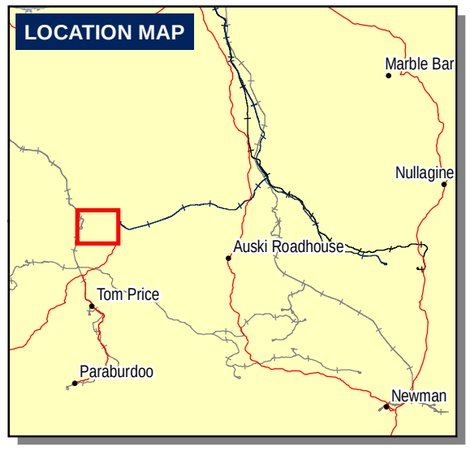
Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:175,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.017_r1

Date: 16-Feb-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 25: Conservation Significant Birds monitoring sites – Solomon Mine





LEGEND

Significant Fauna Records

- Common Greenshank
- Common Sandpiper
- Fork-tailed Swift
- Grey Falcon
- Peregrine Falcon
- Wood Sandpiper

Bird Monitoring Sites

- Impact
- Reference
- FMG Mine
- Roads
- Solomon Mine
- Significant Fauna Habitat - Birds
- National Park

Data Source(s):
Roads, Landgate, 2012
Topography, Geoscience Australia
All other data, FMG, 2018

N

0 1 2 3 4 5
Kilometres

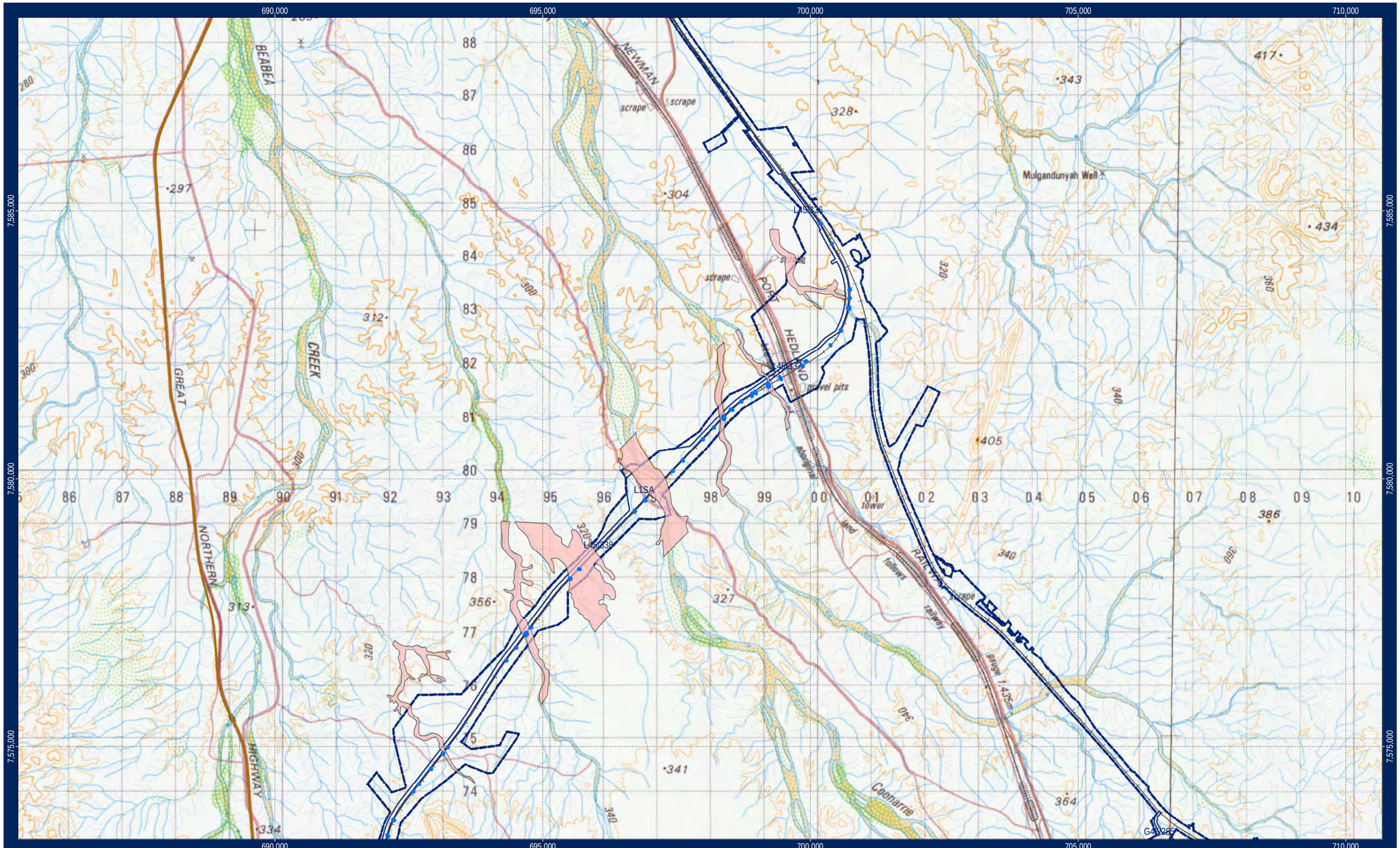
Fauna Monitoring: Birds
Solomon Mine

Requested By: Olivia Hertsted
Drawn By: H. Wallace
Revised By: hwallace
Approved By: P.M.
Scale: 1:90,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 045_MP_EN_0090.021_r1

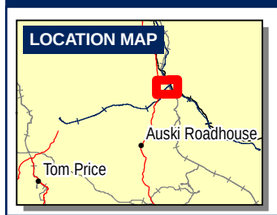
Date: 27-Apr-18
Size: A3L
Revision: 1
Confidentiality: 1

Fortescue Metals Group Ltd
The New Force in Iron Ore

Figure 26: Culvert Locations on the Hamersley Line within Northern Quoll Habitat



LOCATION MAP



LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

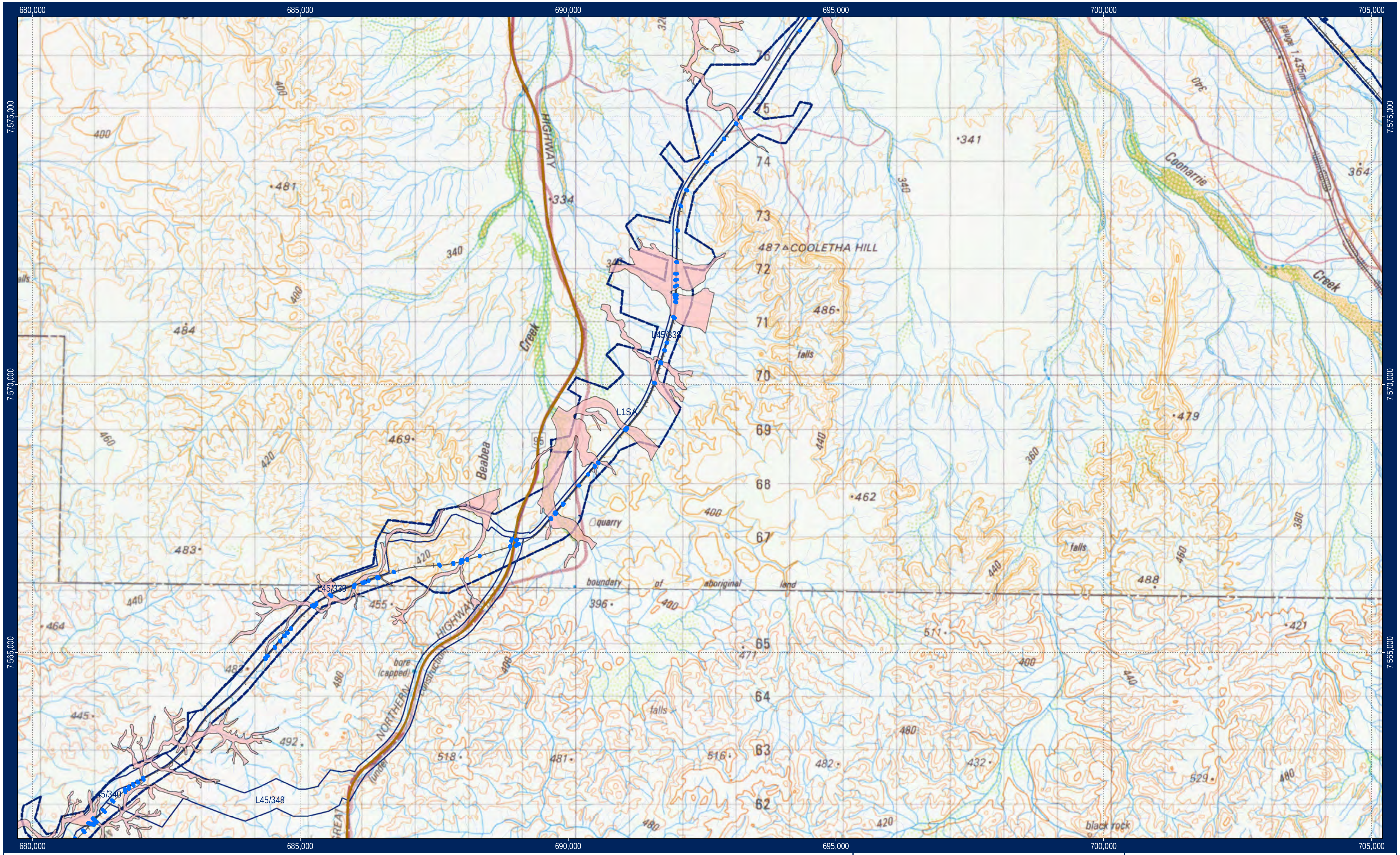
0 1 2 3 4
Kilometres

Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1
Page 1 of 7

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore



LOCATION MAP

LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

0 1 2 3 4
Kilometres

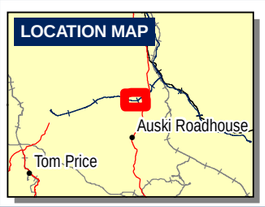
Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1
Page 2 of 7

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore

LOCATION MAP



LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

0 1 2 3 4
Kilometres

Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore

650,000 655,000 660,000 665,000 670,000

7,570,000

7,565,000

7,560,000

area of large rocks

Pooliandie Well

landing ground (abandoned)

CHICHESTER RANGE

Ezra Baranna Pool

Wall Creek

Wall Creek Waterhole

E47/3397

L1SA

SM17

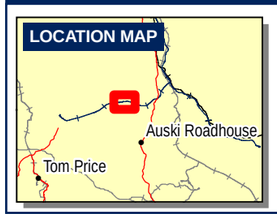
E47/1016

R47/14

CHICHESTER RANGE

PEAK HESTER ▲ 507

landing ground (disused)



LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

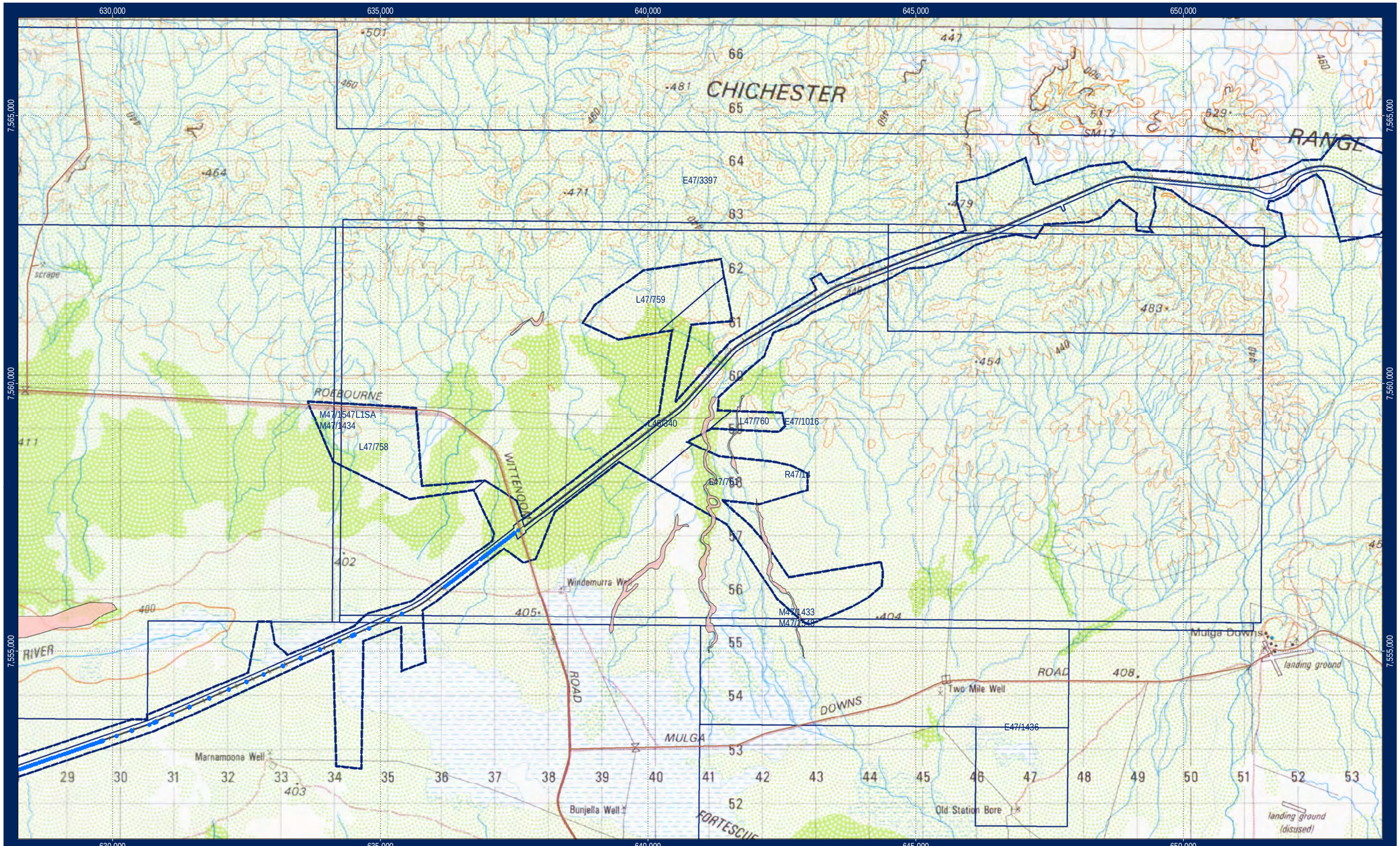
0 1 2 3 4
Kilometres

Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

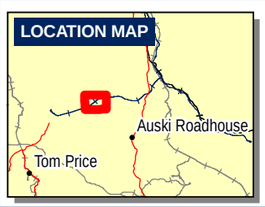
Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1
Page 4 of 7

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore



LOCATION MAP



LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

0 1 2 3 4
Kilometres

Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

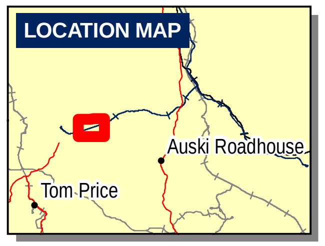
Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore

LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements



Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

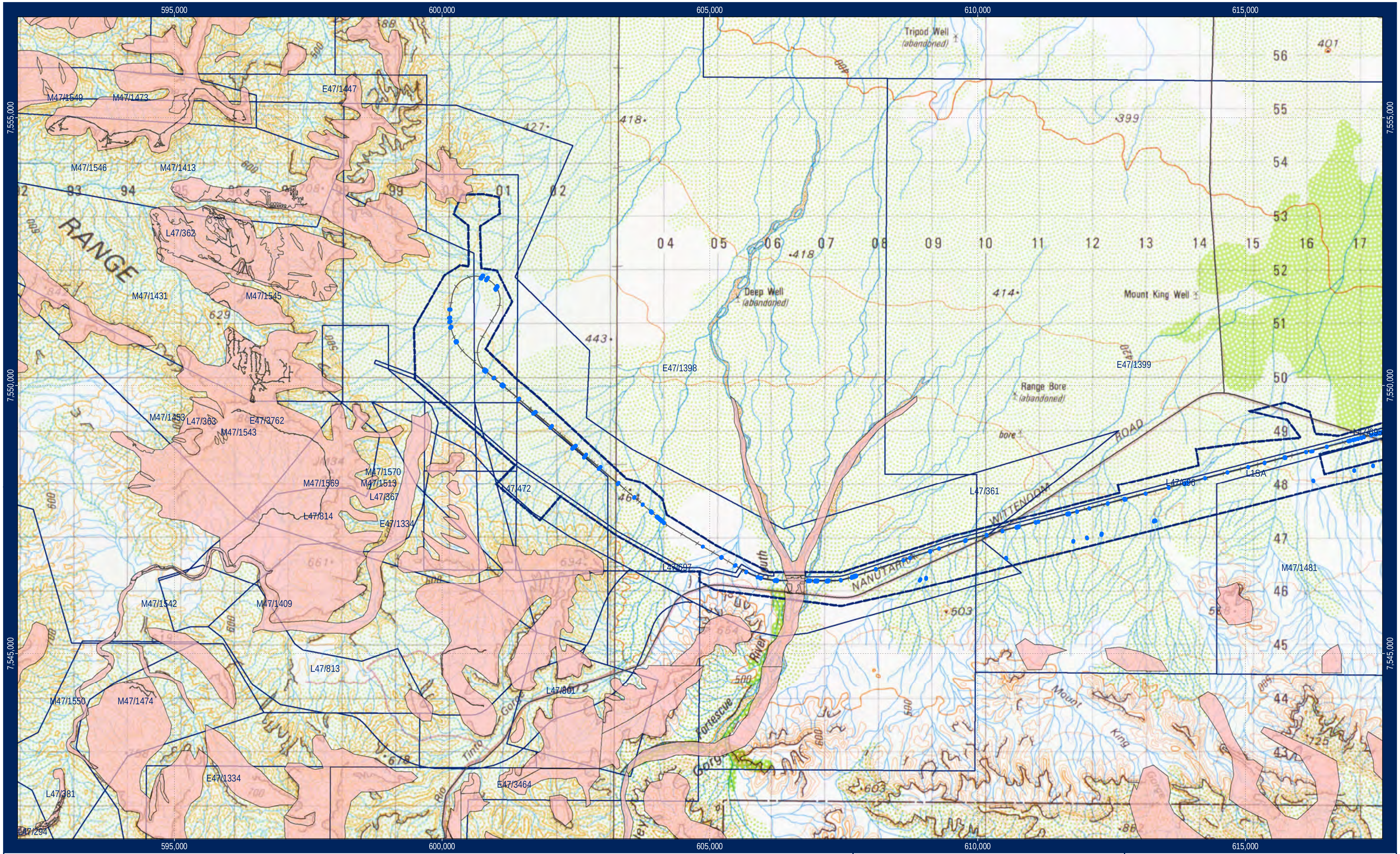
0 1 2 3 4
Kilometres

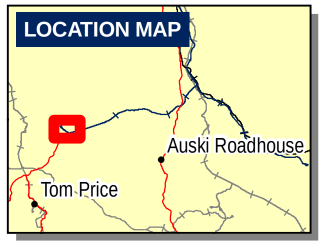
Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore





LEGEND

- 50k Drainage Pilbara
- FMG Rail Culverts
- FMG Rail Alignments
- Northern Quoll Habitat
- FMG Rail Corridors
- FMG Tenements

Data Source(s):
Aerial Imagery: Landgate
All other data: FMG, 2018

N

0 1 2 3 4
Kilometres

Requested By: O. Hertsted
Drawn By: S. Roestenburg
Revised By: sroestenburg
Approved By:P. Mastalir
Scale: 1:65,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: R_MP_EN_0049.001_r1

Date: 4/23/2018
Size: A3L
Revision: 1
Confidentiality: 1

Culvert locations within Northern Quoll Habitat Hamersley Rail

Fortescue Metals Group Ltd
The New Force in Iron Ore

Appendix 1: Project Background

Fortescue Metals Group Background

Fortescue Metals Group (Fortescue) is an integrated business comprised of mine, rail and port operations based in the Pilbara region of Western Australia with its head office located in Perth.

Fortescue has commenced operation of the Pilbara Iron Ore and Infrastructure Project (the Project), which consists of several iron ore mines and associated rail and port infrastructure in the Pilbara region of Western Australia (see Appendix 2).

The Project was granted Major Project Facilitation Status in December 2004 and Fortescue has signed two Agreements with the State of Western Australia:

- *The Railway and Port (The Pilbara Infrastructure Pty Ltd) State Agreement* for the port and rail infrastructure to transport ore from the mines to the port
- *The Iron Ore (FMG Chichester Pty Ltd) Agreement* for the iron ore mines.

The Project has been developed in the following stages:

- Stage A, consisting of a two-berth iron ore export facility at Port Hedland and a north-south railway from the central Pilbara to Port Hedland, approved under Ministerial Statement 690
- Stage B, consisting of iron ore mines in the eastern Pilbara (Christmas Creek) and an east-west spur rail line connecting to the Stage A railway; approved under Ministerial Statement 707. (Note this approval included the Mindy Mindy mine site but this has not been developed to date)
- Cloudbreak iron ore mine west of the Christmas Creek area, approved under Ministerial Statement 721 and federal approval under the EPBC Act (EPBC 2005/2205[i])
- Port facility upgrade consisting of a third berth at Anderson Point, Port Hedland, approved under Ministerial Statement 771
- Port Facility upgrade of a fourth berth at Anderson Point, Port Hedland, Not Assessed - Public Advice Given in 2010
- Solomon iron ore project consisting of two new mines and a railway connecting to the existing Fortescue rail line, approved under Ministerial Statement 862 and federal approval under the *EPBC Act* (EPBC 2010/5567[1]) in 2011
- Additional rail infrastructure between Herb Elliot Port Facility and Cloudbreak Mine Site, approved under Ministerial Statement 690 and 707 and federal approval under the EPBC Act (EPBC 2010/5513)
- Christmas Creek water management scheme to increase the mine dewatering rate and to inject surplus water into two brackish and one saline injection zones, approved under Ministerial Statement 871
- Cloudbreak Life of Mine, approved under Ministerial Statement 899 (supersedes the conditions of Ministerial Statement 721); Ministerial Statement 962 (to amend conditions of Ministerial Statement 899; and Ministerial Statement 1010 (to increase abstraction and reinjection of groundwater under Ministerial Statement 899 and 962)
- Northstar Hematite Project, Not Assessed - Public Advice Given in 2012 and federal approval under the EPBC Act (EPBC 2012/6530)

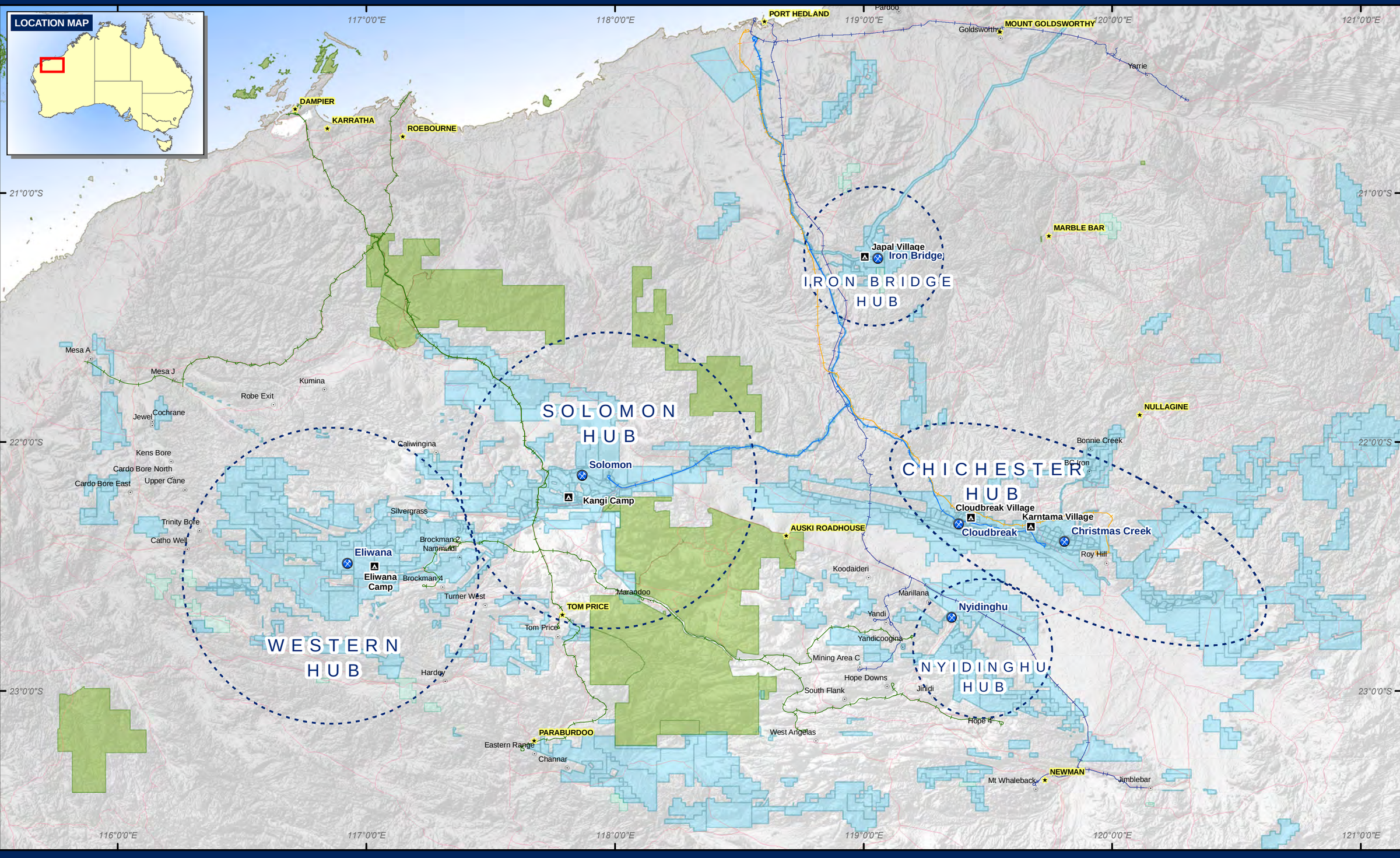
- North Star Magnetite Project, to construct and operate an open-cut iron ore mine and associated infrastructure, approved under Ministerial Statement 993
- Christmas Creek Mine revised proposal, approved under Ministerial Statement 1033 (supersedes the conditions on Ministerial Statement 707 and Ministerial Statement 871) and federal approval under EPBC Act (EPBC 2013/7055)
- Solomon – Sustaining Production, approved under MS 1062 (supersedes the condition on Ministerial Statement 862) in 2017.

Fortescue is extending its current operations in the Pilbara with proposed expansion of mining to the west within the Western Hub Project area which contains approximately 10 ore bodies.

Fortescue is also conducting drilling programmes to further delineate resources and iron ore reserves within tenements surrounding Solomon and in additional locations throughout the Pilbara.

In addition to its wholly owned tenements, Fortescue is party to joint ventures and agreements with other tenement holders within the Pilbara region and is the manager of iron ore exploration operations upon these tenements.

Appendix 2: Fortescue Tenements and Project Areas



LEGEND

- Towns
- Project Area
- FMG Camp
- Other Mines & Prospects
- FMG Rail Alignments
- BHP
- Rio Tinto
- Roy Hill
- Roads
- FMG Non-managed Tenements
- FMG Managed Tenements
- Reserves

Data Sources:
Tenements, sourced from DMP, 2017.
Roads, Towns, Reserves, Landgate.
3rd Rail, RTIO. BHPB, RHIO.
DEM, GA.

N W E S

0 20 40 60 80 100
Kilometres

Requested By: M. Heller
Drawn By: S. Costello
Revised By: scostello
Approved By: N/A
Scale: 1:1,600,000
Coordinate System: GCS GDA 1994
Document Name: 100_MP_OP_0058.010_r0

Date: 17-Jul-17
Size: A3L
Revision: 0
Confidentiality: 0

FMG Tenements and Project Areas
July 2017

Fortescue Metals Group Ltd
The New Force in Iron Ore

Appendix 3: State and Commonwealth Statutory Requirements

Conservation Significant Fauna Management Plan (100-PL-EN-0022) – Conservation Significant Ministerial Statement Conditions		
Ministerial Statement Condition	**Requirement or Issue**	**Location in this Plan**
Ministerial Statement 690 - Port Facility and North South Railway		
Condition 7-1.1	The Fauna Management Plan shall set out measures for: 1. follow-up surveys and delineation of significant fauna populations;	• Table 2 • Table 6, Objective 3
Condition 7-1.2	The Fauna Management Plan shall set out measures for: 2. identifying suitable relocation sites and relocation techniques or other means of ensuring their ongoing appropriate protection;	• Table 6, Objective 2
Condition 7-1.3	The Fauna Management Plan shall set out measures for: 3. monitoring and reporting the success of relocation or other agreed means of appropriate protection employed.	• Table 6, Objective 2 & 3
Ministerial Statement 899 - Cloudbreak Life of Mine		
Condition10-2.1	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 1. methodology of fauna surveys should they be required;	• Table6, Objective 1 • Table 10
Condition10-2.2	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 2. identification of significant fauna populations and their distribution;	• Table 2 • Table 6, Objective 3
Condition10-2.3	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 3. measures to control, and where possible, exclude feral animals;	• Table 6, Objective 2
Condition10-2.4	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 4. measures to protect fauna from the effects of vegetation clearing, noise, vibration, light overspill, infrastructure, including trenching associated with the burial of pipelines, and resources, and any other impacts;	• Table 6, Objective 2
Condition10-2.5	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 5. identification of suitable means of ensuring the appropriate protection of fauna; and	• Table 6, Objective 2

Conservation Significant Fauna Management Plan (100-PL-EN-0022) – Conservation Significant Ministerial Statement Conditions		
Ministerial Statement Condition	**Requirement or Issue**	**Location in this Plan**
Condition10-2.6	The proponent shall ensure that the updated plan as required by condition 10-1 details the following: 6. monitoring and reporting the success of the agreed means of appropriate protection employed, including the recording and reporting death or injury of any fauna protected under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) and/or Scheduled species under the *Wildlife Conservation Act 1950*.	• Compliance reporting
Ministerial Statement 1033 – Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West Railway and Mindy Mindy Mine) – Revised proposal		
Condition 8-1	The proponent shall manage the implementation of the proposal to meet the following **environmental objective**: (1) minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll, Greater Bilby, Night Parrot and migratory birds.	• Table 1 • Section 5 • Table 6
Condition 8-2	The plan/s required by condition 6-1 shall include provisions required by 6-2 to manage impacts on conservation significant fauna including from, but not limited to loss of habitat, changes in surface water flows and open trenches.	• Table 6 – Objective 2
Ministerial Statement 1062 – Solomon Iron Ore Project (Solomon Mine and Hamersley Rail)		
Condition 12-1	The proponent shall manage the implementation of the proposal to meet the following environmental objectives: (1) minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll and Pilbara Leaf-nosed Bat.	• Table 1 • Section 5 • Table 6
Condition 12-2	The plans required by condition 7-1 shall include provisions required by condition 7-2 to manage impacts on conservation significant fauna including from but not limited to loss of habitat, changes to surface water flows, vehicle strike, noise and light.	• Table 6 – Objective 2

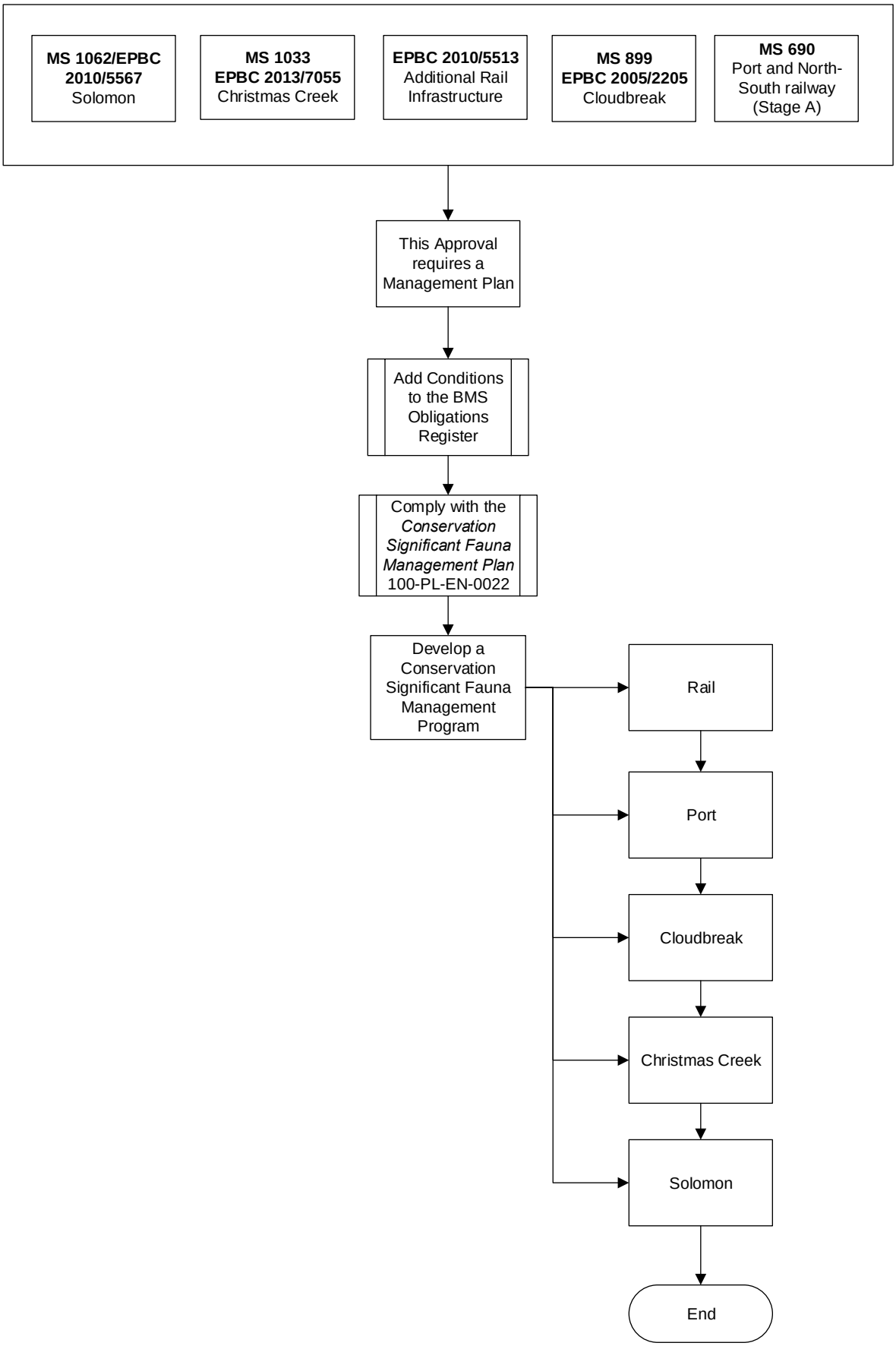
Conservation Significant Fauna Management Plan (100-PL-EN-0022) – Conservation Significant EPBC Approval Conditions		
EPBC Approval Condition	**Requirement or Issue**	**Location in this Plan**
EPBC 2005/2205 Cloudbreak Open Pit Iron Ore Mine		
EPBC 2005/2205 - Condition 1	The person taking the action must implement the requirements of the approved Conservation Significant Fauna Management Plan to ensure protection and management of the Night Parrot *(Pezoporus occidentalis)* in Fortescue controlled areas	• This Plan. • Table 6, Objective 2 & 3 • Section 4 (Section 4.2.1) • Table 8
EPBC 2005/2205 - Condition 9	If any revisions to the approved Conservation Significant Fauna Management Plan is required, this must be submitted to the Department for the Minister's approval if the revision/s is subject to submittal to the West Australian government.	• Section 8
EPBC 2010/5513 Additional Rail Infrastructure between Herb Elliott Port Facility and Cloudbreak Mine Site		
EPBC 2010/5513 Condition 2	The person taking the action must implement the approved Conservation Significant Fauna Management Plan to protect and manage EPBC Act listed threatened fauna species within the Fortescue controlled areas both during construction and operation of the project.	• This Plan.
EPBC 2010/5513 Condition 2a	Measures to minimise mortality of EPBC Act listed threatened fauna species	• Table 6, Objective 2 & 3
EPBC 2010/5513 Condition 2b	Measures to protect EPBC Act listed threatened fauna habitat.	• Table 6, Objective 2
EPBC 2010/5513 Condition 2c	Measures to rehabilitate areas disturbed during construction that are not required for ongoing operations.	• Table 6, Objective 2
EPBC 2010/5513 Condition 2d	Design details of culverts in EPBC listed species habitat areas that will allow fauna to traverse the rail.	• Table 6, Objective 2
EPBC 2010/5513 Condition 2e	A fauna monitoring program to: - Collect baseline population data prior to commencement of construction followed by ongoing surveys and monitoring within areas of suitable EPBC Act listed species habitat where EPBC Act species have been recorded. - Measure the success of management measures to inform an adaptive management approach - Determine the usage and success of culverts.	• Section 10.2.2
EPBC 2010/5567 Solomon Iron Ore Project		
EPBC 2010/5567 Condition 4	The person taking the action must implement the approved Conservation Significant Fauna Management Plan to protect and manage EPBC Act listed threatened fauna species within the Fortescue controlled areas both during construction and operation of the project. As a minimum, the following must be implemented:	• This Plan.

Conservation Significant Fauna Management Plan (100-PL-EN-0022) – Conservation Significant EPBC Approval Conditions		
EPBC Approval Condition	Requirement or Issue	Location in this Plan
EPBC 2010/5567 Condition 4a	Measures to minimise mortality to EPBC Act listed threatened fauna species.	• Table 6, Objective 1, 2 & 3
EPBC 2010/5567 Condition 4b	Measures to protect EPBC Act listed threatened fauna habitat, including the Northern Quoll and the Pilbara Leaf-nosed Bat.	• Table 6, Objective 1, 2 & 3
EPBC 2010/5567 Condition 4c	Measures to rehabilitate areas disturbed during construction that are not required for ongoing operations.	• Table 6, Objective 2
EPBC 2010/5567 Condition 4d	Design details of culverts along the rail line in areas of EPBC Act listed species habitat that will allow fauna to traverse the rail.	• Figure 26
EPBC 2010/5567 Condition 4e	A fauna monitoring program to be undertaken to: - Collect baseline population data prior to commencement of construction followed by ongoing surveys and monitoring within areas of suitable EPBC Act listed species habitat where EPBC Act species have been recorded. - Measure the success of management measures to inform an adaptive management approach. - Determine the usage and success of culverts.	• Table 6, Objective 1, 2 & 3
EPBC 2013/7055 Christmas Creek Iron Ore Mine Expansion Project		
EPBC 2013/7055 – Condition 9	For the purpose of the action and the better protection of EPBC Act listed species, the approval holder must comply with the following conditions of the Western Australian Approval: d - Condition 8-1, 8-2, 8-3 *(Terrestrial Fauna - conservation significant fauna).*	• Table 1 • Section 5 • Table 7

Appendix 4: Data Flow Diagram

Data Flow Diagram

Conservation Significant Fauna Management Plan



Appendix 5: Risk Assessment Relationship Matrix

Objective 2 Establish management stratgies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites

	Risk	Direct death or injury to conservation significant native fauna												Indirect death or injury to conservation significant native fauna															
	Cause/ Unwanted Event	Vehicle strikes				Unplugged drill holes				Fauna entrapment and drowning within mining infrastructure				Groundwater drawdown				Habitat impact or removal				Groundwater mounding				Alteration of Surface water fow and quality			
Ref #	Management Action	Rail	CC	CB	SO	Rail	CC	CB	SO	Rail	CC	CB	SO	Rail	CC	CB	SO	Rail	CC	CB	SO	Rail	CC	CB	SO	Rail	CC	CB	SO
2.1	Training	X	X	X	X		X	X	X		X	X	X					X	X	X	X								
2.2	Known locations of fauna identified																	X	X	X	X								
2.3	Drainage infrastructure location and design																X	X	X	X	X				X	X	X	X	X
2.4	Pre-clearance surveys																	X	X	X	X								
2.5	Noise/Vibration management																	X	X	X	X								
2.6	Lighting																			X	X								
2.7	Weed management																	X	X	X	X								
2.8	Fauna exclusion or egress										X	X	X																
2.9	Feral Animal Control Program																		X	X	X								
2.10	Dust suppression																		X	X	X								
2.11	Fire management measures																		X	X	X								
2.12	Driving mitigation measures	X	X	X	X																								
2.13	Plug Drill Holes						X	X	X																				
2.14	Adaptive management	X	X	X	X		X	X	X		X	X	X		X	X	X	X	X	X	X		X	X		X	X	X	X
2.15	Progressive rehabilitation																	X	X	X	X								

Ref #	Management Action	Full Description
2.1	Training	Ensure staff and contractors are provided with appropriate training to ensure conservation significant fauna and associated habitat are protected.
2.2	Know locations of fauna identified	Prior to conducting ground disturbance acivities, esnure known locations of conservation significant fauna and their associated fauna habitat and buffers are identified and management measures are implemented.
2.3	Drainage infrastructure location and design	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes to minimise interference and disruption of natural surface water flows that support conservation significant fauna habitat.
2.4	Pre clearance surveys	When conservation significant fauna species have been recorded in proposed impact areas within associated habitat, and the records have been verified through survey activities undertaken in the last five years, ground-truth the area and similar habitats within the area. Where individual animals are present implement mitigation measures, in consultation with DPaW, including the relocation of fauna, prior to disturbance.
2.5	Noise management	Where construction or operational activities generate noise and/or vibration emissions that may result in conservation significant fauna disturbance, injuries or death, incorporate mitigation measures into planned activities.
2.6	Light management	Direct lighting onto active construction and operational areas to minimise the potential for light overspill resulting in fauna disturbance, injuries or deaths.
2.7	Weed management	Direct lighting onto active construction and operational areas to minimise the potential for light overspill resulting in fauna disturbance, injuries or deaths.
2.8	Fauna exclusion and/or egress	Fauna management measures including exclusion or exit/egress structures, to minimise potential impacts to conservation significant fauna are in place: - For mining infrastructure that poses a fauna entrapment and drowning risk (including storage ponds and tailings storage areas). - When conducting excavation or trenching activities.
2.9	Feral animal control	Develop and implement a Feral Animal Control Program to effectively manage and control feral animals within Fortescue controlled sites to minimise impacts on conservation significant fauna.
2.10	Dust mitigation	To minimize the potential for dust deposition on vegetation on conservation significant fauna habitat, implement relevant dust suppression measures within identified high risk areas

2.11	Fire management	When constructing a fire break or carrying out a prescribed burn where conservation significant fauna and habitat have been identified, adhere to the requirements outlined in the: • LUC • Local shire's Firebreak Notice issued under the Bush Fire Act 1954 • Permit to Burn issued by the local Bushfire Control Officer and the Burn Prescription that is developed.
2.12	Minimise vehicle strikes	To minimise the potential for fauna injuries or deaths, implement appropriate mitigation measures such as speed limit restrictions and the prohibition of off-road driving
2.13	Plug drill holes	All surface holes drilled for the purpose of resource definition are to be plugged immediately after drilling and sampling to prevent fauna entering the hole.
2.14	Adaptive management measures	Where a conservation significant fauna injury or death has occurred as a result of Fortescue Operations, internally report, notify PaWS and investigate the incident. Update management actions where required to inform an adaptive management approach.
2.15	Progressive rehabilitation	Conduct progressive rehabilitation of disturbed areas no longer required for operations prioritising areas with known conservation significant fauna and associated habitat.

Appendix 6: Schedule: Conservation Significant Fauna Management Plan (MS1033)

Fortescue
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Schedule

Schedule: Conservation Significant Fauna Management Plan (MS 1033)

MS 1033

February 2018

Schedule: Conservation Significant Fauna Management Plan (MS 1033)

Ministerial Statement: Ministerial Statement 1033 (MS 1033) Christmas Creek Mine, East-West Railway and Mindy Mindy Mine

Purpose of the Schedule: The Conservation Significant Fauna Management Plan (The Plan) is required by State and Commonwealth Government Ministers as part of development approval for Fortescues Iron Ore related infrastructure in the Pilbara approved under Ministerial Statement 1033 – Christmas Creek Mine, East-West Railway and Mindy Mindy Mine. This Plan meets the following conditions of MS 1033:

- Condition 8-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective: (1) minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll, Greater Bilby, Night Parrot and migratory birds.
- Condition 8-2 The plan/s required by condition 6-1 shall include provisions required by 6-2 to manage impacts on conservation significant fauna including from, but not limited to loss of habitat, changes in surface water flows and open trenches.

Key environmental values: Key environmental values associated with conservation significant fauna and their critical habitats at Christmas Creek under MS 1033 are outlined in the *Public Environmental Review: Christmas Creek Iron Ore Mine Expansion* (Fortescue reference CC-RP-EN-0071) and as listed here:

- Conservation significant fauna and their critical habitat
- Conservation significant vegetation, inclusive of the Fortescue Marsh PEC and identified mulga vegetation
- Groundwater and groundwater dependent systems
- Surface water and surface water dependent systems.

Key impacts and risks: Key impacts and risks associated with conservation significant fauna and their critical habitats as outlined in Appendix 5 of the Plan include:

- Habitat clearing and indirect impact
- Groundwater mounding and drawdown
- Vehicle movements
- Unplugged drill holes
- Water storage areas.

This schedule has been provided to meet the requirements of the EPA's "Instructions on how to *prepare Environmental Protection Act 1986* Part IV Environmental Management Plan". The provisions addressed within this schedule include:

- Management objectives
- Management actions
- Management targets
- Monitoring
- Reporting
- Adaptive Management and review of the EMP
- Stakeholder consultation.

MANAGEMENT-BASED PROVISIONS: OBJECTIVES AND MANAGEMENT ACTIONS

Excerpt from Section 3 of The Plan.

Table 1: Key management actions for Conservation Significant Fauna Management at Christmas Creek under MS 1033

Objective 1	**Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
1.2	Conduct a risk assessment to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely.	• Risk assessment conducted to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely. • High risk areas identified • See management target in Table 2	• Risk assessment outcomes / report	Design/ Construction/ Operation	Manager Environmental Approvals/ Project Manager/ Group Manager Environment

Objective 2	**Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
2.2	Prior to conducting ground disturbance activities, ensure known locations of conservation significant fauna and their associated critical habitat and buffers are identified and management measures are implemented.	• LUC obtained • Management measures implemented • Surface water management measures implemented where required • Weed management measures implemented where required • See management targets in Table 2	• Completed LUC • Annual Compliance Reporting	Construction/ Operation	Project Manager/ Group Manager Environment
2.4	When conservation significant fauna species have been recorded in proposed impact areas within associated habitat, and the records have been verified through survey activities undertaken in the last five years, ground-truth the area and similar habitats within the area. Where individual animals are present implement mitigation measures, including the relocation of fauna, prior to disturbance.	• Impact areas where fauna has been recorded within associated habitat are assessed prior to ground disturbance • BMS/GIS updated • PaWS consulted and mitigation measures implemented • Number of fauna successfully relocated • See management targets in Table 2	• BMS record • GIS Table • Annual Compliance Reporting • Consultation records	Construction/ Operation	Project Manager/ Group Manager Environment
2.8	Fauna management measures, including exclusion or exit/egress structures, to minimise potential impacts to conservation significant fauna, are in place: • For mining infrastructure that poses a fauna entrapment and drowning risk (including storage ponds, operational mine void water and tailings storage areas). • When conducting excavation or trenching activities.	• See management targets in Table 2 • No mortality of conservation significant fauna: o Due to entrapment and drowning in mining infrastructure • As a result of excavation or trenching activities	• BMS record • Annual Compliance Reporting	Construction/ Operation	Project Manager/ Manager Mine Services or Manager Technical Services/ Group Manager Environment

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites				
2.13	All surface holes drilled for the purpose of resource definition are to be plugged immediately after drilling and sampling to prevent fauna entering the hole.	• See management targets in Table 2 • Drill holes plugged immediately after drilling and sampling.	• Inspection reports	Operation	Manager Mining

Objective 3	Where species presence and/or critical habitat [1] has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
3.2	Where populations of conservation significant fauna listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* have been recorded in Fortescue controlled sites and/or critical habitat has been identified, implement a Conservation Significant Fauna Monitoring Program.	• Conservation significant fauna and critical habitat identified • Monitoring Program developed and implemented • Where monitoring identifies the absence of conservation significant fauna and/or critical habitat, an independent review (see Section 5.2.9) of the monitoring results is undertaken. • See management targets in Table 2	• Monitoring Reports • Annual Compliance Reporting	Construction/ Operation/ Decommissioning/ Closure	Group Manager, Environment
3.3	When monitoring indicates a potential impact on conservation significant fauna, implement contingency actions defined in Table 11 and any reporting requirements defined in Section 9.3. Update this Plan where required, to inform an adaptive management approach to fauna management across the business using the approach detailed in Section 7.	• Corrective actions implemented • Reporting requirements met • Plan updated where required • See management targets in Table 2	• Monitoring reports • Reporting records • Updated Plan	Construction/ Operation	**Corrective Actions:** Project Manager/ Group Manager Environment **Reporting and Plan Update**: Group Manager Environment

[1] Critical habitat are areas with a high biodiversity value (IUCN, 2017). For the purposes of this plan are, critical habitat for conservation significant fauna species has been determined as being denning habitat areas for Northern Quolls, roosting areas for Pilbara Leaf-nosed and Ghost Bats, burrowing areas for Greater Bilbys, shelter areas for Pilbara Olive Pythons, nesting areas for Conservation significant bird species.

MANAGEMENT-BASED PROVISIONS - MANAGEMENT TARGETS

Excerpt from Section 1.3 of The Plan

Table 2: Conditioned environmental management objectives/ requirements and measures/targets at Christmas Creek under MS 1033

Approval	Conditioned Environmental Objectives/Requirements	Measure/ Target
MS 1033	**Condition 8-1:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat, including but not limited to the Pilbara Olive Python, Northern Quoll, Greater Bilby, Night Parrot and migratory birds. **Objective 1**: Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See Table 7 for Management Actions	100% of conservation significant fauna risk areas are identified and available in the spatial system.
	Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See table 7 for Management Actions	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved[2] for disturbance.
	Objective 3: Where species presence and/or critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats	No statistically significant[3] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]

[2] Approved refers to an approval issued under the *Environmental Protection Act 1986*, *Environment Protection and Biodiversity Conservation Act 1999*, the *Mining Act 1978* or the *Bush Fires Act 1954*.

[3] When conservation significant species have been recorded in low densities during previous surveys, they may not have adequate population numbers to allow statistical comparison over time. Analytical test and power levels will be set at appropriate levels to detect change in spatial distribution and relative abundance of low density species. Where records are still inadequate, only ongoing presence will be measured to demonstrate compliance with Objective 3.

MONITORING

Excerpt from 4.2.8 of The Plan.

Table 3: Summary of Conservation Significant Fauna Monitoring for Christmas Creek under MS 1033

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Fortescue Sites	Method	Monitoring Parameters	Monitoring Effort [4]	Timing
Night Parrot (*Pezoporous occidentalis*)	CR	CR	Christmas Creek [5] (EPBC 2013/7055, MS1033) Note: *Monitoring sites will be identified in consultation with night parrot experts. See Section 5.2.1 for more detail.*	**Non-invasive:** Acoustic recording units	Presence Habitat characteristics Meteorological data Environmental threats	Minimum Effort (or suitable equivalent) [6] During post-wet periods, 1 automatic recorder per sampling site within high priority areas for 4-6 nights. Sites are about 5 km apart Dry periods: 1 automatic recorder per sampling site within high priority areas for 4-6 nights. Sites are approximately 1km apart. Methods will be confirmed following outcomes of Night Parrot Research Program, and advice from relevant Night Parrot experts	Post wet season
Northern Quoll (*Dasyurus hallucatus*)	EN	EN	Christmas Creek (EPBC 2010/5706) (MS 1033) (EPBC 2013/7055, MS1033) See Figure 4	**Non-invasive:** Active searches and searches for scats and other signs, motion cameras **Invasive:** Cage traps and Elliott traps. Replicated control and impact sites.	Individual data/ biometric data • Sex • Body measurements • Health • Breeding status/ Reproductive condition • Behaviour Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert usage	Minimum Effort (or suitable equivalent) Elliott and Cage Traps: in alignment with "Pilbara northern Quoll Project, Surveyed and Monitoring *Dasyurus hallacatus* in the Pilbara, Western Australia" - (PaWS 2014). Alternative Effort (or suitable equivalent) Active searches and searches for scats and other signs: ten hours per sampling site. Motion cameras: 5 cameras per sampling site. 4 nights Where possible, monitoring will align with DPaW regional monitoring programs.	May to August
Greater Bilby (*Macrotis lagotis*)	VU	VU	Christmas Creek (EPBC 2013/7055, MS1033) See Figure 14	**Non-invasive:** Diurnal monitoring and diurnal searches for tracks and other signs, motion cameras on burrows, spotlighting, hair funnels	Abundance Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert Usage	Abundance (where known population) sites: • Diurnal monitoring and diurnal searches for tracks and other signs (2 ha sites) • Scat collection and genetic analysis to determine population size (2 ha sites) • Food plots (3 per site) • Remote cameras Occupancy sites: • Diurnal monitoring and diurnal searches for tracks and other signs (2 ha sites) • Two phase sampling (subset of sites) Where possible, monitoring should align with PaWS regional monitoring program.	No specified time.
Ghost Bat (Macroderma Gigas)	VU	VU	Christmas Creek See Figure 6	SM2Bat recorders	Presence Habitat characteristics Meteorological data	As a minimum, SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site.	November to May

[4] Monitoring frequency subject to review. See section 5.2.9

[5] This species has not been recorded at this site but a condition of a Ministerial Statement or Controlled Action specifies monitoring for this species.

[6] Minimum effort and monitoring methods are in accordance with the recommendations outlined in the *Night parrot surveys at Fortescue Marsh: Habitat analyses, survey review and recommendations, Western Australia* (Fortescue 2018).

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Fortescue Sites	Method	Monitoring Parameters	Monitoring Effort [4]	Timing
					Environmental threats	7 nights, until such time that a new method suitable for Ghost Bat monitoring is developed (i.e. scat analysis) Where possible, monitoring will align with PaWS regional monitoring programs (where available).	
Pilbara Olive Python (*Liasis olivaceus barroni*)	VU	VU	Christmas Creek (EPBC 2013/7055, MS1033) See Figure 16	Searches for signs, spotlighting	Individual data/biometric data • Weight • Length • General body condition Area of occupancy Habitat characteristics Meteorological data Environmental threats	Searches for signs: 2 hour search time for each hectare sampling site. 7 nights. Spotlighting: monitor two 200m transects per 5 hectare site, replicate across habitat types in areas > 5 hectares. Repeat same transects for a minimum of two separate nights. 7 nights. Where possible, monitoring will align with PaWS regional monitoring programs.	December to February
Wood Sandpiper (*Tringa glareola*)	M	IA	Christmas Creek (EPBC 2013/7055, MS1033) See Figure 18	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February
Common Greenshank (*Tringa nebularia*)	M	IA	Christmas Creek (EPBC 2013/7055, MS1033) See Figure 18	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February

MONITORING: CONTINGENCY ACTIONS

Excerpt from Section 4.3 of the Plan.

Table 4: Trigger criteria and contingency measures for Christmas Creek under MS 1033

Trigger	Contingency measures
• Statistically significant decline in the relative abundance of conservation significant species across impact sites compared to reference sites. • No continued presence of conservation significant species recorded within the impact areas.	• Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Re-examine applied monitoring parameters to validate they are operating within management levels. • Identify the reason for the change and where it was caused by construction, operation or decommissioning activities, review management measures with an adaptive management response. Submit revised Plan to the EPA Services of the DWER for review and approval. • REPORTING - Where the exceedance is attributable to construction, operation and decommissioning activities, report the exceedance within 21 days of the exceedance being identified.

REPORTING

Excerpt from Section 6 of the Plan.

Annual Monitoring Report

An Annual Monitoring Report will be developed with the results of the conservation significant fauna monitoring programs across all Fortescue controlled sites. The report will outline the conservation significant fauna monitoring undertaken during the period, the data captured and the analysis completed during the reporting period. Further, it will report compliance against management targets and conditioned environmental objectives.

Annual Compliance Reporting

Fortescue is required to report against its compliance with this Plan in the Compliance Assessment Report prepared in accordance with the OEPA's Post Assessment Guideline for Preparing a Compliance Assessment Report, Post assessment Guideline No. 3.

Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with the following Ministerial Statements with conservation significant fauna related conditions:

- Condition 3-6 of MS1033.

The reporting requirements against management targets and conditioned environmental objectives are provided in Table 1. In the event that trigger criteria were exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions that have been implemented to manage the impact and any adaptive management measures applied as a result of the exceedance.

Reporting of Potential Non-Compliances

Fortescue is required to report against exceedances of management targets for management based environmental conditions within conditioned timeframes.

In the event that monitoring, tests, surveys or investigations indicate an exceedance of a management target in Table 1 has occurred within the reporting period, Fortescue will:

- Where the exceedance is attributable to construction, operation or decommissioning activities, report the exceedance in writing to the EPA Services of the DWER within 21 days of the exceedance being identified in accordance with Condition 6-4 (1) of MS1033.

- Investigate to determine the cause of the management targets being exceeded in accordance with Condition 6-4(2) of MS1033.
- Provide a report to the EPA Services of the DWER within 90 days of the exceedance being reported as required by Condition 6-4(1) in accordance with the requirements of condition 6-4(3) of MS1033.

In the event that monitoring of compliance, tests, surveys or investigations indicate that one or more management actions have not been implemented within the reporting period, Fortescue will:

- Report the failure to implement management action(s) in writing to the EPA Services of the DWER within 7 days of identification in accordance with Condition 6-5 (1) of MS1033,
- Investigate to determine the cause of the management action(s) not being implemented in accordance with Condition 5-5(2) of MS1033,
- Investigate to provide information for the EPA Services of the DWER to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions in accordance with Condition 6-5(3) of MS1033, and
- Provide a report to the EPA Services of the DWER within 21 days of the reporting required by condition 6-5(1) in accordance with the requirements of condition 6-5(4) of MS1033.

ADAPTIVE MANAGEMENT

Excerpt from Section 7 of The Plan.

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures, monitoring and evaluation against management targets, to more effectively meet the conditioned environmental objective. Adaptive management practices that will be assessed for the conservation significant fauna management and monitoring program as part of this approach will include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions,
- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program,
- Re-evaluation of the risk assessment and revision of risk based priorities as a result of monitoring outcomes,
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem,
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for conservation significant fauna management, and
- Assessment of changes which are outside the control of the project and the management measures identified (i.e. a new project within the area or region; regional change affecting conservation significant fauna management).

REVIEW OF PLAN

Excerpt from Section 8 of The Plan.

Review of this Plan will be undertaken every five years or as required by a condition. Revisions of this Plan will be submitted to the State and Commonwealth Governments for approval, in accordance with relevant approval conditions.

STAKEHOLDER CONSULATION

Excerpt from Section 9 of The Plan

Fortescue has undertaken an extensive stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design of the mine sites and port and rail infrastructure through the environmental approvals process.

The then Department of Environment Regulation (DER), the then Office of the Environmental Protection Authority (OEPA) and the then Department of the Environment (DoE) were consulted and, where required, approved the content of the original plans for which this Plan will replace.

The current revision of this Plan has been submitted to the EPA Services of the DWER and DoEE for their review, comment and approval, and PaWS for their review and comment, in accordance with the applicable Ministerial Statements and Controlled Actions.

Table 5 will be updated following receipt of stakeholder comment as a result of the review and approvals process.

Table 5: Stakeholder Consultation, Comments and Responses

Stakeholder	Correspondence	Comment	Changes
EPA Services of the DWER	• **Fortescue:** Plan issued for review (CC-EN-0313) • **DWER:** Comments provided on Plan (DWERA-000284) (Fortescue reference (CC-EN-0313.01)) • **Fortescue:** Extension request to respond to comments (CC-EN-0313.02) • **Fortescue:** Rev 3a provided for approval (CC-EN-0313.03) • **DWER:** Comments provided on Rev 3a (CC-EN-0313.04) • **Fortescue:** Rev 3b provided for approval (CC-EN-0313.05) • **DWER:** Approval granted (CC-EN-0313.06)	CC-EN-0313.01 CC-EN-0313.04	CC-EN-0313.03 CC-EN-0313.05
DoEE	• Fortescue: Plan issued for information (CC-EN-0312)	No comments received	
PaWS	• Fortescue: Plan issued for review: CC-EN-0315	No comments received	

Appendix 7: Schedule: Conservation Significant Fauna Management Plan (MS 1062)

Fortescue
The New Force in Iron Ore

Schedule

Schedule: Conservation Significant Fauna Management Plan (MS 1062)

MS 1062

April 2018

Schedule: Conservation Significant Fauna Management Plan (MS 1062)

Ministerial Statement: Ministerial Statement 1062 (MS 1062) Solomon Iron Ore Project – Sustaining Production

Purpose of the Schedule: The Conservation Significant Fauna Management Plan (The Plan) is required by State and Commonwealth Government Ministers as part of development approval for Fortescues Iron Ore related infrastructure in the Pilbara approved under Ministerial Statement 1062 – Solomon Iron Ore Project – Sustaining Production. This Plan meets the following conditions of MS 1062:

- Condition 12-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective: (1) minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll and Pilbara Leaf-nosed Bat.
- Condition 12-2 The plan/s required by condition 7-1 shall include provisions required by 7-2 to manage impacts on conservation significant fauna including from, but not limited to loss of habitat, changes to surface water flows, vehicle strike, noise and light.

Key environmental values: Key environmental values associated with conservation significant fauna and their critical habitats at Solomon under MS 1062 are outlined in the *Public Environmental Review: Solomon Iron Ore Project – Sustaining Production* (Fortescue reference SO-RP-EN-0104) and as listed here:

- Conservation significant fauna and their critical habitat
- Conservation significant vegetation
- Groundwater and groundwater dependent systems
- Surface water and surface water dependent systems.

Key impacts and risks: Key impacts and risks associated with conservation significant fauna and their critical habitats as outlined in Appendix 5 of the Plan include:

- Habitat clearing due to vegetation clearing
- Restriction or removal of access to breeding habitat, foraging habitat or water sources
- Alterations to hydrology
- Indirect impacts:
    - Altered fire regimes
    - Increase in feral animal populations
    - Introduction of weed populations
    - Vehicle interactions
    - Dust, light and noise

This schedule has been provided to meet the requirements of the EPA's "Instructions on how to *prepare Environmental Protection Act 1986* Part IV Environmental Management Plan". The provisions addressed within this schedule include:

- Management objectives
- Management actions
- Management targets
- Monitoring

- Reporting
- Adaptive Management and review of the EMP
- Stakeholder consultation.

MANAGEMENT-BASED PROVISIONS: OBJECTIVES AND MANAGEMENT ACTIONS

Excerpt from Section 3 of The Plan.

Table 1: Key management actions for Conservation Significant Fauna Management at Solomon under MS 1062

Objective 1	**Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
1.2	Conduct a risk assessment to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely.	• Risk assessment conducted to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely. • High risk areas identified • See management target in Table 2	• Risk assessment outcomes / report	Design/ Construction/ Operation	Manager Environmental Approvals/ Project Manager/ Group Manager Environment

Objective 2	**Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
2.2	Prior to conducting ground disturbance activities, ensure known locations of conservation significant fauna and their associated critical habitat and buffers are identified and management measures are implemented.	• LUC obtained • Management measures implemented • See management targets in Table 2	• Completed LUC • Annual Compliance Reporting	Construction/ Operation	Project Manager/ HSES Manager
2.3	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes to minimise interference and disruption of natural surface water flows that support conservation significant fauna habitat.[1]	• Location and design of drainage infrastructure aligns with risk assessment outcomes where possible • See Action 3.4 of this table. • See management targets in Table 2	• Risk assessment • Monitoring reports	Construction/ Operation	Project Manager/ HSES Manager
2.4	When conservation significant fauna species have been recorded in proposed impact areas within associated habitat, and the records have been verified through survey activities undertaken in the last five years, ground-truth the area and similar habitats within the area. Where individual animals are present implement mitigation measures, including the relocation of fauna, prior to disturbance.	• Impact areas where fauna has been recorded within associated habitat are assessed prior to ground disturbance • BMS/GIS updated • PaWS consulted and mitigation measures implemented • Number of fauna successfully relocated • See management targets in Table 2	• BMS record • GIS Table • Annual Compliance Reporting • Consultation records	Construction/ Operation	Project Manager/ Group Manager Environment

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites				
2.11	To minimise the potential for fauna injuries or deaths, implement appropriate traffic mitigation measures such as speed limit restrictions and the prohibition of off-road driving.	• Appropriate signage in areas identified as high-risk areas • Awareness programs delivered	• Incident reports in BMS • Staff induction materials • Site notices	Construction/ Operation	Project Manager/ Site HSES Manager

Objective 3	Where species presence and/or critical habitat [2] has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
3.2	Where populations of conservation significant fauna listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* have been recorded in Fortescue controlled sites and/or critical habitat has been identified, implement a Conservation Significant Fauna Monitoring Program.	• Conservation significant fauna and critical habitat identified • Monitoring Program developed and implemented • Where monitoring identifies the absence of conservation significant fauna and/or critical habitat, an independent review (see Section 5.2.9) of the monitoring results is undertaken. • See management targets in Table 2	• Monitoring Reports • Annual Compliance Reporting	Construction/ Operation/ Decommissioning/ Closure	Group Manager, Environment
3.3	When monitoring indicates a potential impact on conservation significant fauna, implement contingency actions defined in Table 11 and any reporting requirements defined in Section 9.3. Update this Plan where required, to inform an adaptive management approach to fauna management across the business using the approach detailed in Section 7.	• Corrective actions implemented • Reporting requirements met • Plan updated where required • See management targets in Table 2	• Monitoring reports • Reporting records • Updated Plan	Construction/ Operation	**Corrective Actions:** Project Manager/ Group Manager Environment **Reporting and Plan Update**: Group Manager Environment

[2] Critical habitat are areas with a high biodiversity value (IUCN, 2017). For the purposes of this plan are, critical habitat for conservation significant fauna species has been determined as being denning habitat areas for Northern Quolls, roosting areas for Pilbara Leaf-nosed and Ghost Bats, burrowing areas for Greater Bilbys, shelter areas for Pilbara Olive Pythons, nesting areas for Conservation significant bird species.

MANAGEMENT-BASED PROVISIONS - MANAGEMENT TARGETS

Excerpt from Section 1.3 of The Plan

Table 2: Conditioned environmental management objectives/ requirements and measures/targets at Solomon under MS 1062

Approval	Conditioned Environmental Objectives/Requirements	Measure/ Target
MS 1062	**Condition:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat, including, but not limited to the Pilbara Olive Python, Northern Quoll, and Pilbara Leaf-nosed Bat. **Objective 1:** Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See Table 6 for Management Actions	100% of conservation significant fauna risk areas are identified and available in the spatial system.
	Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See Table 6 for Management Actions	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved[Error! Bookmark not defined.] for disturbance.
	Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats. See Table 6 for Management Actions.	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]

MONITORING

Excerpt from 4.2.8 of The Plan.

Table 3: Summary of Conservation Significant Fauna Monitoring for Solomon under MS 1062

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Figure	Method	Monitoring Parameters	Monitoring Effort [3]	Timing
Northern Quoll (*Dasyurus hallucatus*)	EN	EN	See Figure 5	**Non-invasive:** Active searches and searches for scats and other signs, motion cameras **Invasive:** Cage traps and Elliott traps. Replicated control and impact sites.	Individual data/ biometric data • Sex • Body measurements • Health • Breeding status/ Reproductive condition • Behaviour Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert usage	Minimum Effort (or suitable equivalent) Elliott and Cage Traps: in alignment with "Pilbara northern Quoll Project, Surveyed and Monitoring *Dasyurus hallacatus* in the Pilbara, Western Australia" - (PaWS 2014). Alternative Effort (or suitable equivalent) Active searches and searches for scats and other signs: ten hours per sampling site. Motion cameras: 5 cameras per sampling site. 4 nights Where possible, monitoring will align with DPaW regional monitoring programs.	May to August
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)	VU	VU	Figure 9	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights[4]. Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Ghost Bat (Macroderma Gigas)	VU	VU	See Figure 9	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	As a minimum, SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights, until such time that a new method suitable for Ghost Bat monitoring is developed (i.e. scat analysis) Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Pilbara Olive Python (*Liasis olivaceus barroni*)	VU	VU	See Figure 19	Searches for signs, spotlighting	Individual data/biometric data • Weight • Length • General body condition Area of occupancy Habitat characteristics Meteorological data Environmental threats	Searches for signs: 2 hour search time for each hectare sampling site. 7 nights. Spotlighting: monitor two 200m transects per 5 hectare site, replicate across habitat types in areas > 5 hectares. Repeat same transects for a minimum of two separate nights. 7 nights. Where possible, monitoring will align with PaWS regional monitoring programs.	December to February
Fork-tailed Swift (*Apus pacificus*)	M	Sc3	See Figure 25	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February

[3] Monitoring frequency subject to review. See section 5.2.9

[4] Bat monitoring methods were amended in 2017 following discussion with DBCA. This included decreasing the number of recording units at each site (from 4 to 1), but increasing the number of monitoring sites to improve spatial coverage of the monitoring. Net monitoring effort remains unchanged.

MONITORING: CONTINGENCY ACTIONS

Excerpt from Section 4.3 of the Plan.

Table 4: Trigger criteria and contingency measures for Solomon under MS 1062

Trigger	Contingency measures
• Statistically significant decline in the relative abundance of conservation significant species across impact sites compared to reference sites. • No continued presence of conservation significant species recorded within the impact areas.	• Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Re-examine applied monitoring parameters to validate they are operating within management levels. • Identify the reason for the change and where it was caused by construction, operation or decommissioning activities, review management measures with an adaptive management response. • REPORTING - Where the exceedance is attributable to construction, operation and decommissioning activities, report the exceedance within 21 days of the exceedance being identified.

REPORTING

Excerpt from Section 6 of the Plan.

Annual Monitoring Report

An Annual Monitoring Report will be developed with the results of the conservation significant fauna monitoring programs across all Fortescue controlled sites. The report will outline the conservation significant fauna monitoring undertaken during the period, the data captured and the analysis completed during the reporting period. Further, it will report compliance against management targets and conditioned environmental objectives.

Annual Compliance Reporting

Fortescue is required to report against its compliance with this Plan in the Compliance Assessment Report prepared in accordance with the OEPA's Post Assessment Guideline for Preparing a Compliance Assessment Report, Post assessment Guideline No. 3.

Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with the following Ministerial Statements with conservation significant fauna related conditions:

- Condition 3-6 of MS1062

The reporting requirements against management targets and conditioned environmental objectives are provided in Table 1. In the event that trigger criteria were exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions that have been implemented to manage the impact and any adaptive management measures applied as a result of the exceedance.

Reporting of Potential Non-Compliances

Fortescue is required to report against exceedances of management targets for management based environmental conditions within conditioned timeframes.

In the event that monitoring, tests, surveys or investigations indicate an exceedance of a management target in Table 1 has occurred within the reporting period, Fortescue will:

- Where the exceedance is attributable to construction, operation or decommissioning activities, report the exceedance in writing to the EPA Services of the DWER within 21 days of the exceedance being identified in accordance with Condition 6-4 (1) of MS1033 and Condition 7-4(1) of MS1062.

- Investigate to determine the cause of the management targets being exceeded in accordance with Condition 6-4(2) of MS1033 and Condition 7-4(2) of MS1062.
- Provide a report to the EPA Services of the DWER within 90 days of the exceedance being reported as required by Condition 6-4(1) in accordance with the requirements of condition 6-4(3) of MS1033 and Condition 7-4(3) of MS1062.

In the event that monitoring of compliance, tests, surveys or investigations indicate that one or more management actions have not been implemented within the reporting period, Fortescue will:

- Report the failure to implement management action(s) in writing to the EPA Services of the DWER within 7 days of identification in accordance with Condition 6-5 (1) of MS1033 and Condition 7-5(1) of MS1062.
- Investigate to determine the cause of the management action(s) not being implemented in accordance with Condition 5-5(2) of MS1033 and Condition 7-5(2) of MS1062.
- Investigate to provide information for the EPA Services of the DWER to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions in accordance with Condition 6-5(3) of MS1033 and Condition 7-5(3) of MS1062.
- Provide a report to the EPA Services of the DWER within 21 days of the reporting required by condition 6-5(1) in accordance with the requirements of condition 6-5(4) of MS1033 and Condition 7-5(4) of MS1062.

ADAPTIVE MANAGEMENT

Excerpt from Section 7 of The Plan.

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures, monitoring and evaluation against management targets, to more effectively meet the conditioned environmental objective. Adaptive management practices that will be assessed for the conservation significant fauna management and monitoring program as part of this approach will include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions,
- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program,
- Re-evaluation of the risk assessment and revision of risk based priorities as a result of monitoring outcomes,
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem,
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for conservation significant fauna management, and
- Assessment of changes which are outside the control of the project and the management measures identified (i.e. a new project within the area or region; regional change affecting conservation significant fauna management).

REVIEW OF PLAN

Excerpt from Section 8 of The Plan.

Review of this Plan will be undertaken every five years or as required by a condition. Revisions of this Plan will be submitted to the State and Commonwealth Governments for approval, in accordance with relevant approval conditions.

STAKEHOLDER CONSULATION

Excerpt from Section 9 of The Plan

Fortescue has undertaken an extensive stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design of the mine sites and port and rail infrastructure through the environmental approvals process.

The then Department of Environment Regulation (DER), the then Office of the Environmental Protection Authority (OEPA) and the then Department of the Environment (DoE) were consulted and, where required, approved the content of the original plans for which this Plan will replace.

The current revision of this Plan has been submitted to the EPA Services of the DWER for their review, comment and approval, and PaWS for their review and comment, in accordance with the applicable Ministerial Statement.

Table 5 will be updated following receipt of stakeholder comment as a result of the review and approvals process.

Table 5: Stakeholder Consultation, Comments and Responses

Stakeholder	Correspondence	Comment	Changes
EPA Services of the DWER	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0313) • **DWER:** Comments provided on Plan (DWERA-000284) (Fortescue reference (CC-EN-0313.01)) • **Fortescue:** Rev 3a of Plan provided for approval (CC-EN-0313.03) • **DWER:** Comments provided on Rev 3a (CC-EN-0313.04) • **Fortescue:** Rev 3b of Plan provided for approval (CC-EN-0313.05) • **DWER:** Approval granted (CC-EN-0313.06) • **Fortescue:** Plan updated to reflect approval by EPA Services of the DWER, Rev 4 IFU MS 1062 – Solomon Iron Ore Project – Sustaining Production • **Fortescue:** Rev 4a of Plan issued for review (SO-EN-0283)	MS 1033 CC-EN-0313.01 CC-EN-0313.04 MS 1062	MS 1033 CC-EN-0313.03 CC-EN-0313.05

Stakeholder	Correspondence	Comment	Changes
DoEE	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0312) EPBC 2005/2205 – Cloudbreak Mine Expansion • **Fortescue:** Plan issued for review (CC-EN-0312) EPBC 2010/5567 – Solomon Iron Ore Project • **Fortescue:** Plan issued for review (SO-EN-0285)	EPBC 2013/7055 No comments received EPBC 2005/2205 No comments received EPBC 2010/5567	
PaWS	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • Fortescue: Plan issued for review: CC-EN-0315 MS 1062 – Solomon Iron Ore Project – Sustaining Production • Fortescue: Rev 4a of the Plan issued for review (SO-EN-0284)	MS 1033 No comments received MS 1062	

Appendix 8: Schedule: Conservation Significant Fauna Management Plan (Eliwana Mine and Rail)

Fortescue
The New Force in Iron Ore

Schedule

Schedule: Conservation Significant Fauna Management Plan

Eliwana Mine and Rail

June 2018

Schedule: Conservation Significant Fauna Management Plan (Eliwana Mine and Rail)

Project:

Purpose of the Schedule: The Conservation Significant Fauna Management Plan (The Plan) is required by State Government Ministers as part of development assessment for Fortescues Iron Ore related infrastructure at Eliwana (Railway and Mine).

Key environmental values: Key environmental values associated with conservation significant fauna and their critical habitats at Eliwana are outlined in the *Public Environmental Review: Eliwana Iron Ore Mine* (Fortescue reference EW-RP-EN-0003) and *Eliwana Railway Proposal* (EW-RP-EN-0004) and as listed here:

- Conservation significant fauna and their critical habitat
- Conservation significant vegetation
- Groundwater and groundwater dependent systems
- Surface water and surface water dependent systems.

Key impacts and risks: Key impacts and risks associated with conservation significant fauna and their critical habitats as outlined in Appendix 5 of the Plan include:

- Habitat clearing due to vegetation clearing
- Restriction or removal of access to breeding habitat, foraging habitat or water sources
- Alterations to hydrology
- Indirect impacts:

- Altered fire regimes
- Increase in feral animal populations
- Introduction of weed populations
- Vehicle interactions
- Dust, light and noise.

This schedule has been provided to meet the requirements of the EPA's "Instructions on how to *prepare Environmental Protection Act 1986* Part IV Environmental Management Plan". The provisions addressed within this schedule include:

- Management objectives
- Management actions
- Management targets
- Monitoring
- Reporting
- Adaptive Management and review of the EMP
- Stakeholder consultation.

MANAGEMENT-BASED PROVISIONS: OBJECTIVES AND MANAGEMENT ACTIONS

Excerpt from Section 3 of The Plan.

Table 1: Key management actions for Conservation Significant Fauna Management at Eliwana

Objective 1	**Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
1.2	Conduct a risk assessment to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely.	• Risk assessment conducted to identify high risk areas where conservation significant fauna species and critical habitat have been identified and potential impacts are likely. • High risk areas identified • See management target in Table 2	• Risk assessment outcomes / report	Design/ Construction/ Operation	Manager Environmental Approvals/ Project Manager/ Group Manager Environment

Objective 2	**Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites**				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
2.2	Prior to conducting ground disturbance activities, ensure known locations of conservation significant fauna and their associated critical habitat and buffers are identified and management measures are implemented.	• LUC obtained • Management measures implemented • See management targets in Table 2	• Completed LUC • Annual Compliance Reporting	Construction/ Operation	Project Manager/ HSES Manager
2.3	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes to minimise interference and disruption of natural surface water flows that support conservation significant fauna habitat.[1]	• Location and design of drainage infrastructure aligns with risk assessment outcomes where possible • See Action 3.4 of this table. • See management targets in Table 2	• Risk assessment • Monitoring reports	Construction/ Operation	Project Manager/ HSES Manager
2.4	When conservation significant fauna species have been recorded in proposed impact areas within associated habitat, and the records have been verified through survey activities undertaken in the last five years, ground-truth the area and similar habitats within the area. Where individual animals are present implement mitigation measures, including the relocation of fauna, prior to disturbance.	• Impact areas where fauna has been recorded within associated habitat are assessed prior to ground disturbance • BMS/GIS updated • PaWS consulted and mitigation measures implemented • Number of fauna successfully relocated • See management targets in Table 2	• BMS record • GIS Table • Annual Compliance Reporting • Consultation records	Construction/ Operation	Project Manager/ Group Manager Environment

Objective 2	Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue Controlled Sites				
2.11	To minimise the potential for fauna injuries or deaths, implement appropriate traffic mitigation measures such as speed limit restrictions and the prohibition of off-road driving.	• Appropriate signage in areas identified as high-risk areas • Awareness programs delivered	• Incident reports in BMS • Staff induction materials • Site notices	Construction/ Operation	Project Manager/ Site HSES Manager

Objective 3	Where species presence and/or critical habitat [2] has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats				
Reference	**Management Action**	**Performance Indicator**	**Reporting/ Evidence**	**Timing**	**Responsibility**
3.2	Where populations of conservation significant fauna listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* have been recorded in Fortescue controlled sites and/or critical habitat has been identified, implement a Conservation Significant Fauna Monitoring Program.	• Conservation significant fauna and critical habitat identified • Monitoring Program developed and implemented • Where monitoring identifies the absence of conservation significant fauna and/or critical habitat, an independent review (see Section 5.2.9) of the monitoring results is undertaken. • See management targets in Table 2	• Monitoring Reports • Annual Compliance Reporting	Construction/ Operation/ Decommissioning/ Closure	Group Manager, Environment
3.3	When monitoring indicates a potential impact on conservation significant fauna, implement contingency actions defined in Table 11 and any reporting requirements defined in Section 9.3. Update this Plan where required, to inform an adaptive management approach to fauna management across the business using the approach detailed in Section 7.	• Corrective actions implemented • Reporting requirements met • Plan updated where required • See management targets in Table 2	• Monitoring reports • Reporting records • Updated Plan	Construction/ Operation	**Corrective Actions:** Project Manager/ Group Manager Environment **Reporting and Plan Update**: Group Manager Environment

[2] Critical habitat are areas with a high biodiversity value (IUCN, 2017). For the purposes of this plan are, critical habitat for conservation significant fauna species has been determined as being denning habitat areas for Northern Quolls, roosting areas for Pilbara Leaf-nosed and Ghost Bats, burrowing areas for Greater Bilbys, shelter areas for Pilbara Olive Pythons, nesting areas for Conservation significant bird species.

MANAGEMENT-BASED PROVISIONS - MANAGEMENT TARGETS

Excerpt from Section 1.3 of The Plan

Table 2: Conditioned environmental management objectives/ requirements and measures/targets for Eliwan

Approval	Conditioned Environmental Objectives/Requirements	Measure/ Target
Eliwana Mine and Rail	**Condition:** Minimise direct and indirect impacts on conservation significant fauna species and their habitat **Objective 1:** Identify the potential direct and indirect impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See Table 6 for Management Actions	100% of conservation significant fauna risk areas are identified and available in the spatial system.
	Objective 2: Establish management strategies to minimise the potential impacts on conservation significant fauna and their critical habitats within Fortescue controlled sites. See Table 6 for Management Actions	No direct mortality to recorded conservation significant fauna within their recorded habitats within the project area as a result of ground disturbance activities. No direct loss to recorded conservation significant fauna habitat within the project area that is not approved [3]for disturbance.
	Objective 3: Where species presence and critical habitat has been confirmed within Fortescue controlled sites, develop monitoring programs to detect any impacts on conservation significant fauna and their critical habitats. See Table 6 for Management Actions.	No statistically significant[4] decline in the relative abundance of conservation significant species across impact sites compared to reference sites. OR Conservation significant species recorded within the area of impact for the project continue to have an ongoing presence.[4]

[3] Approved refers to an approval issued under the *Environmental Protection Act 1986*, *Environment Protection and Biodiversity Conservation Act 1999*, the *Mining Act 1978* or the *Bush Fires Act 1954*.

[4] When conservation significant species have been recorded in low densities during previous surveys, they may not have adequate population numbers to allow statistical comparison over time. Analytical test and power levels will be set at appropriate levels to detect change in spatial distribution and relative abundance of low density species. Where records are still inadequate, only ongoing presence will be measured to demonstrate compliance with Objective 3.

MONITORING

Excerpt from 4.2.8 of The Plan.

Table 3: Summary of Conservation Significant Fauna Monitoring for Eliwana

Fauna Species	EPBC Act 1999	Wildlife Conservation Act 1950	Site	Method	Monitoring Parameters	Monitoring Effort [5]	Timing
Northern Quoll (*Dasyurus hallucatus*)	EN	EN	Eliwana Mine	**Non-invasive:** Active searches and searches for scats and other signs, motion cameras **Invasive:** Cage traps and Elliott traps. Replicated control and impact sites.	Individual data/ biometric data • Sex • Body measurements • Health • Breeding status/ Reproductive condition • Behaviour Area of occupancy Habitat characteristics Meteorological data Environmental threats Culvert usage	Minimum Effort (or suitable equivalent) Elliott and Cage Traps: in alignment with "Pilbara northern Quoll Project, Surveyed and Monitoring *Dasyurus hallacatus* in the Pilbara, Western Australia" - (PaWS 2014). Alternative Effort (or suitable equivalent) Active searches and searches for scats and other signs: ten hours per sampling site. Motion cameras: 5 cameras per sampling site. 4 nights Where possible, monitoring will align with DPaW regional monitoring programs.	May to August
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)	VU	VU	Eliwana Mine and Rail	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights[6]. Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Ghost Bat (Macroderma Gigas)	VU	VU	Eliwana Mine and Rail	SM2Bat recorders	Presence Habitat characteristics Meteorological data Environmental threats	As a minimum, SM2Bat recorders: 1 recorder per sampling site. 12 impacts, 12 control sites. 28 detector nights per sampling site. 7 nights, until such time that a new method suitable for Ghost Bat monitoring is developed (i.e. scat analysis) Where possible, monitoring will align with PaWS regional monitoring programs (where available).	November to May
Pilbara Olive Python (*Liasis olivaceus barroni*)	VU	VU	Eliwana Mine	Searches for signs, spotlighting	Individual data/biometric data • Weight • Length • General body condition Area of occupancy Habitat characteristics Meteorological data Environmental threats	Searches for signs: 2 hour search time for each hectare sampling site. 7 nights. Spotlighting: monitor two 200m transects per 5 hectare site, replicate across habitat types in areas > 5 hectares. Repeat same transects for a minimum of two separate nights. 7 nights. Where possible, monitoring will align with PaWS regional monitoring programs.	December to February
Fork-tailed Swift (*Apus pacificus*)	M	Sc3	Eliwana Mine	Area searches, targeted resource and habitat searches, bird calls	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches: 20 minute search time for every 2 hectare sampling site	December to February

[5] Monitoring frequency subject to review. See section 5.2.9

[6] Bat monitoring methods were amended in 2017 following discussion with DBCA. This included decreasing the number of recording units at each site (from 4 to 1), but increasing the number of monitoring sites to improve spatial coverage of the monitoring. Net monitoring effort remains unchanged.

MONITORING: CONTINGENCY ACTIONS

Excerpt from Section 4.3 of the Plan.

Table 4: Trigger criteria and contingency measures for Eliwana Mine and Rail

Trigger	Contingency measures
• Statistically significant decline in the relative abundance of conservation significant species across impact sites compared to reference sites. • No continued presence of conservation significant species recorded within the impact areas.	• Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Re-examine applied monitoring parameters to validate they are operating within management levels. • Identify the reason for the change and where it was caused by construction, operation or decommissioning activities, review management measures with an adaptive management response. • REPORTING - Where the exceedance is attributable to construction, operation and decommissioning activities, report the exceedance within 21 days of the exceedance being identified.

REPORTING

Excerpt from Section 6 of the Plan.

Annual Monitoring Report

An Annual Monitoring Report will be developed with the results of the conservation significant fauna monitoring programs across all Fortescue controlled sites. The report will outline the conservation significant fauna monitoring undertaken during the period, the data captured and the analysis completed during the reporting period. Further, it will report compliance against management targets and conditioned environmental objectives.

Annual Compliance Reporting

Fortescue is required to report against its compliance with this Plan in the Compliance Assessment Report prepared in accordance with the OEPA's Post Assessment Guideline for Preparing a Compliance Assessment Report, Post assessment Guideline No. 3.

Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with Ministerial Statements with conservation significant fauna related conditions.

The reporting requirements against management targets and conditioned environmental objectives are provided in Table 2. In the event that trigger criteria were exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions that have been implemented to manage the impact and any adaptive management measures applied as a result of the exceedance.

Reporting of Potential Non-Compliances

Fortescue is required to report against exceedances of management targets for management based environmental conditions within conditioned timeframes.

In the event that monitoring, tests, surveys or investigations indicate an exceedance of a management target in Table 2 has occurred within the reporting period, Fortescue will:

- Where the exceedance is attributable to construction, operation or decommissioning activities, report the exceedance in writing to the EPA Services of the DWER within 21 days of the exceedance being identified.
- Investigate to determine the cause of the management targets being exceeded.

- Provide a report to the EPA Services of the DWER within 90 days of the exceedance being reported.

In the event that monitoring of compliance, tests, surveys or investigations indicate that one or more management actions have not been implemented within the reporting period, Fortescue will:

- Report the failure to implement management action(s) in writing to the EPA Services of the DWER within 7 days of identification.
- Investigate to determine the cause of the management action(s) not being implemented.
- Investigate to provide information for the EPA Services of the DWER to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions.
- Provide a report to the EPA Services of the DWER within 21 days of the reporting requirement outlined in the Ministerial Statement.

ADAPTIVE MANAGEMENT

Excerpt from Section 7 of The Plan.

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures, monitoring and evaluation against management targets, to more effectively meet the conditioned environmental objective. Adaptive management practices that will be assessed for the conservation significant fauna management and monitoring program as part of this approach will include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions,
- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program,
- Re-evaluation of the risk assessment and revision of risk based priorities as a result of monitoring outcomes,
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem,
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for conservation significant fauna management, and
- Assessment of changes which are outside the control of the project and the management measures identified (i.e. a new project within the area or region; regional change affecting conservation significant fauna management).

REVIEW OF PLAN

Excerpt from Section 8 of The Plan.

Review of this Plan will be undertaken every five years or as required by a condition. Revisions of this Plan will be submitted to the State and Commonwealth Governments for approval, in accordance with relevant approval conditions.

STAKEHOLDER CONSULATION

Excerpt from Section 9 of The Plan

Fortescue has undertaken an extensive stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design of the mine sites and port and rail infrastructure through the environmental approvals process.

The then Department of Environment Regulation (DER), the then Office of the Environmental Protection Authority (OEPA) and the then Department of the Environment (DoE) were consulted and, where required, approved the content of the original plans for which this Plan will replace.

The current revision of this Plan has been submitted to the EPA Services of the DWER for their review, comment and approval, and PaWS for their review and comment, in accordance with the applicable Ministerial Statement.

Table 5 will be updated following receipt of stakeholder comment as a result of the review and approvals process.

Table 5: Stakeholder Consultation, Comments and Responses

Stakeholder	Correspondence	Comment	Changes
EPA Services of the DWER	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0313) • **DWER:** Comments provided on Plan (DWERA-000284) (Fortescue reference (CC-EN-0313.01)) • **Fortescue:** Rev 3a of Plan provided for approval (CC-EN-0313.03) • **DWER:** Comments provided on Rev 3a (CC-EN-0313.04) • **Fortescue:** Rev 3b of Plan provided for approval (CC-EN-0313.05) • **DWER:** Approval granted (CC-EN-0313.06) • **Fortescue:** Plan updated to reflect approval by EPA Services of the DWER, Rev 4 IFU MS 1062 – Solomon Iron Ore Project – Sustaining Production • **Fortescue:** Rev 4a of Plan issued for review (SO-EN-0283)	MS 1033 CC-EN-0313.01 CC-EN-0313.04 MS 1062	MS 1033 CC-EN-0313.03 CC-EN-0313.05

Stakeholder	Correspondence	Comment	Changes
DoEE	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • **Fortescue:** Plan issued for review (CC-EN-0312) EPBC 2005/2205 – Cloudbreak Mine Expansion • **Fortescue:** Plan issued for review (CC-EN-0312) EPBC 2010/5567 – Solomon Iron Ore Project • **Fortescue:** Plan issued for review (SO-EN-0285)	EPBC 2013/7055 No comments received EPBC 2005/2205 No comments received EPBC 2010/5567	
PaWS	MS 1033- Pilbara Iron Ore and Infrastructure Project (Christmas Creek Mine, East-West railway and Mindy Mindy Mine) • Fortescue: Plan issued for review: CC-EN-0315 MS 1062 – Solomon Iron Ore Project – Sustaining Production • Fortescue: Rev 4a of the Plan issued for review (SO-EN-0284)	MS 1033 No comments received MS 1062	

FIGURES

Figures from the *Public Environmental Review: Eliwana Iron Ore Mine* (Fortescue reference EW-RP-EN-0003) and *Eliwana Railway Proposal* (EW-RP-EN-0004) have been included to demonstrate fauna survey extent for Eliwana Mine and Rail. Monitoring sites and resulting maps will be developed once the project is approved and the infrastructure plans are finalised.

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7,520,000

7,510,000

Legend

Fauna Habitat

- Drainage Line/River/Creek (Major)
- Drainage Line/River/Creek (Minor)
- Gorges/Gullys
- Hills/Ranges/Plateaux
- Lower slopes/hillslopes
- Plain (shrubland)
- Plain (stony/gibber)

Eliwana

Map A

460,000 470,000 480,000 490,000

Legend

- Fortescue Projects
- Major Drainage
- Mine Development Envelope
- Indicative Mine Footprints

Significant Fauna

- Ghost Bat
- Northern Quoll
- Pilbara Leaf-nosed Bat
- Pilbara Olive Python
- Rainbow Bee-eater
- Western Pebble-mound Mouse

Data Sources:
Pastoral Stations based on source from Landgate.
Towns, Roads, Drainage, Landgate.
SRTM, GA.
All other data, FMG, 2017.

N

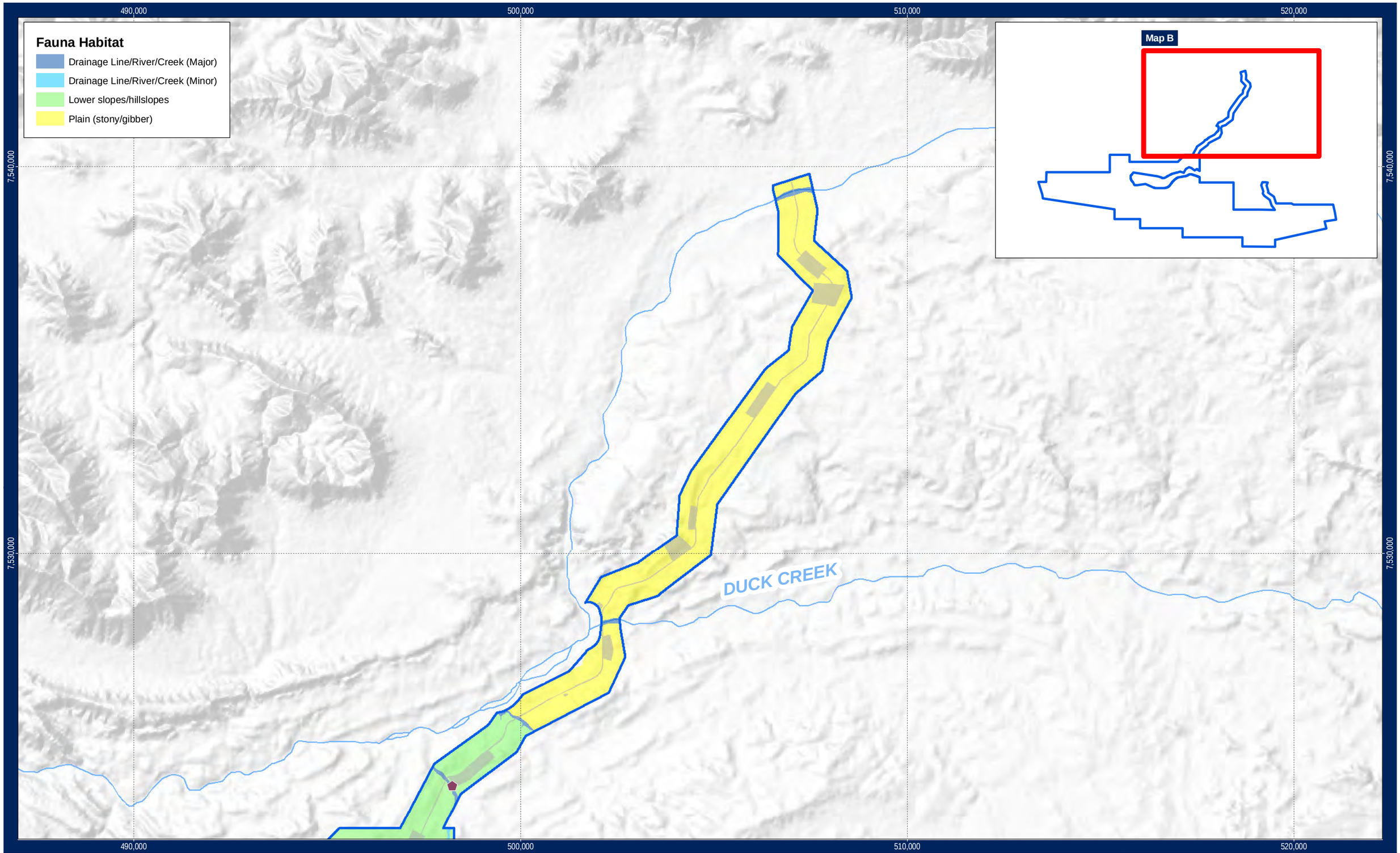
0 1 2 3 4 5
Kilometres

Requested By: M.Dowling
Drawn By: S. Costello
Revised By: cwhyte
Approved By: P. Mastalir
Scale: 1:90,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 750EW_MP_EN_0010.038a_r1

Date: 20/06/2018
Size: A3L
Revision: 0
Confidentiality: 1

Figure X
Conservation Significant Fauna and Fauna Habitat - Map A

Fortescue Metals Group Ltd
The New Force in Iron Ore



Legend

- Major Drainage
- Mine Development Envelope
- Indicative Mine Footprints

Significant Fauna

- Rainbow Bee-eater

Data Sources:
Pastoral Stations based on source from Landgate.
Towns, Roads, Drainage, Landgate.
SRTM, GA.
All other data, FMG, 2017.

N

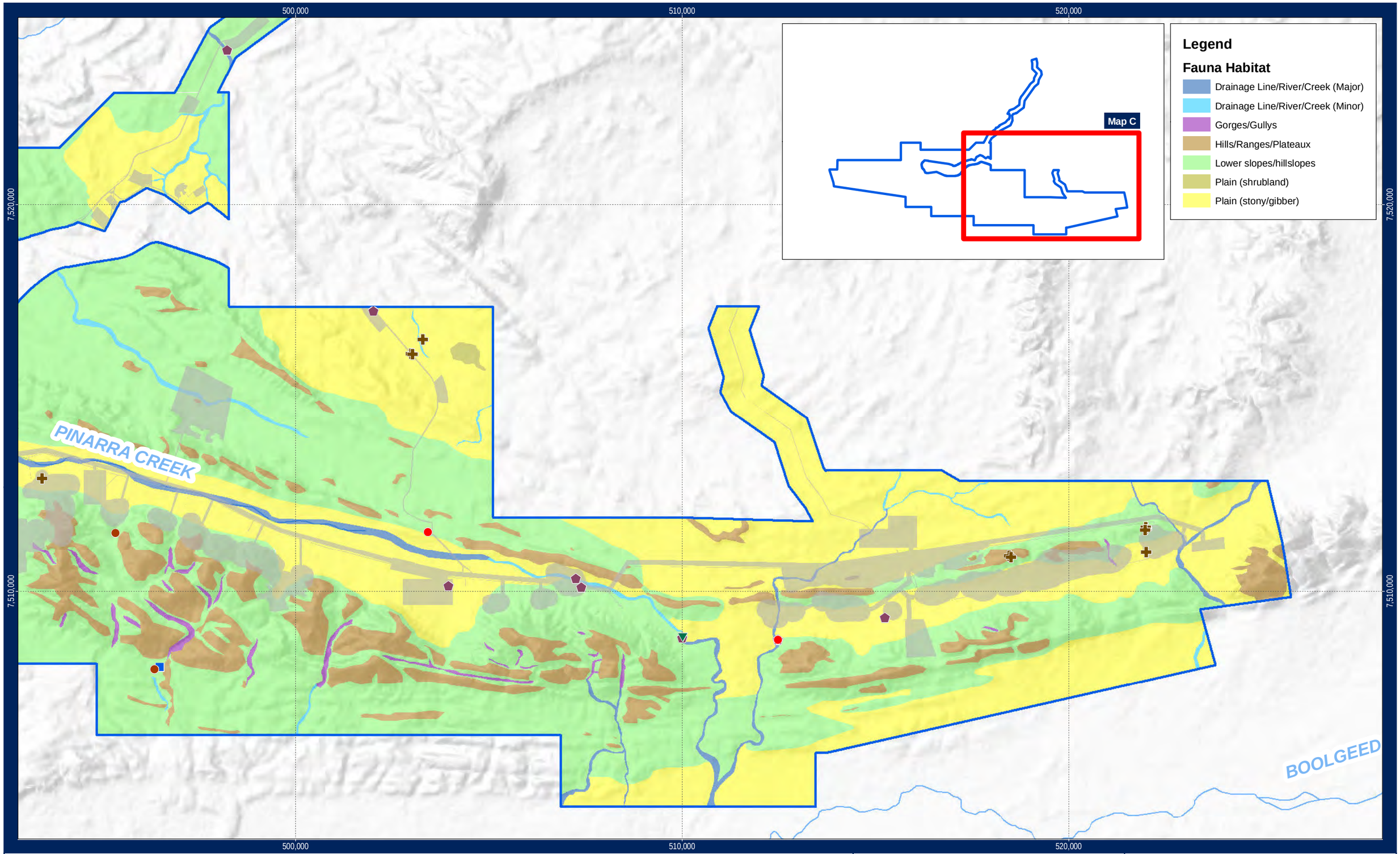
0 1 2 3 4 5
Kilometres

Requested By: M.Dowling
Drawn By: S. Costello
Revised By: cwhyte
Approved By: P. Mastalir
Scale: 1:90,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 750EW_MP_EN_0010.038b_r1

Date: 20/06/2018
Size: A3L
Revision: 0
Confidentiality: 1

Figure X
Conservation Significant Fauna and Fauna Habitat - Map B

Fortescue Metals Group Ltd
The New Force in Iron Ore



Legend

- Major Drainage
- Mine Development Envelope
- Indicative Mine Footprints

Significant Fauna

- Ghost Bat
- Northern Quoll
- Pilbara Leaf-nosed Bat
- Pilbara Olive Python
- Rainbow Bee-eater
- Western Pebble-mound Mouse

Data Sources:
Pastoral Stations based on source from Landgate.
Towns, Roads, Drainage, Landgate.
SRTM, GA.
All other data, FMG, 2017.

N

0 1 2 3 4 5
Kilometres

Requested By: M.Dowling
Drawn By: S. Costello
Revised By: cwhyte
Approved By: P. Mastalir
Scale: 1:90,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 750EW_MP_EN_0010.038c_r1

Date: 20/06/2018
Size: A3L
Revision: 0
Confidentiality: 1

Figure X
Conservation Significant Fauna and Fauna Habitat - Map C

Fortescue Metals Group Ltd
The New Force in Iron Ore

550,000 560,000 570,000 580,000 590,000

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7,520,000

Recorded within RDE

- Gane's Blindsnake
- Ghost Bat
- Pilbara Leaf-nosed Bat
- Rainbow Bee-eater
- Short-tailed Mouse
- Western Pebble-mound Mouse

Fauna Habitat

- Cleared or Developed
- Drainage Line/River/Creek (Minor)
- Gorges/Gullys
- Hills/Ranges/Plateaux
- Lower slopes/hillslopes
- Plain (Cracking Clay)
- Plain (alluvial plain)
- Plain (shrubland)
- Plain (stony/gibber)

LEGEND

- Rail Development Envelope
- Eliwana Rail Indicative Footprint

Data Sources:
All data, FMG, 2017.

N

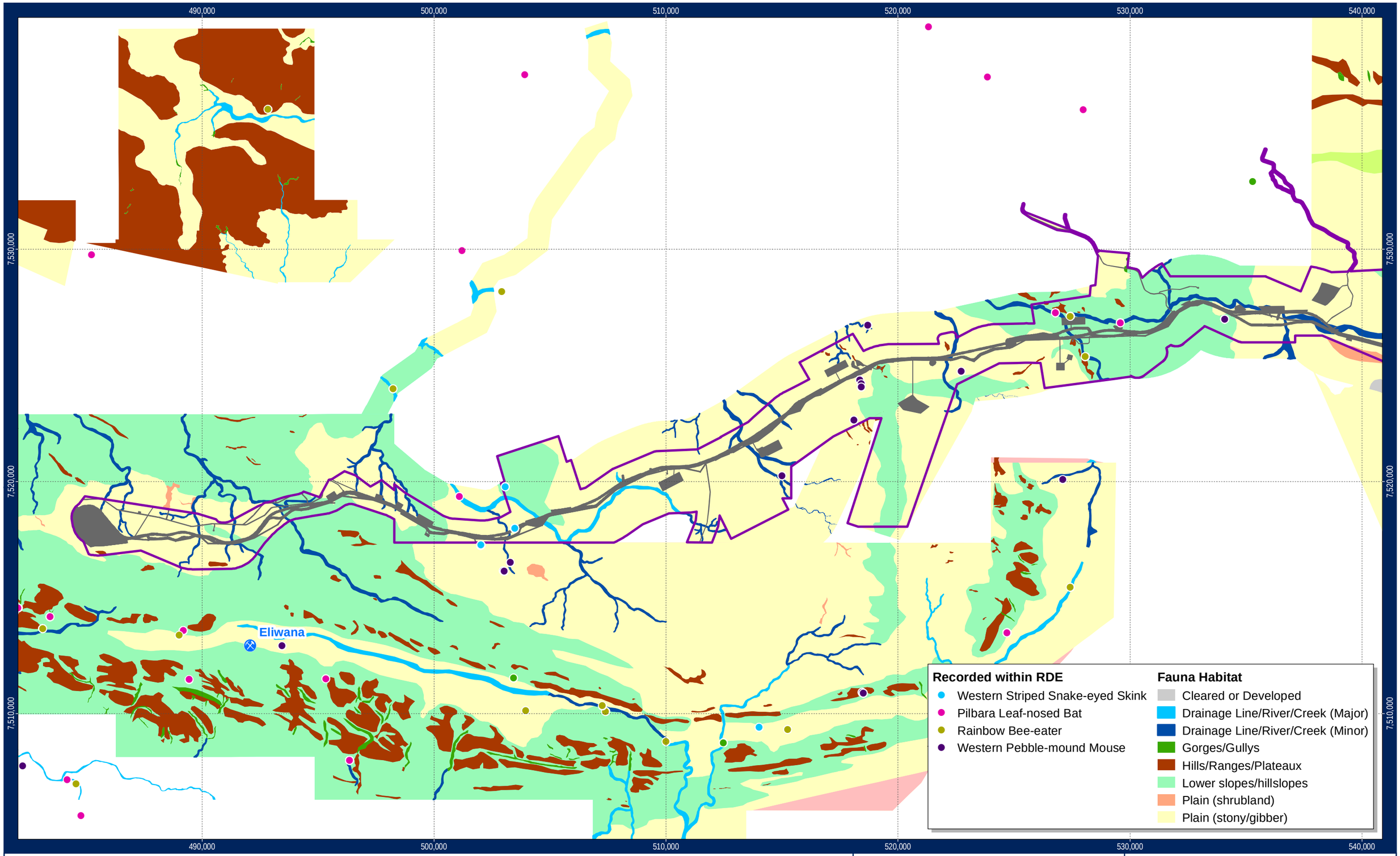
0 2 4 6 8 10
Kilometres

Requested By: A. Sullivan
Drawn By: S. Costello
Revised By: scostello
Approved By: P. Mastalir
Scale: 1:150,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 750EW_MP_EN_0007.023_r0

Date: 02-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Figure 16
Conservation Significant Fauna
Map 1 of 2

Fortescue Metals Group Ltd
The New Force in Iron Ore



LEGEND

- Fortescue Projects
- Rail Development Envelope
- Eliwana Rail Indicative Footprint

Data Sources:
All data, FMG, 2017.

N

0 2 4 6 8 10
Kilometres

Requested By: A. Sullivan
Drawn By: S. Costello
Revised By: scostello
Approved By: P. Mastalir
Scale: 1:150,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 750EW_MP_EN_0007.023_r0

Date: 02-Feb-18
Size: A3L
Revision: 0
Confidentiality: 1

Figure 16
Conservation Significant Fauna
Map 2 of 2

Fortescue Metals Group Ltd
The New Force in Iron Ore